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The Lessons of Disasters

A Historical Critique of Postmodern Optimism

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The more disasters there are, the less we seem able to learn from them. Our faith in progress and our concern for economic efficiency make it clear that, contrary to postmodernist claims, we have not escaped from the illusions of modernity.

"We must base the concept of progress on the idea of disaster.
A disaster is precisely when things carry on as before."

Walter Benjamin, *Charles Baudelaire*, Paris, Payot, 1982, p. 342

Curiously, repeated disasters inspire great hopes. Shortly after the disaster of Fukushima, *Le Monde* published a series of articles with quite bleak titles that actually revealed an optimism both naïve and ironic.[1] Ulrich Beck, a German sociologist known throughout the world for his risk society theory, explained: "The myth of progress and security is *heading for* collapse"; according to the psychosociologist Harald Walzer, "the era of consumption and comfort is ending." The fact that these articles announce the end of an era, their focus on the near future, and the phrase "heading for," all betray a *teleological* conception of history: the disaster had not even ended and it already presaged a new dawn of accountability, reflexivity and ecological consciousness. Because this time, of course, things would not "carry on as before."

Where does this optimism come from? Besides the millenarian tradition so deeply embedded in our representations of disasters, and the progressive faith in our ability suddenly

[1] *Le Monde*, 26 Marchs 2011; these articles stand in contrast with Isabelle Stengers' angry political article, "Comment n'avaient-ils pas prévu?" ["How Could They Not Have Predicted This?"].

to transform our habits of thinking and living, what emerges in the post-Fukushima articles is in fact a common version of the theory of postmodernity.

Since the 1980s, social theory has treated technological disasters as symbols or precursors of an immense historical break: a break with the project of technical mastery of the world, with the idea of progress, with the disregard of nature, with consumerism – in short, a break with everything characteristic of modernity. Disasters occupy an essential place in the narrative of postmodern insights, because they represent a moment when an involuted modernity confronts its own creations.

It is this tendency that Ulrich Beck theorized in 1986. With the ambiguous title *Risk Society*, his book in fact described an exit from the paradigm of risk and an entrance into that of *uncertainty*.[2] His point of departure was that *the nature of risks has changed*. First, they are no longer natural, but come from modernization itself. Technical progress, instead of diminishing them, has become part of the risks. Second, these manufactured risks are strictly speaking no longer risks, but *uncertainties*, i.e. they are no longer calculable, and we cannot assign them a probability and guess their occurrence, so we can no longer simply insure against them as late nineteenth-century societies managed to do for industrial risks.[3] In connection with this theory, Beck also depicted the emergence of a postmodern society that repudiates the (imagined) certainties of industrial society, which had been productivist and progressivist from the nineteenth century up to the 1970s. In postmodern society, politics is organized around risk and *in anticipation of disasters*. Modernity is described as having become *reflexive*, i.e. it now questions its own dynamics.

[2] Ulrich Beck, *Risk Society: Towards a New Modernity*, London, Sage Publications, 1992. Note that Beck does not address disasters as such but rather as a phenomenon the anticipation of which transforms the social and the political.

[3] Beck often cites François Ewald's book, *L'État providence* [*The Welfare State*], Paris, Grasset, 1986, which discusses the establishment of insurance against workplace accidents at the end of nineteenth century, in order to contrast the individual and insurable risks of the past with contemporary uncertainties, as if Ewald's work by itself summed up the industrial and ecological risks confronting nineteenth-century societies. Cf. Ulrich Beck, "From industrial society to the risk society: questions of survival, social structure and ecological enlightenment," *Theory and Culture*, vol. 9, 1991, pp. 97-123 and *World at Risk*, Polity Press, 2007, pp. 7, 52, 53.

Industrial Society (modern, progressive)	Risk Society (postmodern, reflexive)
natural hazards	manufactured risks
local risks	global risks
momentary risks	indefinite risks
calculable and insurable risks	uncertainty
limited impact, defined probability	infinitely disastrous consequences, infinitely low probability
analysable techniques, precision	complex systems, chaos
insurance	sociotechnical controversies
environmental recklessness	scientific ecology
irresponsibility	responsibility for the future
social conflict about the distribution of production	social conflict about the distribution of risks arising out of production

Modernity and Reflexive Modernity[4]

This account has enjoyed a wide reception, well beyond the social sciences, because of its rhetorical effectiveness in inspiring a restructuring of politics. It was seen to be necessary to transform our institutions, to make them fit to govern not just human beings but also all the beings that technology had mobilized for the sake of our comfort. The philosophers Michel Serres and Bruno Latour set themselves to writing a new constitution, a new "social contract" designed to include humans and non-humans in a balanced ("symmetrical") way in our "collectives"; in the 1990s, sociologists like Michel Callon studied "sociotechnical controversies," "hybrid forums," "consensus conferences" and more generally all of the deliberative and participatory forms that ought to guide political action in an "uncertain world." For the last twenty years, most of the sociological works that have been concerned with risk management, technoscience and disasters, have been composed within this theoretical triptych of "risk society," "reflexive society," and "participation," thus implicitly appearing to anticipate a more broadly democratic approach to technological and environmental issues[5].

[4] This table gives a broad outline of the idea of reflexive modernity. See Ulrich Beck, *Risk Society: Towards a New Modernity*, 1986, London, Sage Publications, 1992; Anthony Giddens, *The Consequences of Modernity*, Stanford University Press, 1990; Niklas Luhmann, *Risk*: *A Sociological Theory*, NewYork, De Gruyter, 1991; and Helga Nowotny and Peter Scott, *Re-thinking Science*: *Knowledge and the Public in an Age of Uncertainty*, London, Polity Press, 2001. Sociologists have proposed several different names for the radical novelty of our time: "risk society" and "reflexive modernization" (Beck), "second modernity" (Giddens), "high modernity" (Luhmann), "mode II society" (Nowotony), "transformation of human action" (Jonas). We should note the differences between the approaches of democratization and technoscience (Beck and Nowotny) and the heuristics of fear (Jonas). But these authors all agree on the underlying story of the recent transformation of technical activity.

[5] Michel Serres, *The Natural Contract*,1990, Ann Arbor, University of Michigan Press, 1995; Bruno Latour, *Politics of Nature*: *How to Bring the Sciences into Democracy*, 1999, Cambridge, Massachusetts, Harvard University Press, 2004; Michel Callon, Pierre Lascoumes, and Yannick Barthe, *Acting in an Uncertain World*: *An Essay on Technical Democracy*, 2001, Cambridge, Massachusetts, The MIT Press, 2009.

A quarter of a century has now passed. The deeper the environmental crisis becomes, the more distant become hopes for a society that is, at last, reflexive. So it is high time to question the relevance of the grand narrative, its historical gaps and its optimistic view of the contemporary world.

We Have Never Been Modern – But We've Always Known That!

Bruno Latour's position, although more subtle, ultimately endorses the grand postmodern narrative. For if *We Have Never Been Modern* (and therefore never postmodern, either, for that matter), it is only now, thanks to the environmental crisis, that we recognize our "a-modernity." In Latour's view, science and technology have surreptitiously multiplied the nature-society hybrids, at the same time that the "modern constitution" that separates science and policy has prevented us from noticing them. And it is only thanks to the field "science, technology and society," which is dedicated to studying these hybrids (and which Latour helped to found) that we have finally come to recognize our a-modernity. This is a rather solemn moment, for it closes a modern (or rather falsely modern) parenthesis that endured three centuries.

In 1991, Latour began his famous essay with a news bulletin: on that day, the ozone layer, the AIDS virus, and a new contraceptive wove the kinds of entanglements of science, law and politics that make up our societies. Let us now look at the very official *Moniteur Universel* from the summer of 1800. In May and June, doctors were struggling to find out if the "vaccine," a mysterious bovine disease discovered in England, would eradicate smallpox, or instead produce a degeneration of the population. Since the vaccine was transmitted from arm to arm, forming a longer and longer chain, vaccination amounted to introducing a fluid that had passed through hundreds of human bodies, possibly affected by hereditary diseases. The physician Marcus Herz called for a moratorium on vaccinations, it being necessary to study the long-term consequences of the new virus, on at least two generations, before propagating it so widely. The debate about the vaccine was also a debate about power in a liberal society: how could a corporal treatment be generalized without it being imposed?

In August of that same year, when a drought threatened, several articles expounded on the anthropocentric causes of the water shortage. Given the capacity of plants to absorb humidity, deforestation would have reduced the global circulation of water. At the same time,

marsh drainage and river damming reduced the evaporation surface and therefore the amount of humidity in the atmosphere. The ruins of Palmyra in the middle of a desert and the decline of many other oriental civilizations should serve as a warning to European governments. At stake here were the French Consulate's policy of forest conservation and thus, among other things, the public finances, the control of the rural population, the property of communes, grazing rights, and so on.

Let us blithely skip a generation. In 1822, after a series of harsh winters, the French government initiated an enquiry into climate change: the prefects were consulted in order to find out if revolutionary deforestation had modified the weather in their departments. The cooling being global, learned societies in Lausanne, Brussels and London also studied the problem. During the same period, in Paris, the beginning of gas lighting generated a lively controversy: opponents said the explosion of a gasometer could demolish the capital. The same year, the Minister of the Interior banned steam engines near inhabited places even though they had not caused any trouble. In Marseille, it was the chemical industry and acidic pollution connected with the production of soda that incited complaints and hundreds of lawsuits.

Thirty years later, vaccination was still a subject of debate: doctors were trying to demonstrate that it had simply displaced mortality from childhood to adulthood, by allowing the survival of children who were stunted or worse, by transforming smallpox into "internal smallpox" or diphtheria. This demographic upheaval was said to have had disastrous consequences: more and more children being dependent on a working population that was hard-up even in their prime; it provoked the pauperism of the 1840s, or even the Revolution of 1848.[6] During the same period, farmers blamed chemical plants for having destroyed crops. According to an agronomist, "from Genoa to Grenoble, from Lyon to Dijon, Strasbourg and Metz… people attribute diseased vines to gas lighting."[7] In Belgium, demonstrations against chemical plants were bloodily suppressed. Since smoke does not stop at national boundaries, some called for a meeting of European governments.[8]

[6] Hector Carnot, *Petit traité de vaccinométrie*, 1849, 1857 ; Verdé-Delisle, *De la dégénérescence physique et morale de l'espèce humaine déterminée par le vaccin*, Paris, Charpentier, 1855 ; Armand Bayard, *Influence de la vaccine sur la population ou de la gastro-entérite varioleuse avant et depuis la vaccine*, Paris, Masson, 1855.
[7] Louis Leclerc, *Les vignes malades, rapport adressé à M. Le comte de Persigny, ministre de l'intérieur*, Paris, Hachette, 1853, p. 15.
[8] Léon Peeters, *Guérison radicale de la maladie des pommes de terre et d'autres végétaux*, Namur, 1855, p. 63.

In 1855, Eugène Huzar, a lawyer fascinated by technology, published *La fin du monde par la science* [*The End of the World Through Science*].[9] This book, largely forgotten today, is nevertheless important because it seems likely that it was the first progressive and disaster-minded critique of progress. Huzar jettisons not science but "imprescient science," i.e. the gap between technological capacities and forecasting capacities. This gap could bring on the apocalypse: who knows if extracting ton after ton of coal does not risk moving the Earth's center of gravity and producing a tilting of its axis? Who knows whether the inter-oceanic canals will disturb ocean currents, causing devastating floods? And who knows whether deforestation and industrialization will lead to a climatic disaster: "in a hundred or two hundred years the world, crisscrossed by railways and steamboats, covered with factories and mills, will emit trillions of cubic meters of carbonic acid and carbon monoxide. And since the forests will have been destroyed, all this carbonic acid and carbon monoxide could well somewhat perturb the harmony of the world." [10]

As historians begin to take an interest in these issues, they are discovering that modernity has never been unequivocal in its mechanistic view of the universe and in its project to attain technological mastery of the world. On the contrary, there have been various cosmologies in which mastering nature meant not treating it with disdain, but rather understanding its laws, and recognizing in the modern project the need to act effectively and sustainably.[11]

As the motley selection of debates and technologies that we have looked at suggests, nineteenth-century technological modernization did not occur in a fog of unconsciousness or a modernist frenzy. At the beginning of the industrial revolution, the positivistic modernity inherited from the Cartesian project for the technological mastery of nature, which thought about the technology without considering its long-term consequences, already appeared to be obsolete. The men who accomplished and lived through that revolution were clearly "conscious" of the gigantic uncertainty produced by their technological choices, and they

[9] Jean-Baptiste Fressoz, "Beck Back in the Nineteenth Century: Towards a Genealogy of Risk Society," *History and Technology,* vol. 23, no. 4, 2007, pp. 333-350. Eugène Huzar, *La fin du monde par la science*, Paris, Ere, 2008, which reissues extracts from two books by Huzar: *La fin du monde par la science* (1855) et l'*Arbre de la science* [*The Tree of Science*] (1857).
[10] Huzar, [1857], 2008, p. 99.
[11] On soil depletion (perhaps the biggest environmental policy issue in the nineteenth century), see John Bellamy Foster, *Marx's Ecology*: *Materialism and Nature*, New York, Monthly Review Press, 2000; on the huge anxieties linking deforestation, climate change, erosion and flooding, see Jean-Baptiste Fressoz and Fabien Locher, "Le climat fragile de la modernité," *La vie des idées*, 20 April 2010.

knowingly chose to go ahead regardless. So not only have we never been modern, we have also always known this. From the perspective of historical writing, the postmodern narrative thus has the disadvantage of writing off the past experience of our technoscientific situation. By obliterating the reflexivity of past societies, that narrative depoliticizes the long history of environmental destruction and, conversely, by concentrating on our own reflexivity, it tends to naturalize our ecological concern.

A Green Reincarnation of Progress

As a theory of postmodernity, the risk society theory actually seems extremely progressive: it unveils the direction of history and the heroic aspect of our situation, and makes our generation the first to have discerned within the dazzling lights of science the shadows of its dangers. Because it distinguishes a blind past from a present *on the way to* illumination, it produces a new arrow of time, based on the progress not of our technology but of our reflexivity. The risk society theory could well be one of the last reincarnations of the discourse of progress, which it reformulates as the teleology of our societies becoming reflexive.

This 1980s resurgence of the discourse of progress would not have been so significant if, first, it had not occurred in the middle of a global environmental crisis; second, it had not coincided with the dismantling of environmental regulations by the neoliberal offensive and supply-side economics; and, finally, the focus on risk in Beck's book had not hidden his extraordinarily optimistic character, or, in short, if that focus, by claiming to reconfigure social analysis, had not provoked a profound crisis in the critical tools, which were rejected as null and void even before they could be applied to the environmental issue.[12] In 1986, Ulrich Beck was clear about how we should regard his reflections ("a piece of empirically-oriented, projective social theory"). His political purpose was also clearly stated: "The objective is different: it is *to eliminate* from the field of vision the still-existing past, and to replace it with the future that today is already beginning to take shape."

This phraseology of a present pregnant with a future that the commentator can discern, and, even more, this way of thinking about the present as a prologue, are unmistakable signs of the teleological error. In other words, the main problem of risk society theory is that it tends to regard as imminent or even already present its reflexive utopia.

[12] See also Bruno Latour, "Why Has the Critique Run Out of Steam?" *Critical Inquiry*, vol. 30, 2004, pp. 225-248.

Carrying On as Before

The refrain of the "end of progress" that we hear after every technological disaster is probably the best indicator of the misleading optimism of the postmoderns. In the decades 1970-2010, in the midst of a period of high technophilia (e.g. nuclear power, computers, the internet, and the emergence of biotechnologies, among other things), philosophers and sociologists agreed with the idea of the death of progress, without realizing how the increasing artificialization of the world made this statement risible. As early as 1932, Lewis Mumford wrote that the idea of progress was "the deadest of dead ideas." The fact that between Flaubert and the postmoderns the discourse of progress did not end up departing this life suggests that its refutation had little significance. That the term progress has in our time lost its lustre just demonstrates the general acceptance of its logic: in contemporary knowledge societies, unanimously striving for innovation and technological mastery, it is because of the absence of an enemy that progress has lost its political meaning.

Far from having become reflexive, our societies fetishize innovation more than ever. They have made it into a synonym for prosperity, and political parties, on the left as well as the right, set it up as a national project. Since the 1980s, economic regulations have been transformed to make economies more flexible, competitive and innovative. The growing importance of the private sector in the production of innovation, the subjection of scientific research to the goal of economic profitability, and the need for business firms constantly to come up with new products, all increase the power of capitalism in defining our technological fate, to the detriment of a democratic control mediated by the state and public research. More than ever, science has become a business, driven by financial priorities antagonistic to the principle of precaution. The economic success of biotechnology companies and the proliferation of nanoproducts demonstrate (if that is necessary) the intrinsic linkage between financial profits via the Nasdaq and venture capital, and the modernist project of artificializing the world[13].

[13] On the evolution of technoscience and its connection with neoliberal economic logic, see the chilly and lucid analysis of Dominique Pestre: *Science, argent et politique. Un essai d'interprétation*, INRA éditions, 2003, pp. 77-118, and " Des sciences et des productions techniques depuis trente ans: Chronique d'une mutation," *Le Débat*, 2010, no. 160; and, more generally, David Harvey, *A Brief History of Neoliberalism*, Oxford University Press, 2005.

Figure 1 : The New Fetishes: Value, Growth and Innovation (publicity for Capgemini).

The second fundamental change at the end of the last century – economic globalization – has allowed rich countries to externalize the risks of industrial production. Developed societies are not wary of technology, they have simply managed to displace outside the west the most negative consequences of technology. Since the relocation of the multinationals, dictated by labour costs, neither industrial production nor the advance and direction of research and development are any longer the preserve of the old industrial countries. Globalization makes the theory of reflexivity formulated by the philosophers and sociologists of a marginalized Europe almost touchingly naïve.[14]

Finally, a whole set of instruments, ideologies and regulatory illusions have accompanied these two changes. I shall give just a few examples.

Consider the idea of *thresholds*, examined by Nathalie Jas and Soraya Boudia for the case of carcinogens. In the late 1940s, toxicologists warned governments that at any dose, certain molecules produced in chemical synthesis increase the risk of cancer. There arose a consensus for banning these molecules from food. In the United States in 1958, the *Delaney*

[14] Curiously, the latest book by Ulrich Beck, *World at Risk,* Polity Press, 2007, which tries to lend to risk society a cosmopolitan perspective, does not devote a single paragraph to China, although a large part of the future of the planet is being played out there. In fact, the theory of reflexive modernity, based essentially on the experience of the German environmental movement and of western environmental NGO's, has been outflanked by the relocation of industrial production and R & D.

Clause prohibited the presence of pesticide residues in food. But in the 1970s, it was ultimately cost-benefit analysis (whereby risk is tolerated depending on the economic interest of the substance) and the definition of tolerance thresholds that prevailed in regulatory bodies. New international standards such as "acceptable daily intakes" for foods and "threshold limit values" for air produced a subtle travesty: given the lack of any threshold effect, these standards actually sanctioned for economic reasons the approval of an acceptable rate of cancer.[15]

The term "sustainable" plays a similar role in the progressively more intensive exploitation of nature. This history of fish resources is a good example here. The principle of the "maximum sustainable yield" adopted in international treaties adopted after the Second World War (the United Nations FAO Conference of 1955) hallows the principle that we can fish an "optimal amount" without worrying about depleting this resource. Thus, rather simple environmental models supported the dramatic increase from 20 million tons in 1950 to 80 million in 1970. But the models that define "sustainable" stocks do not take into account factors such as the population structure or the degradation of marine ecosystems, so in a few decades they led to a widespread collapse of fish stocks.[16]

Recently, the concept of sustainability has metamorphosed into a powerful tranquillizer for conscientious consumers. Businesses have very quickly appreciated the benefits of this malleable category and of environmental certification, for it will always be possible to find or to create a label that guarantees the sustainability of their methods of production.[17] In spite of its crudeness, this disinhibiting of consumerism has rapidly conquered markets and minds. The main problem of the concept of sustainability is that it produces the illusion of a real reconciliation between environmental imperatives and economic efficiency, of controlled growth, and of nature in the safe keeping of businesses and certification agencies.

With the rise of the climate issue, the whole earth has been subjected to the same principle of optimizing nature. Economists have reconceptualised the climate, treating it like an atmospheric resource, the net present value of which can be maximized by defining the optimal

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[15] Soraya Boudia et Nathalie Jas, *Powerless Science? The Making of the Toxic World in the Twentieth Century*, New York and Oxford, Berghahn Books, forthcoming 2011.
[16] Philippe Cury and Yves Miserey, *Une mer sans poissons*, Paris, Calmann-Lévy, 2008
[17] A very extreme example: timber from trees planted after the destruction napalm of primary forests in Tasmania was able to receive an ecolabel. See http://www.amisdelaterre.org/IMG/pdf/Certifying_the_Incredible.pdf. See also" Mauvais génie de la forêt," *Le Monde*, 8 April 2011, on the role of the McKinsey consulting firm in the evaluation of REDD projects.

paths for CO2 emissions. Global change is thus translated into a problem of maximizing economic growth under climatic constraints. Established in 2007, carbon credits sank and then rose; their price will undoubtedly continue to gyrate, with no one adequately questioning their material basis, because environmental auditing offices that estimate the reductions in CO2 emissions by "clean development projects" have no interest in appearing to be too severe. But that doesn't matter, for the existence and exchange of the credits creates the vista of an economy that is at last green. [18] The danger is that these devices for optimizing nature are merely a delusion that human presence is now restrained.

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Japan is not the USSR of the 1980s: its environmental concerns are pressing, its green movement structured, and its standards are among the world's strictest. Moreover, it has democratic elections, an independent press, and a very high standard of living.[19] How could a society featuring all of the elements of "reflexivity" accept the construction of several dozen reactors in a seismic archipelago (and of course the same question arises in France)? Following the disaster, decisions are going in the same direction: "carry on as before." China and India confirmed the construction of fifty reactors (while declaring, of course, that they are learning lessons from the disaster), and the French government took the opportunity to extoll its EPR technology. The CEO of Toyota called on his countrymen "to work as hard as possible in order to rebuild the country and to sustain growth" (*Le Monde*, 8 April 2011). What is really burying the Fukushima disaster (following on the failure of the Copenhagen Conference, the phony success of Cancun, and the current scramble for shale gas) is surely the postmodern dream of a society that has at last become reflexive.

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[18] Amy Dahan-Dalmedico (ed.), *Les modèles du future. Changement climatique et scénarios économiques : enjeux politiques et économiques*, Paris, La Découverte, 2007; and Aurélien Bernier, *Le climat otage de la finance*, Paris, Mille et une nuits, 2008.
[19] Margaret A. McKean, *Environmental Protest and Citizen Politics in Japan*, University of California Press, 1981.