

# *Stengers'shibbolet*

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1997 (foreword) Isabelle Stengers, *Power and Invention*, University of Minnesota Press, Minneapolis

-Would you say that Isabelle Stengers is the greatest French philosopher of science?

-Yes, except she is from Belgium a country that exists only in part and where, contrary to France, the link between science and the state is nil.

-Would you say that she is the philosophical right-hand of the Nobel Prize winner of chemistry Ilya Prigogine?

-Yes, since she wrote several books with him, and yet she has spent the rest of her life trying to escape from the mass of lunatics attracted to this “New Alliance” between science and culture they both wrote together.

-Is she an historian of science?

-Hard to say. Although she wrote extensively on Galileo, on XIXth century thermodynamics, on chemistry<sup>1</sup>, she remains a philosopher interested in what her physicists and chemists colleagues should understand of their science. Her main object of attention is modern science, and this is what historians and philosophers should study together, no?

-You are not going to say that she is an internalist philosopher of science, are you?

-Worse than that, Isabelle Stengers is an “hyperinternalist” forcing you always to go further towards a small number of theoretical decisions made by her scientific colleagues. In her eyes, most scientists are often not internalist enough.

-But at least don't tell us that she is a whiggish historian of science looking, like Gaston Bachelard or Georges Canguilhem, for the ways by which hard science finally escapes from history?

-She is, I am afraid, much worse. She is “anti-anti-whiggish” trying to figure out why the anti-whiggish stance is not the good way to account for what it is to “win” in

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<sup>1</sup> Bernadette Bensaude-Vincent et Isabelle Stengers, *A History of Chemistry*, Harvard University Press, Cambridge, Mass, (1996).

science, at least not if one aims at convincing the chemists and biologists and physicists she is working with.

-But she is a woman philosopher and at least she must develop some kind of feminist philosophy of science?

-There is hardly anyone more critical of the feminist literature although she uses it extensively and knows it quite well.

-Then, she must be one of these abstract minds trying to reconstruct rationally the foundations of science and being busy erasing all signs of her sex, gender, nationality and standpoint?

-Not at all, there is no one more externalist than her and reading more extensively in the literature on the social history of science.

-What? Does she have any patience for those ridiculous attempts at connecting science and society?

-Worse than that, she is addicted to it and knows more “science studies” than anyone else in the field.

-Do you mean to say that she likes it because it flatters her radical leanings in politics?

-Worse, she wrote on drug legalization, she is a militant in a small left Belgium party and even went as far as working with charlatans practicing hypnosis and other kinds of unorthodox cures... I told you, Isabelle Stengers is always worse! She wrote as much on hypnosis as on physics and she happily compares chemistry laboratory and ethnopsychiatry, going so far as to rehabilitate the word “charlatan”<sup>2</sup>.

-Then she must be one of these ignorant radicals doing politics because they are unable to grasp the niceties of science?

-Not quite since she does radical politics through the careful definition of what Laplace, Lagrange, Carnot have done with their equations.

-I am thoroughly lost... Then she must be quite a woman?!

-Yes, and quite a mind!

-But, tell me, how come you have been asked to write a foreword for someone who seems obviously much better endowed in philosophical subtleties, political will and scientific knowledge than yourself?

-This is quite strange, I concur. I guess it is because of the tradition in science studies and in anthropology of the modern world to study “up” instead of “down”. Trying to swallow hard sciences had very good effect on the softer ones. I guess it is the same with Stengers. You grind your teeth on her argument, and you feel much better afterward!...

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One simple way to define this collection of articles presented in English, is to say that they have been written by a philosopher interested in the very classical question of distinguishing good science from bad. Her new solution to this old problem will be, however, difficult to grasp both for science studies and for philosophers and that requires some clarification. Isabelle Stengers does not share the anti-normative

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<sup>2</sup> Nathan, Tobie and Isabelle Stengers. *Médecins et sorciers*. Paris: Les Empêcheurs de penser en rond, 1995.

stance of most recent historians and sociologists of science and has no qualms in looking for a shibboleth that will help sort out science from non-science. In this sense, but in this sense only, her work is marginally more acceptable to Anglo-American epistemologists than those of “science studies” who shun away from any normative position. Philosophers will be able to recognize at least that here is someone who is not complacent vis-a-vis the production of bad science and who shares their will for a good cleansing job. The difference, because fortunately there is one, lies in the fact that her own touchstone means getting rid of most epistemologists and quite a lot of hard sciences! So the normative goal is similar but the principles of choice are radically different.

Where does this difference come from? Isabelle Stengers has chosen to look for a touchstone distinguishing good science from bad not in epistemology but in ontology, not in the word but in the world. This is the trait that no doubt will make her work sound so bizarre to the innumerable descendants of Kant and Wittgenstein that people the ranks of philosophy and social constructivism alike. The only way to look at why a statement can be accurate or inaccurate has been, since at least Kant’s “Copernican revolution”, to look at how the mind, the language, the brain function. While we are disputing among humans on how to have a faithful representation of the world, in the meantime, the world itself remains completely out of the scene, serenely and obstinately similar to what it is. Amusingly enough, this presupposition is shared by the very classical philosophers who insist on radically separating epistemological from ontological questions and by the radical sociologists who insist very classically on leaving the world outside of our representations. Everyone seems to agree that in sorting out good sciences from bad, only the human side has to be interrogated, not what the things do since they cannot be the source of our misinterpretation about them nor of our consensus on what they finally are. Stengers’s solution to the question of how we come to agree or disagree about the world is completely non-Kantian. To be sure, our society, language, mind and brain could be cause for some misunderstanding, but the main partner to be interrogated for sources of uncertainties is the complexity of the world which does not wait outside and does not remain equal to itself. Against epistemology and against social construction, Stengers directs our attention to the ways in which the world is agitating itself and is puzzling us.

This is especially clear in her “first period”, so to speak, which makes up Part One of this book, during which she cooperated with Prigogine to understand until which intimate level the chaotic agitation of the world itself could modify our definition of science. Here is the first dramatic case of a normative touchstone to sort out good science from bad science that does not look for the limits of human representation but for the world’s ways of marking the limits. For the authors of those books (the success of which has been phenomenal, in French at least<sup>3</sup>) any discipline that does not take into account the arrow of time (or better the arrows of times) is not a science, no matter how hard, respectable, highly objective it looks like. This was the first application of what could be called an “ontological touchstone”

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<sup>3</sup> Prigogine, Ilya and Isabelle Stengers. *La nouvelle alliance, métamorphose de la science*. Paris/New-York: Gallimard/Bantam, 1979. (english title?) Prigogine, Ilya and Isabelle Stengers. *Entre le temps et l'éternité*. Paris: Fayard, 1988 (in english?).

which is clearly different from the one used by epistemologists since it throws in the dustbin the very disciplines that had been used until then as the standard to judge all other efforts at scientificity. Clearly, epistemology with its attention for language, representation, clarity, rigor, is not equipped to sort out good science from bad, since it has been unable to detect that time, irreversibility, complexity and agitation have been papered over by most authors in classical physics. “You blind guides! You strain out a gnat, but swallow a camel” (Mt 23,24).

If Isabelle Stengers had stuck to this first definition of her ontological touchstone, she would have remained a commentator of Prigogine’s fights and quarrels with his peers and other “dear colleagues”. She would have been the philosophical hunchman of a highly controversial chemist. For the same reason she would have remained the deep admirer of Stephen Jay Gould and of all the evolutionary theorists engaged into a constant demarcation between good and bad narratives about a subject, evolution, that has many more degrees of freedom than our representations of it. But in this way she would have stayed for ever a classic philosopher of science, tempted by the rather romantic idea of a science of time reconciled with the rest of culture. But as she discovered (in part because of the success of this first work) the “New Alliance” between science and culture cannot be have so fast for so cheap. No matter how time-dependent a science of phenomena far from equilibrium can be, it remains a science, that is an attempt at stabilizing the world. But what is a science? This “second period” corresponds, for Isabelle Stengers, to a series of articles and books written in her own name where she explores another version of an agitated world, the version offered by the readings of A. N. Whitehead and Gille Deleuze<sup>4</sup>. In this second layer, so to speak, of the same ontological touchstone, she moves from philosophy of science to philosophy proper, from the question of an agitated chaotic world of science, to the ontology of a world that is itself the main cause of most of our uncertainties.

In countries where philosophy has been separated into epistemology on the one hand and history of ideas on the other, it is very hard to locate a philosopher like Stengers who takes up the normative task of epistemology but who carries it out by using the tools of metaphysicians like Leibniz or Whitehead who for generations have been taught (or not taught at all) as so many dead white males. For her metaphysic is epistemology pursued by other means, a serious task that requires the collective wisdom of the whole history of science and thoughts and which cannot disdain any of the rejected claims of past philosophy or underdog sciences. As will be clear in reading the following volume, the effects of this writing strategy are very strange, especially when famous scientists -Galileo, Einstein, Poincaré, Planck- are read not as those who broke away from philosophy but as those who can be elevated to the level of great and controversial metaphysicians, fighting as equals with obscure figures of medieval theology like the unexpected Etienne Tempier, a favorite figure of Stengers’s bestiary. The effect will be even stranger when read by an historian who will not understand how one can jump so easily through centuries, and yet who will have to recognize that at every point Stengers’ accounts, if not historical in character, are at least “history compatible”. No internalist philosopher has provided

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<sup>4</sup> Stengers, Isabelle. *L’invention des sciences modernes*. Paris: La Découverte, 1993.; Stengers, Isabelle, ed. *L’effet Whitehead*. Paris: Vrin, 1994.

more plugs in her argument to hook up on the most advanced “peripherals”, as one says in computer parlance, of social history of science. The result is a prose, not always easy to follow, but where science and philosophy are forced to become again hard ontological and political questions. A very strange mixture for which Stengers has since found a new beautiful name, a name taken out of Kant’s very heirloom, that of cosmopolitics<sup>5</sup>. As one of her many students said in jest, the new question is no longer to decide if a statement is PC, but if it is CC, meaning “cosmopolitically correct”...

What is a CC statement? What is a statement that pursues the task of demarcation all the way to ontology? One thing is sure: if the reader applies to Stengers the traditionnal settlement between science, politics, ethics and theology that characterizes the modernist idiom, then her attempt will be hard to follow and so will Whitehead’s and Deleuze’s. All these authors do not recognize the settlement that can be defined in the following way: first, a world outside untouched by human hands and impervious to human history; second, a mind isolated inside its own mind striving to gain an access to an absolute certainty about the laws of the world outside; third, a political world down there, clearly distinct from the world outside and from the mind inside, and which is agitated by fads and passions, flares of violence and eruptions of desires, collective phenomena that can be quieted down only by bringing in the universal laws of science, in the same way as a fire can be putdown only by water, foams and sand thrown from above; fourth and lastly, a sort of position “up there” who serves as a warrant for the clear separation of the three spheres above, a view from nowhere who is occupied either by the God of ancient religions or in recent times by a more reliable and watchful figure, that of the physicist-God who took upon himself -it is definitely a He!- to make sure that there is always enough laws of physics in store to stop humans behaving irrationnaly. No progress can be made in philosophy of science if the whole settlement is not discussed at once in all its components: ontology, epistemology, ethics, politics and theology. This point of method has been made clear, by the way, through the so-called “Science-Wars” that bring all the distinct threads of the old settlement together again -except that, as usual, history repeats itself as parody...

It would be an understatement to say that Stengers is not a partisan of that sort of constitution. But her position is not either the critical stand taken by social constructivists who will prefer to say that the connections between these four spheres do exist but are unfortunately cut off. That the inside mind does not have a safe connection with the outside world, which means that no undisputable laws of science can be brought to quench the political unrest of the unruly masses, which has the consequence that any God-like figure will remain for ever totally impotent. But, like her only true real mentor Deleuze, Isabelle Stengers has no patience for critical thinking. She does not at all say that those spheres are necessary and that connections between them have been, alas, severed. She claims that those spheres do not exist at all and have never existed: the world is not outside, the mind is not inside, politics is not down there, as to the physicist-God, he possesses no view from

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<sup>5</sup> Stengers, Isabelle. *Cosmopolitiques - Tome 1: la guerre des sciences*. Paris: La découverte & Les Empêcheurs de penser en rond, 1996.; *Tome 2: l'invention de la mécanique: pouvoir et raison*. Paris: La découverte & Les Empêcheurs de penser en rond, 1996.

nowhere because there is no longer any need for this sort of arbitration work. Anglo-American readers have often difficulty in accepting that one can think and write out of the Kantian settlement altogether and thus also out of its critical appraisal<sup>6</sup>. If it is not Kant, they assume, then it has to be Wittgenstein. If the modernist foundation is impossible, then it has to be the constant irony exerted against the lack of any foundation.

Isabelle Stengers does not like irony more than denunciation. She proposed once to define philosophy as “l’humour de la vérité”<sup>7</sup>. Like most philosophers of her tradition, she lives in a world of events not in a prison of words trying desperately to represent an absent and far away state of affairs. Propositions, to take up one of Whitehead’s key words, are moving through and they are not human interpretations of things-in-themselves that would be out there remaining indifferent to our fate. Politics is not about quieting down passions and emotions by bringing in rationality from above, but about deciding, on the spot, what is the good proposition that does justice to the event. The mind is not an isolated language-bearer placed in the impossible double-bind of having to find absolute truth while it has been cut off from all the connections that would have allowed it to be relatively sure -and not absolutely certain- of its many relations. It is a body, an ethological body, or, to use Deleuze’s expression, an “habit of thought”. The country in which those non-critical philosophers travel is totally different from the lunar landscape in which epistemologists and social constructivist have been wedging their two hundred year war. One is not the critique of the other. They differ like non-modernity from modernity, like the surface of the Green planet differs from that of the Moon.

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If there is no separation between world and word, between propositions and substances, between what happens to the humans and what happens to the non-humans, then Isabelle Stengers should fall, one will object, either in the physicalism (or organicism) of which Deleuze has been so often accused, or else in the generalized machiavelism of some sociologists of science. She might have escaped from the modernist settlement, but, one could object, she has to fall in the double peril of “everything is nature” or “everything is politics”. The trap to misunderstand her is ready, wide open and well oiled. This would be to forget that she is at heart a normative philosopher sticking firmly to the classical task of distinguishing good from bad science. Thus there is a distinction at work that saves her from all sorts of monism, including Deleuze’s. It could be called “risky constructivism” because it is a specific type of constructivism that takes risk as its touchstone. Since this is the point that will be hardest to grasp in transferring Stengers from French to English, it is better to take another close look at the ways in which her shibboleth strikes through the sciences in the most unexpected ways.

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<sup>6</sup> This is the same difficulty they have with another of Stengers’ earlier road-fellow, see Michel Serres, *Conversations with Bruno Latour on Science, Culture and Time*, The University of Michigan Press, Ann Arbor, (1995).

<sup>7</sup> The “humor of truth” instead of course of “l’amour de la vérité”, the love of truth. The pun unfortunately does not work in English.

Let us remember that the distinction she tries to use is not the one between true and false statements, but between well constructed and badly constructed propositions. A proposition, contrary to a statement, includes the world in a certain state and could be called as well an event, to use another key Deleuzian concept. Thus a construction is not a representation from the mind or from the society about a thing, an object, a matter of fact, but the engagement of a certain type of world in a certain type of collective. Constructivism, for Stengers, is not a word that would have an antonym. It is not, for instance, the opposite of realism. Thus, constructivism is the opposite of a pair of positions: the two twin ones obtained after the bifurcation, as Whitehead says, between world and word. In this way “social constructivism” is not a branch of constructivism, but the denegation of any construction, a denegation as thorough as that of realist philosophers. So we don’t have to choose between realism and social construction not because we should try to imagine some of sort of mix up between the two ill-fated positions. Rather, we have to decide between two philosophies: one in which construction and reality are opposite, and another in which constructing and realizing are synonymous.

This is why, to make her point clearer, Stengers adds to the notion of construction that of risk. There are constructions where neither the world nor the word, neither the cosmos nor the scientists take any risk<sup>8</sup>. These are badly constructed propositions and those should be weeded out of science and society, that is they are not CC, cosmopolitically correct, no matter how PC they can look like. On the other hand, there exist propositions where the world and the scientists are both at risk. Those are well constructed, that is reality constructing, reality making, and they should be included in science and society, that is they are CC, no matter how politically incorrect they may appear to be. In Isabelle Stengers’ hand this risky constructivism is an extremely powerful demarcation criterion because it strikes at first unexpectedly, making her (as well as her readers) take a lot of risks -I myself bear many scars because I have been time and time over too clumsy to predict where the shibboleth will break up my half-hearted arguments... “Women, fire and dangerous things” is an expression that would nicely fit Stengers’ handling of her many friends<sup>9</sup>.

As will be clear in reading the articles below, many examples will be offered of this dangerous trial by fire. When she was working with Prigogine, Isabelle Stengers used her ontological touchstone to render unscientific all the disciplines that denegated that time could be one of the essential features “proposed” to them. Through typically Stengersian unexpected connections, she then began to work with Leon Chertok a fascinating psychiatrist living in Paris and who used hypnosis in his cure despite the abandon of that technique by Freud and his many disciples<sup>10</sup>.

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<sup>8</sup> For another attempt at bridging the gap between “science studies” and normative questions see the notion of “epistemic virtue” developed by Adrian Cussins (1992), “Content, Embodiment and Objectivity : The Theory of Cognitive Trails”, *Mind*, vol. 101(404), p. 651-688.

<sup>9</sup> Lakoff, George *Women, Fire, and Dangerous Things*. Chicago: Chicago University Press, 1987.

<sup>10</sup> Chertok, Léon. *L'hypnose, blessure narcissique*. Paris: Laboratoires Delagrangé, 1990. Chertok, Léon and Isabelle Stengers. *Le coeur et la raison. L'hypnose en question de Lavoisier à Lacan*. Paris: Payot, 1989. Chertok, Léon, Isabelle Stengers, and Didier Gille. *Mémoires d'un hérétique*. Paris: La Découverte, 1990.

Nothing shows more clearly the originality of her touchstone than in comparing the effects of that same principle on physics and on psychiatry. One could expect that the application of any demarcation criterion will rule psychoanalysis out of science. This is, after all, what Karl Popper had done. Maybe, but then it should certainly rule hypnosis out as well! What could be said of a criterion that kicks reversible physics, scientific psychoanalysis out of science and that keeps time-dependent chemistry, chaotic physics and also hypnosis on the right side of the border? There must be a deep flaw in Stengers' demarcation criterion.

This is not the case, however, if we follow how what I call her risky constructivism works<sup>11</sup>. The principle of sufficient reason cannot be sufficient if it keeps in reversibility and leaves irreversibility out of the picture. Freudian psychoanalysis tries to imitate the causal principle of sufficient reason by behaving like a science -but a science conceived in the way that has not yet applied the Stengersian principle! Freud, terrified by the incredibly fast and complacent reaction of his patients to his influence through hypnosis, decided to imitate the "hard science" and to make sure that he was not causing their behavior of his patients. He protected himself by the famous phenomenon of transference and, from then on, dealt with patients through a purified analysis which tried to apply quasi-chemical procedures to the "laboratory" of the couch. What is the result of this Freudian "will to science" <sup>12</sup>? The elimination of influence from psychiatry in the same way as the arrow of time has been eliminated from physics<sup>13</sup>. Yes, psychoanalysis is a science, but that in itself is not enough guarantee to be kept aboard since reversible physics has been thrown out for being exactly as badly constructed! The same principle strikes twice with opposite result: one should not eliminate from a discipline what constitutes its main source of uncertainties and risk, reversible time in case of non-humans phenomena, susceptibility to influence in case of human phenomena.

The paradoxical result of the work of Stengers with Chertok is the same as that of her earlier work with Prigogine: the question is not to decide what is scientific and what is not, that is, to demarcate science from non-science, but to distinguish within the sciences, or better, within the cosmopolitics, the procedures through which the scientists accept to run as much risk as their subjects. Paradoxically, it is not because it has foolishly tried to treat human like non-humans that psychoanalysis fails the Stengersian test. It is exactly for the opposite reason: psychoanalysis fails because it treats humans like no hard scientists would dare treating their objects, that is, without given them a chance to redefine on their own terms what it is to be interrogated by science. There is of course a difference, but that is not the ancient one that distinguished an objective matter of fact that can easily be mastered from a

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<sup>11</sup> For another application of this principle on ethology see the enterprise of another Belgian philosopher, a colleague of Stengers, Vinciane Despret, *Naissance d'une théorie éthologique*, Les Empêcheurs de penser en rond, Paris, (1996).

<sup>12</sup> Stengers, Isabelle. *La volonté de faire science*. Paris: Les empêcheurs de penser en rond, 1992.

<sup>13</sup> It is precisely this "influence" that Tobie Nathan, a student of Georges Devereux and a close associate of Stengers, has been reintroducing into very risky clinical procedures, see Tobie Nathan, *L'influence qui guérit*, Editions Odile Jacob, Paris, (1994).



human soul that would resist any attempt at mastery<sup>14</sup>. The difference comes from the innate resistance of non-humans to be taken up by science -the irreversibility of time remaining, for Stengers, the paradigmatic example- whereas humans are incredibly complacent, behaving too easily as if they had been mastered by scientists's aims and goals. This was Freud's real "scientific" discovery that, unfortunately, he failed to see because of his wrong-headed idea of what was a science. In Stengers' trial the presence or absence of the trappings of science proves nothing at all. If one is daring enough to pass the test, one should be ready to demonstrate instead that the questions raised by one's experiment are in risk of being redefined by the phenomena mobilized by the laboratory or by the theory.

If it looks superficially reminiscent of Popper's falsification criterion, one has only to see which sciences it throws out and which one it keeps on board, to measure the complete difference between the two epistemologies. Popper's touchstone is as good as a white coat. It is easy to don but it does not make a scientist out the one who wears it. On the other hand, Stengers' criterion sees the sheep through the wolf's furcoat! Evolutionary theory, that of Gould's *Wonderful Life* for instance<sup>15</sup>, is kept after Stengers' trial because it fits exactly her requirements: every species forces the natural historian to take as much risk to account for its evolution through an innovative form of narration as it took the species to survive. However, Popper's razor excises Darwinism out of science, together with Marxism, history and Freudism, on the very slim pretext that it cannot be put to the test. But which test? The one where scientists master all the inputs and outputs and leave the objects no other freedom than the ability to say "yes" and "nay"! It is a very poor science the one in which things have no more to say than the white and black pawns in a game of Master Mind and where the wild imagination of the scientist do all the rest of the talking.

Fortunately for science, there are endless situations in which it is the scientists who can be left voiceless by the wild imagination of the things proposing to them what to say. Amusingly enough, falsification misses these situations as well and honors fake imitations with the Medal of Science. For instance, Popper's criterion will keep Stanley Milgram's impeccably falsified experiments since it puts to the test the wild hypothesis of an innate obedience to authority among American students<sup>16</sup>. What could be more scientific than this most famous experiment in psychology? Has Milgram not all the controls required? Has it not included all the blind tests? His experiments, however, are torn apart when Stengers' criterion is applied, since it fits ideally her case of a bad construction where nothing can be

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<sup>14</sup> This is the source of another misunderstanding this time with the tenants of the hermeneutic tradition who believe that since philosophers like Stengers, Deleuze, or Serres are attacking scientism, they bring water to their mill and will help them defend the subject against the tyranny of the object. Quite the opposite. The subject has to be treated, they propose, at least as well as the object! It is the object of science who does the job in the hermeneutic circle, not the human subject always ready to imitate a machine, what he or she imagines the machine to be.

<sup>15</sup> Gould, Stephen Jay. *Wonderful Life. the Burgess Shale and the Nature of History*. New York: W.W. Norton, 1989.

<sup>16</sup> Milgram, Stanley. *Obedience to Authority. An Experimental View*. New York: Harper Torch Books, 1974.

learned from the students subjected to Milgram's power, and where Milgram does not even learn the only lesson he could draw from this disastrous experiment: that he is the only torturer in town whose mad power over subjects should be interrogated. Oh, yes, there is a blind test indeed but the blind is not the one you would think! This lesson can be drawn on an indefinite number of experiments published in excellent journals all equipped with referees and fact finders.

The biggest difference between Popper's and Stengers' criteria, resides somewhere else however. Popper's falsification implies a complete power of the scientists themselves to sort out their own inventions. It was made for that, to protect scientists against any encroachment from society. On the other hand, Stengers' shibboleth allows her to look everywhere for the conditions where power is counterbalanced by the invention of those who are talked about. Most of the time this means, of course, getting out of science. This exit from the classical questions of epistemology will be made clear in the last part of this book. Popper remains a traditional philosopher of science and if so many disciplines fail in his eyes, it is because they look suspiciously close from the horrible quandaries of political life where nothing can be safely falsified, human masses having great difficulty, it seems, in limiting their presence in the forum to "yes" and "nay". If society has so many enemies it is because, first of all, society is the enemy of science. Popper's philosophy of science might have been well adjusted to the political task of the 1930s, but Stengers' one aims at understanding how we should live now within and without the limits of science proper—or should I say popper?... This means that one has to leave the confine of science, to see how the same risky constructivism could be applied to collective situations that have none of the feature of scientific facts and where, nonetheless, the same dilemma can be observed.

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How does this second task work? Remember that Isabelle Stengers is uninfluenced by how much resemblance a practice has with science conceived in a Popperian way. She knows from the inside -and this is why it is so important for her to be a thorough internalist- that the question is not so much how you can mimick a science (it has become so easy, so safe, so cheap, even sociologists can do it!) but how much risk you can take to let your words be modified by the world. This means that a practice which, on the face of it, looks completely unscientific, like hypnosis, drug addiction, ecological politics, ethnopsychiatry, AIDS patient groups, may manifest features which render them closer from some of the most abstract and daring hard sciences. This is where Isabelle Stengers will appear the most controversial and probably the most original in the American context of Higher Superstitions and Lowly Politics. A difficulty arises for me at this juncture, however. The articles assembled here are not doing full justice to the importance of this second aspect of her cosmopolitics. Like many of the political insights of Deleuze and Guattari, they remain largely influenced by a conception of left radicalism which has not yet been renewed as forcefully as science has been. This is a case, so to speak, of an "unequal development" of a theory. In the last part of this book, Stengers has not done for power, society, domination the job of redemarcation that she has done on hard science in the earlier sections. She relies too heavily on the tools of social history that can be taken off the shelf.

But the direction in which she has been heading since those articles have been written seems to me clear enough and fully vindicates her intention of practicing a genuine cosmopolitan that will strike the knowledge-talk and the power-talk as well. It is thus to her more recent work that one has to turn to show the full import of her shibboleth. In going from the laboratory of chemistry to the platforms of politics, Isabelle Stengers does not try to decide which science is politically correct, which politic is ideologically sound. She does not flee to society because she had been disappointed by science as so many critiques of Western “thanatocracy”. Radicals should be ready to be sorted out on their planks by the same demarcation criterion even more fiercely than white coats physicists at the bench. Stengers does not appeal from the limits of an objective science to the passion of radical politics, she sorts out ruthlessly the objects of scientists and the passion of militants. In every case, and at every juncture, she remains unimpressed by domination, no matter if it comes from the rank of science or from the rank of social powers. In both she looks for the sources of invention that have been missed.

If scientists are surprised by the ways she demarcates good from bad science, the many people who, from the ranks of feminism, ecology, leftism, think she is their allies should brace themselves for some hard lessons, more exactly, from the lessons she keeps drawing from hard sciences. Going from science to politics is not, for her, going from stringent constraints to more relaxed ones, but keeping exactly the same objectives with a total indifference to what is science and what is society. Domination in politics has many of the same ingredients it has in the laboratory, that is, the inability to let the people one deals with any chance to redefine the situation in their own terms. If this principle subverts so many disciplines from the inside, it subverts even more political stands from the outside, and especially so many of the “standpoint politics” where the outcome of the analysis is entirely determined from the start by the position of the speaker<sup>17</sup>. If Milgram is taken as the emblematic bad experimenter letting not a chance to the students he is torturing in making them become torturers, what should be said of those thousands of radical tracts where the things to be studied -science, art, institutions, medicine- are not left a chance to say anything other than the fact they have been marked by the domination of white male capitalists? Like most critical thinking, they reproduce exactly at the outcome what was expected from the beginning, and if they have to be rejected, it is not because they are political, and not either because they are not scientific enough, but simply because the writer incurred no risk in being kicked out of his or her standpoint in writing them. The application of Stengers’ criterion on “cultural studies” remain to be seen but it will be even more entertaining than what it did at the bench. The equation is simple although very hard to carry out: no risk, no good construction, no invention, thus no good science and no good politics either. Such is the first plank of a party that has not many member yet!

Stengers’ request to be cosmopolitically correct cut both ways, and cuts hard. In the obscure fights of the Science Wars, one can safely predicts, she will be seen as a traitor to all the camps, not because she is “in the middle” -no one is less of a middle-woman than her, no one is less an adept of the Golden Medium!- but

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<sup>17</sup> In this way she is even further from Michel Foucault’s famous knowledge/power than from traditionnal epistemology, and this offers still another source of possible misreading in the Anglo-American context strongly influenced by a “socialized” version of Foucault.

because she imposes on all protagonists a criterion that they will do their utmost to escape. Although this book appears in a series called “Theories out of bound”, no theory is more binding than Stengers’ new demarcation criterion. Having often tried to escape its binding strength only to find myself forced to use it again, it is a great pleasure (and I say it with some glee) to imagine that English-speaking readers are now to be enmeshed into this most daring enterprise we, in the French-reading world, had to take into account for so long. It is my hope that they will learn more than I did (this is unlikely) in those twenty years when I tried to profit from her marvelous “habits of thoughts”, and also my hope that they will be forced even more than I was (this is more unlikely) to modify their definition of hard science and of radical politics by using Stengers’ shibboleth and pushing it everywhere -against herself if needs be!