FIELD NOTES

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The Digital, Education, and Cosmopolitanism

THE DIGITAL MARKS AN IMMENSE transformation—if by immense we mean having no measure. The impact of this transformation is still difficult to comprehend. Apart from the fact that we lack sufficient distance to take its measure, this profoundly disruptive moment explodes all frames of thought. These frames must be rebuilt, but such an effort demands a great deal of time when we are facing an event characterized by its very speed. The process began in April 1993 with the appearance of the first websites. Before that there was "computerization." Computerization is very different from digitalization. The famous report *The Computerization of Society* (1978) described it well.[1] But "1993" was something other than the computerization of society: it was an explosive process, a combinatory explosion that provoked a chain reaction we now call *disruptive*, destroying the frameworks of nearly every domain and questioning, to an unthinkable degree, public power.[2] The process of digitalization gives birth to a new republic [*chose publique*], a new public temporality, a new public space, in the sense that what is *put into circulation* [*publié*] becomes "public." The Latin *res publica* translates what in the Greek *politeia* is the "republic" [*chose publique*] inscribed on marble in Greek and Roman cities.

In this domain we are ourselves experiencing an extreme transformation in the conditions of publication—in terms of the speed of publication, its circulation, its expanse—which gives digitalization the same impact as the first appearance of writing and then subsequently the printing press. What I am saying here might seem to be taken for granted today—except it is not at all clear that we realize what this transformation actually means.

This process, initiated twenty-three years ago, is *disruptive*, as I said. And I take this word "disruptive" not only in the way that it is used in strategic marketing but also in the sense that the technical system explodes social

structures (and with them intergenerational relations)—and where the *psyché* itself, as a psychic apparatus, is *disrupted*, that is, shattered. We must take seriously what Maryanne Wolf, a neuropsychologist who specializes in dyslexia, says about the effects of the digital on the brain.[3] Few people want to face things head on. There is a tremendous amount of denial, mostly because things are so frightening.

For us here at Ars Industrialis and pharmakon.fr, as well as the Institute for Research and Innovation, the digital is an intellectual technology, a technology of the mind.[4] The mind always has a technical foundation: the mind is founded on the becoming-technical of the *psyché*—what Aristotle called the soul. Animals and plants have a soul: these are living—that is, animated— bodies. The soul becomes noetic, in other words intellectual and spiritual, because it makes itself artificial [*s'artificialise*]: it gives itself artifacts, words, objects, tools, social structures, and so on, which are not genetic but built on top of what Paul Ricoeur calls "the zones excluded from genetic regulation."[5] By drawing in particular on the work of André Leroi-Gourhan, Georges Canguilhem, Jack Goody, Ignace Meyerson, Jean-Pierre Vernant, Eric Havelock, and Walter Ong, I propose that the mind always has artificial, material foundations that integrate themselves into the brain. What constitutes the mind (which is itself not reducible to cognition, as defined by the so-called cognitive sciences) is the linking of brains by artificial vectors that these brains then interiorize. This is especially clear in the work of Maryanne Wolf.

These technical mediations, which are the *condition* for the foundation of a noetic soul (a "life of the mind," as Hannah Arendt or Paul Valery understood it), provided that they are interiorized by the brain and individuated by the psychic apparatus, that is to say, singularized, are today taken over by the industrial economy, which implements the digital almost exclusively in terms of its own business models, using actors engaged in a permanent economic war—such as the "Big Four" (Google, Apple, Facebook, Amazon), true warlords of our time.

I just made a visit to a small start-up; it is on its way to the front; it is engaged in war. As a consequence, it is extraordinarily *effective*. Ten years ago, you did not know what Facebook was; it didn't exist. Facebook as we know it is only eight years old—it is younger than my institute. But in terms of demographic reach, Facebook is today tied with China as the second most significant planetary actor with respect to social relations . . . just after Islam.

This technological process suffers from a certain number of failings and risks, and certainly from short-term thinking. The situation is so serious that it is essential and extremely urgent that so-called intellectuals must seize this *intellectual technology, and seize it as such—that is, as technology.*

At Ars Industrialis and pharmakon.fr, we believe that the digital is precisely a *pharmakon*, a poison *and* a remedy. Our era is starting to see more

and more clearly the emergence of *toxicity*. For three or four years now, the very optimistic, even proselytizing speeches given by all kinds of people involved in digital technology have taken a more reserved and *serious*—if not to say sometimes tragic—turn. It is as if we were beginning to rediscover the meaning, the burden, and the necessity of *severity*.

Before speaking of this toxicity, I would like to emphasize the *curative potential* that has allowed many people, including myself, to see—and continue seeing—the digital as the horizon of any possible future.

The so-called "consumer" industrial society of the twentieth century was founded on *consumer capitalism*, which establishes relations between economic agents specified as *functionally* distinct producers and consumers. These relations characterized what we call mass society, with its mass-culture industries, mass markets, and so on. Here at Ars Industrialis, we believe that these consumerist relations engender a society marked by a generalized proletarianization. We give the word "proletarianization" an expanded meaning. For us, proletarianization signifies the *reduction of knowledge* through the computational expansion of factory models. This begins with the workers, who lose their embodied knowledge [*savoir-faire*], and continues with the consumers, who lose their life wisdom [*savoir-vivre*], and so on until today, when even designers are losing their ability to conceptualize and theorize [*savoir-conceptualiser et theoriser*], and decision makers, their power to decide.

The process of proletarianization started with the Industrial Revolution. We understand the word "proletarianization" as Marx did in 1848, but also in the sense given by Socrates in the fifth century BCE—because we think that Socrates was the first to speak of proletarianization when he referred to the fact that the exteriorization of speech in writing results in the loss of memory: it is a loss of mnesic competence. That might make us laugh—until the day comes when we realize that with our smartphones, we can no longer remember even our own phone numbers. This remark of Socrates is repeated by all contemporary critics of the digital, citing Socrates's name perhaps, but in most cases without having really read Plato.

However, the digital is also a vehicle for a process of deproletarianization, that is to say, of a reconstruction of knowledge, where subjects recover their place as subjects—as "subjects" not only undergoing processes of subjection but also actually taking over the system. The figures who first promoted this possibility came from the "open software" movement that began in the 1980s, passing through MIT's Media Lab and Berkeley. The open software movement suggests that a utopia—a "digital utopia"—is going to materialize in various ways, including, for example, Wikipedia. Everyone knows that Wikipedia does indeed work on the basis of open collaboration, even if we believe that it does not work *well enough*.

The digital has a fundamental positivity in that it is the vehicle of a process of deproletarianization, a reconstruction of processes of psychic and collective individuation, going beyond the opposition between production and consumption and, with that, the industrial division of labor described by Adam Smith. The digital demands a new critique of political economy that remains industrial but is no longer based on proletarianization. I described this re-enchantment of the industrial world in a book published in 2008.[6]

How did the digital become toxic? What is the digital industry today?

The digital industry is an economy of *data*, and it functions by *tracking* and then *capturing* the activity of web users, employing extraordinarily complex tracking systems. Evgeny Morozov is interested in new cars that are now being equipped with hundreds of sensors intended to track vehicle behavior, with an eye to creating new insurance platforms, new health models, and so on. Michael Price has shown that even new televisions are equipped with hundreds of sensors intended to analyze the behavior of viewers. As Price says, even Orwell would not have imagined this. Since social networks first appeared, Geert Lovink has been highlighting the danger of this generalized trackability. Facebook in particular is a very perverse apparatus, founded on a structural mimicry that produces the "network effect": if others are there, I also need to be there.

The digital is a *pharmakon* that relies, like all medicines, on a treatment plan that cannot be entrusted to the pharmaceutical manufacturer. This is the case with drug traffickers, and nothing is more destructive. Therapy is an affair of politics, that is to say, of all the citizens. And teaching and research institutions must enable it—through the generalization of what we call *responsible research*.

Digital technology is a form of writing, a writing that is produced at the speed of light, through machines to which we have delegated the process of reading and writing, organized and controlled by a planetary industrial sector established by global companies that have been in existence only a very short time. Digital reading and writing constitutes the new milieu of knowledge, in fields as diverse as astrophysics, nanophysics, biology, geography, history, mathematics, linguistics, even sports science. Therefore everything, absolutely everything, is in the process of becoming digital. We are witnessing a *total* mutation of knowledge, which affects at the same time embodied knowledge and life wisdom. Daily life is what is first upended, in all its dimensions. These mutations are established by the market, without any hint of a critical process that could at least provide some nuance and inflection. We cannot think that the university will just continue on its merry way without taking total digitalization as its main concern. This conviction motivates our

establishment of the Digital Studies Network, which brings together researchers and universities in Asia, North America, South America, and Europe.

In 1088 Bologna became the birthplace of the European university—the result of a conflict between the emperor Frederick Barberousse and the pope. It was in the context of this conflict that Barberousse gave to the clerics of the University of Bologna an autonomous status, a status that will mark the origin of European universities (Bologna, Oxford, the Sorbonne, then Cambridge and Berlin), establishing a European supremacy that would last for a considerable time. By means of its newly autonomous universities liberated from dogmas, a *critical function* was founded in Europe, a function that would become one of the West's core features on its path to modernity. This modernity prepared the way for globalization, which obviously did not begin with the storytelling of neoliberal ideology and did not imply the disappearance of local authorities.

Today the question is being raised again: how can a network of critical institutions be developed across the papacies and empires of our own time? Barberousse did not subjugate the clerics but instead guaranteed their autonomy, which, along with the printing press, led to the Republic of Letters. Digital interconnectivity reopens this kind of question in a moment when, more than ever, in what we are now calling the Anthropocene, there is clearly an urgent need to reestablish a critical power. Universities and research centers have arguments for negotiating their role in the formation of the world: because without them, nothing can be done. And what motivates the best researchers is not money, but knowledge. More than ever our world is generated by the thirst for knowledge [*libido sciendi*]—which fights against the vile beast of irrationality. In our own extremely risky times, corruption married to irrationality threatens the world as a whole.

Digitalization raises completely unprecedented questions while offering possibilities for research, action, and unheard-of cooperation. Digitalization will inaugurate an era of new cosmopolitanism, one that I would gladly support, especially when compared to the way the market has hijacked it in the name of the universal, as Gilles Deleuze has highlighted. As he has also said, the question is one of a culture of singularities—psychic, social, national, continental—and a question of the coevolution of nations [*internation*]. A singularity, because cosmopolitanism is not reducible to particularity. Particularities are the commensurable parts of a whole and subject to this whole, which uses calculation to make comparisons and establishes averages. A singularity, in contrast, constitutes a negentropic bifurcation. The calculus of averages governs the Anthropocene more than ever. And this era is in fact an Entropocene. We must leave it behind very quickly and enter into the Negentropocene. This is exactly what is at stake in the coevolution of nations [*internation*].

Universities must take over the digital, for it is a matter of their survival. The university will be the promulgator of knowledge; it will not be simply the dispenser of education. Put another way, it will become digital or it will no longer exist. On the horizon of this change lies the whole question of new publishing industries that are emerging from scholarly publishing activities. To support these, the university must exercise its politico-social (and obviously that means economic as well) responsibilities to *critique our digital fate.* From a systemic point of view, the Anthropocene is a problem of entropy. We must not count on Google or Amazon to draw the consequences, seeing that these two businesses are themselves highly entropic.[7]

The transmission and homogenization of knowledge are always closely intertwined. To begin with the question of homogenization: I don't believe in it at all. Not because we are brought into a network from local spaces that then weaken the network; it is instead a question of open systems. Is an open system going to close down or disappear if it comes into contact with another open system? Naturally, that can happen. There are open systems interacting with other open systems where the second absorbs the first, or shuts it down, or makes it disappear. That is possible. Colonialism is an example, and conquest more broadly speaking. But that is not exactly what is at stake here. The coevolution of nations [*internation*] is nothing other than the interruption of this negative pharmacology of the connection. There must be organs capable of achieving the "concert of nations," without necessitating a "subsumption" of nations within a greater unity—through the constitution of organological networks between nations, against all nationalisms as well as every imperialism, and moreover not coming from any one particular nation but from the marketplace. We have here, in fact, the same relation as the psycho-collective individuation studied by Gilbert Simondon. According to Simondon, collective individuation is best achieved when psychic individuals are not weakened. If you weaken the psychic individuals in collective individuation, collective individuation itself will be weakened.

The digital should enable the emergence of a new Republic—of the Digital, precisely, and not of Letters. Today the digital is fundamentally socialized through marketing. The power that marketing has acquired in the last thirty years means that the main model for the socialization of technologies is *negotium*, defined by the *otium/negotium* opposition that has organized society pretty much from the Romans through to the nineteenth century. *Otium* embraces the incalculable, what has no price, what cannot be measured by accounting. Today, the digital has been exclusively framed in terms of *negotium*. Translated into a more formal language, the dyad *otium/negotium* becomes entropy/negentropy—where there is a kind of inversion:

negentropy is *otium*, and *negotium* entropy. *Negotium* is entropic because it is grounded in calculation, and calculation relies on the elimination of the improbable, that is, the suppression of singularities. And singularities *are* unpredictable. The conservation of singularities is the conservation of their negentropic potential. At present the evolution of the digital is completely entropic. This is not attributable to the digital as such: it is linked with the defective *socialization* of the digital. Yet this is not at all inevitable, and to say so is not the same as taking a stand against industry: on the contrary, it is to provide industry with the negentropy it requires but cannot provide on its own.

The digital replays all these questions on a colossal scale, and we must therefore rebuild a *politics*, a *cosmopolitanism* of the Republic of Letters and of the Digital, founded on *digital studies*. This means not just analyzing very closely the way the digital works and why it does not function in the way writing or previous intellectual technologies did but analyzing as well the role played from the beginning by *digits*, by fingers, by the hand, and by technics in the very foundation of knowledge and noesis. This is the aim of the journal *Études numériques*, which will appear soon from the publisher Garnier.

In the United States, as in other parts of the world, the term *digital humanities* is used. The main concern of the digital humanities is the mobilization of analytic tools of calculation for research in the social sciences and humanities, and this is obviously essential. But *digital studies* has another goal: it examines the conditions under which technics in general, and the digital in particular, change the very aim of knowledge itself. This is all part of an epistemology grounded in a history of technology, of institutions, and of psychic apparatuses.

We need to move beyond the condition where more than ever entropy is being produced, especially since this pharmacological condition lacks any therapeutics. There are at the moment only dealers: the *pharmakon* is now sold directly by those who manufacture it. We cannot take antibiotics, sleeping pills, or morphine without a medical prescription. Yet the equally disruptive digital *pharmaka* are today "socialized," without any restrictions, by their manufacturers, who have every interest in selling as many of them as possible, without any limit. This situation cannot last very long.

—Translated by David Bates

Notes

This text is adapted from a longer interview with Bernard Stiegler, published as "Numérique, éducation, cosmopolitisme," *Cités* 63, no. 3 (2015): 13–36.

1. Simon Nora and Alan Minc, *The Computerization of Society: A Report to the President of France* (Cambridge, MA, 1980), http://www.theguardian.com/technology/2014/jul/20/rise-of-data-death-of-politics-evgeny-morozov-algorithmic-regulation.
2. Evgeny Morozov describes this well in "The Rise of Data and the Death of Politics," *Guardian*, July 20, 2014.
3. Maryanne Wolf, *Proust and the Squid: The Story and Science of the Reading Brain* (New York, 2007).
4. Ars Industrialis is a philosophical and cultural association, formed by Bernard Stiegler in 2005, that aims to develop a critical reflection on "intellectual technologies" and interrogate the economic realities that lie behind them. Ars Industrialis created pharmakon.fr, an online school of philosophy. Stiegler's Institut de recherche et d'innovation was established in 2006 to predict transformations in cultural practice afforded by digital technologies.
5. Paul Ricoeur, *Temps et récit* (Paris, 1991), 1:93.
6. Bernard Stiegler, *Réenchanter le monde: La valeur esprit contre le populisme industriel* (Paris, 2008).
7. See Bernard Stiegler, *La Société automatique 1. L'avenir du travail* (Paris, 2015).