# BOOK REVIEW

## The Cybernetic Brain: Sketches of Another Future, by Andrew Pickering

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### Cybernetics

Etymologically, the word cybernetics comes from the ancient Greek noun for “steerman” and could by translated as “steermanship” or “the art of governing a ship” (p. 3). In Latin, the Greek term evolved as “gubernator”, which provides the root for words like government and to govern in modern Western languages. The recovery of the Greek linguistic root allows one to adopt new meanings and connotations for the act of governing.

The modern concept of cybernetics is Wiener's theoretical creation based on a re-arrangement of how things and people are governed, evolving from a directive and linear way of exercising power over organic, indirect forms of government. The main motivation for this theoretical venture is to improve organizational efficiency, and its main feature is the arrangement of things (machines, artifacts, etc.) and humans at the same structural level. Cybernetics were born from the II World War when the quality of military performance was crucial for the survival of different models of society, and the development of new technologies for war made necessary a better “coupling”[1] between humans and machines. In this sense, a “science” like cybernetics, focused on performance improvement through human-machine optimization, seemed to perfectly fit the needs of the times.

1 “Coupling” is the term used by Pickering and probably for cyberneticians and other authors like Latour. From the theoretical background of cyborg theories (Haraway, Gray, Mentor, Figueroa) the term used would be “hybridization” that implies an organic metaphor and the idea of changing human nature through incorporating technology. Coupling, on the other hand, is a mechanistic metaphor that considers humans as inert as machines, and therefore on the same existential level.

Afterwards, the developments and reflections of cybernetics have taken many different paths. They have diffused into different fields, providing them with stimulating insights, and some pieces of their legacy have remained more or less intact in different theoretical settings – for example, in Big Data discourses. In any case, most of the cybernetic's insights have been incorporated through systemic approaches based on General Systems Theory, a theoretical development more easily understandable and adaptable to different fields.

**The Book**

However, this book is not about cybernetics as a theoretical framework in itself, but of a particular reading of cybernetics. In the author's opinion "One can almost say that everyone can have their own history of cybernetics." (p. 3). This way, the author diminishes the relevance of a common understanding of theoretical traditions, in favor of particular readings of theory:

> In this book […] I focus on the strand of cybernetics that interests me most, which turns out to mean the work of a largely forgotten group of British cyberneticians , […] I focus on a few leading lights of the field, the ones mentioned already: Grey Walter (1910–77), Ross Ashby (1903–72), Stafford Beer (1926–2002), and Gordon Pask (1928–96), with a substantial detour through the work of Gregory Bateson and R. D. Laing[2]. […] So what follows is very much my own history of cybernetics in Britain—not a comprehensive survey, but the story of a set of scientific, technological, and social developments that speak to me for reasons I will explain and that I hope will interest others. (p. 3-4)

The egotism[3] of the author can be found throughout the book. In the first place, the justification of the book is based on his own preference for personal reasoning; he simply expects others to follow his likings – *things that speak to me and I hope you like*. Second, this refusal to explain his reasons

2 Who are not really part of cybernetics.

3 Webster dictionary definition of egotism:
#1 ***a*** **:** excessive use of the first person singular personal pronoun
***b*** **:** the practice of talking about oneself too much
#2 **:** an exaggerated sense of self-importance

straightforwardly seems more appropriate to esoteric or spiritual writings than for an intellectual account. And third, it looks even more suspicious when his likings go in the direction of an unreflective fascination with the practical performance of machines and artifacts:

> I am not uninterested in ideas, but I am interested in ideas as engaged in practice, and at the heart of this book is a series of real-world projects encompassing all sorts of strange machines and artifacts, material and social. (p.4)

So, on the one hand we find a decided alignment with the Wiener's theoretical pragmatism that puts even *the Human Use of Human Beings* (1956) at the service of organizational efficiency. Then we have the pervasive personalization of the "I" sentences, also extended through the idealization[4] of the authors reviewed, by emphasizing small irrelevant details – like "loving women," "riding a scooter at the age of sixty," or looking weird in a photograph. About this, we should say that normally the biographical background of an author is relevant because it explains something about his/her work, not just because it might sound "cool" to certain audiences.

Finally and on the other hand, we find a strong resonance with the apparently rebellious and superficially spiritual culture of the New Age – which is an adaptation of Eastern mysticism influence in the West by the consumption culture of the 1960's (or something like that). This is made clear when Pickering goes through the life of the authors and shows their links with the countercultures and mysticism of the 1960's as part of their personal eccentricities. His aesthetic attraction for the New Age mysticism is also the reason why the author makes this detour around Bateson and Laing, where the influences of Zen and Eastern spirituality are explicit.

This mix of these elements creates a very difficult book to digest. Something seems to be wrong when technological pragmatism, which cannot be critical in itself because it is not reflexive, is mixed with

4 From Psychoanalysis: a mental mechanism, operating consciously or unconsciously, in which one person overestimates an admired attribute of another. Source: Dictionary.com Unabridged. Retrieved February 28, 2013, from Dictionary.com website: http://dictionary.reference.com/browse/idealization
§ Idealization is a form of psychological projection, which means that idealizing the other we are indirectly trying to vicariously idealize ourselves.

personalization and a loose engagement with spiritual concepts. Spirituality and pragmatism are two trends that are very difficult to convey, because they respond to opposite interests. Here the charismatic personalization is used to build a (weak) bridge between them.

However, the worst part comes in the second chapter, where the author presents a second introduction of the book in an attempt to justify theoretically his awkward mix of theoretical *desires* (the love for technology and the attraction for mysticism). To such an end, Pickering did not find anything more complicated than the concept of ontology, of which he offers a very particular (mis)interpretation. One of his star references is Heidegger, who is probably a good choice if we want to connect Western and Eastern philosophy. However, what we find is a strange concept of ontology that structures everything in the book and aims to theoretically justify the fit of spirituality and technological pragmatism of Pickerian[5] cybernetics.

The Ontological Theater (chapter 2) is crowded with misunderstandings and misuses of theoretical references. Many of them could slip by if we are not particularly familiar with the concepts and theoretical frameworks that he refers to, but they present a shock if there is any previous knowledge about these issues: the intended audience of the book cannot be philosophers, but are most probably engineers and technology lovers.

**Ontological mummery**

> I want to talk now about ontology: questions of what the world is like, what sort of entities populate it, how they engage with one another. What I want to suggest is that the ontology of cybernetics is a strange and unfamiliar one, very different from that of the modern sciences. I also want to suggest that ontology makes a difference—that the strangeness of specific cybernetic projects hangs together with the strangeness of its ontology. (p. 18)

Aside from the fact that three sentences beginning with “I want” come off as cloying in any kind of

5 Giving the astonishing personal relativism of the author (everything is related to himself) we cannot trust anymore that his interpretation of things matches with some common knowledge outside his brain.

text, the presented definition of ontology is quite superficial. If it is going to be such a central concept in the book, it probably deserves a deeper presentation.

In philosophy, ontology is the inquiry of the nature of being. Onto- stands for entity or being, and -logy for *logos* or "study of". The definition he offers can fit in with a vulgar and pragmatic use of the word, but it is certainly not enough if we are going to mention Heidegger and pretend that our concept of ontology matches his.

The concept of "questions of what the world is like, what sort of entities populate it, how they engage with one another" is what commonly is named a worldview or a representation of the world. We could talk about the ontology of Republicans to refer to their constellation of political ideas about how the world is like, or the ontology of the 1950's US middleclass housewife, or the ontology of Rock & and Roll. In synthesis, the author's concept of ontology is weak and departs from confusion between the vulgar and the philosophical meaning of the word.

Let's begin with Latour's *we have never been modern*

Latour is always a good place to start when our knowledge and understanding of philosophy and social sciences is limited. He is direct, simple and powerful in his claims; and he does not build his theories on common theoretical currents, but on his own understandings and interpretation of things. Using him as a starting point prevents us from dealing with obscure theoretical traditions, so we can easily start "contributing" to the discussion. Using Latour as a primary reference is like the *plug-and-play* of theory. But even he is vulnerable to misinterpretations from the loose reader: "His argument is that modernity is coextensive with a certain dualism of people and things" (p. 18)

In *We have never been modern*, Latour defends the framework of modernity[*], defining it as an

* **Note from September 2013:** Here, I made a mistake based on a partial reading of Latour's book. In fact, Pickering is right in his interpretation of Latour, and this implies a huge flaw in my rhetorical accusation that he misread Latour (I did). However, the main argument can be extended to include Latour who also stands for this non-modern, flat ontology that boosts confusion of social, physical and discursive facts. For more about this criticism: "Book Reviw: Aramis or

epistemological approach to understanding our world, characterized by a differentiation between physical and social facts – to what he later added discursive facts. His point is that there is a difference between the social, ethical or economic relevance of, for example, Global Warming, which are social facts or social realities, and the actual climate-based phenomenon of Global Warming, which is a physical reality, independent of any human understanding or interpretation.

Latour does not stand for a "*dualism* of people and things," but for the differentiation of two epistemological approaches in the study of phenomena of different nature. Actually, in ANT he equals "people and things" in the role of actants in the network. His ontology, in the Pickerian sense, would be the ontology of networks that integrate human and non-human agents at the same level, which at least can work methodologically.

Certainly, there is dualism in the basics of Western philosophy, but it is more about the opposition of physics (materiality) to metaphysics (thought, spirituality, intelligence). This dualism is at the core, for example, of the social differentiation between intellectual and manual labor. It is also present in the religious and ethical difference between good and evil, in the opposition of culture and nature, the relation of man and woman, and so on. In Eastern philosophies, we can also find the same dualism, popularized in the idea of the Ying and Yang continuous flow.

## Dualism

From this misreading of Latour, the author proudly takes the concept of nonmodern and nondualism as a mark for his "ontological" claims – that is, for his personal understanding of the world. The importance that Pickering gives to nondualism is probably related to his superficial attraction to Eastern philosophy, as we discover later on in the chapter about Bateson and Laing. In the context of Taoism, Zen and other forms of Buddhism, the idea of "overcoming dualism" is a central and powerful

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the love of technology, by Bruno Latour" and "Non-human agency, but human after all"

concept.[6] From these various perspectives, in order to reach enlightenment we need to challenge to the pervasive presence of dualism in any rational representation of the world, so that we can expand our consciousness and attain an understanding beyond rationality.
However, before we are even able to think about overcoming the dualistic representation of the world – which is an spiritual (non-rational) achievement more than an intellectual or a practical one – we need to recognize what the concept of dualism is about, a basic step that is missing in Pickering's text.

Dualism represents the opposition of two mutually exclusive concepts that together represent a whole or two poles of a continuum: day and night, light and dark, man and woman, strong and weak, rich and poor, and so on. Humans and things hardly could represent a duality. First, they are not two necessary parts of a whole or two poles of a continuum. Second, they are not mutually exclusive: we could say that there are living and non-living things, and humans are a particular type of living things. As we found in classical Aristotelian metaphysics, humans are part of the living beings genre, which are part of the physical things genre... There is no material for a duality here. But, even if we manage to defend that there is dualism between inert things and living beings then, "superseding the dualism" would mean to neglect the property of being alive.

So, the problem is not only the embarrassing weakness of the concepts. What is really shocking if the use of sophisticated and mystical ideas (like overcoming dualism) to justify the de-humanization of humans, through eliminating their ontological[7] distinction from non-living things. In this sense, equating humans and things opens ground to all kinds of "highly performative" alienating practices, and doing it with a veiled reference to spiritual concepts looks even more twisted. Critiques of cybernetics for being an alienating science of control over humans are encouraged by Pickering clumsiness, even though he awkwardly tried to refute them at the beginning of the book.

However, considering humans and nonhumans at the same level in the analysis of any process could be useful from a pragmatic or analytical point of view. Anyone who wants to follow this theoretical path

6 A good reference to see this idea in action could be the *Tao Te King*, translated by Chu Ta-Kao. http://www.chaos.org.nz/ttc.html

7 Here, "ontological" is used in the proper philosophical sense: humans are a type of entity that is worth considering as representative of the properties of "Being".

should give some credit to Latour, who has made an important effort to create and disseminate that perspective. Unfortunately, Pickering is strangely unaware of other scholars' theoretical productions, and prefers to mention himself and *The Mangle of Practice* over and over, as a self-promoting form of an authority claim.

False dualisms

Overcoming dualism might sound good, but there are some dualisms (false dualisms) that help to make a distinction between us and others. Pickering stresses this dualism, emphasizing oppositions between concepts that are not really opposed, and claiming he is on the bright side of the dualism.

The opposition between Ontology and Epistemology is one of these false dualisms. The author presents them as opposite ways – one or the other – of knowing, while actually they are just two different perspectives or, if you want, two branches of philosophy without any inherent contradiction. They just talk about different things, and although it is true that normally they are not articulated together, they can be complementary. Ontology is the study of the Being; it is concerned with the conditions of existence and being. Epistemology is the study of knowledge; it defines what knowledge is and how we can get to it. Presenting them as opposite is like opposing Being and Knowledge, which leads us to another misleading Pickerian dualism, that of representation and performance.

## Heidegger's references

Heidegger follows the lead in phenomenology began by Husserl, taking it a step further with a more comprehensive treatment of pre-Socratic philosophers. This helps him to challenge the paradigm of modernity and the metaphysical Western tradition instated by Plato and Aristotle. In this sense, Heidegger is considered one of the precursors of the language turn and postmodern theoretical developments. He is relevant because his ontological reflections helped to break the theoretical end road that modernity was heading towards.

*The identity of knowing and being*

One of the most obscure ideas of Heraclito was the identity of knowing and being – logos and Arje – something that Heidegger tried to express and reflect about in a more concerted fashion. This idea is also connected with the concept of the hermeneutic circle, where the reader's understanding of the text is influenced by his previous "being," which is in return reshaped through the reading. Therefore, the subject changes his essence (being) in the process of learning or knowing. In this respect, ontology absorbs epistemology, which came to represent a particular part of the process of knowledge and being.

The concept of consciousness is highly relevant in this sense, because in it *being* and *knowledge* are articulated together. From this perspective, all knowledge and all language are performative in some way, because they changes the being (consciousness) that processes it.

*Unveiling*

This word appears many times in the book, often after mentioning Heidegger and the importance of performative knowledge. The concept is originally from the pre-Socratic philosopher Parmenides who influenced Heidegger. The original Greek word was *Aletheia* and meant a form of knowledge through cognitive experience and deep insight that came after removing the prejudices and "veils". Note that it is a negative account of knowledge, in which we need to pull back veils and let the truth shine, an idea also present in Eastern accounts of enlightenment. For Parmenides, the other form of knowledge was *Doxa*, the common opinions that people learn from social contexts and are normally supported by subjective representations of the world.

From this background, Pickering's superficial use of "unveiling" is quite shocking, because he seems to

uphold exactly opposite ideas: he talks about doing without reflection and stresses personal and particular accounts of knowledge, instead of the pure impersonal reflection (non-active) associated with in the original meaning of the word.

**Black Box ontology**

For Pickering the cybernetic ontology is also a black box ontology, which for him means the possibility of imagining the world as if everything in it were black boxes. That could make sense, given the weak definition of ontology that he is using, except for the fact that black boxes are an epistemological concept.

The concept of BB refers to a correspondence between Inputs and Outputs of a system. It is an epistemological frame that we can use to know how a system will react, without fully needing to understand its internal logic or the causal links between Inputs and Outputs. It serves as a resource to deal with hypercomplex systems, were the logic is not understandable, or also to save mental energy when dealing with everyday machines[8].

BBs are an epistemological concept because it is a frame we use to conceptualize things, and not an actual existing thing in itself. Its meaning depends on the existence of a knower who applies the logic of a BB in the process of knowing. We can try to look at the world as if everything was a BB, but that would be a BB epistemology and not an ontology.

However, what the author is talking about here is the possibility of developing a kind of knowledge that is not any more concerned with the causal links between things, and only focuses in the practical facts that indicate to us how to use them. Probably, he supposes this will improve our capacity to do and use things.

8 Disinterest in understanding the internal logic of everyday machines seems to be one more example of the author's disinterest in knowledge (or I would say, intellectual laziness).

**Conclusion of the critique**

This critique is mostly focused on the introduction of the book, which is enough to show the weakness of the main pillar on which the relevance of the book is standing.

> Ontology is the major cross-cutting theme I announced in advance and that I have pursued pretty conscientiously as we went along, so I will not dwell on it at any length. But there are things to say. Another working title for the book was *Performance*. (p. 380)

Breaking the main pillar of his intellectual authority, we lose all credibility of the author, and his claims, reviews and pretentious reflections on science, the world and the future become a mountain of debris. His discourse appears as nonsense chattering, and his insights seem like toxic ideas that should not be taken in account.

However, there is nothing from which we cannot learn something, and the book presents some interesting facts and stories about the subjects that reviews. Personally I found the chapter on Bateson and Laing – the one that does not really belong to the history of cybernetics[9] - particularly interesting and attractive. In Beer's story there are also interesting fragments that make relevant points about cybernetics and its relation to power: in the episode about the presentation of the VSM to Allende, it is clear that cybernetics looks for an organic form of management that shifts the direct agency of power to a complex system of autoregulation, which most of the time implies a hidden form of elitism[10].

9 The inclusion of Laing in relation to cybernetics is openly bizarre, and the Bateson work rests more on the General Systems Theory and Cannon's concept of homeostasis (1926) than in cybernetics.

10 The System 5 in the VSM is the pinnacle of power, but it is a power that does not act directly, but through the system. This conception of cybernetic power can be applied to the analysis of social power accumulated nowadays by big tech companies.

The history of cybernetics is extremely interesting and suggestive, with both dark and bright sides, but unfortunately this author does not do a good job presenting it. That he is supposed to be a prominent scholar does not change the fact that his reasoning is clearly erratic in this book. This should make us reflect on the principles and dynamics on which scholarly recognition rests.

**An extra analysis:**

In the final chapter, the author offers his insights about the future of the cybernetic ontology that he has been discussing. Then we discover[11] that his philosophical referent is the pragmatism of William James!

> The discovery of pragmatist philosophy was a major turning point in my intellectual life. Reading William James's Pragmatism and the Meaning of Truth (1978 [1907, 1909]) in 1985 suddenly offered me a way seeing knowledge as situated (rather than transcendentally true) while continuing to take it seriously (and not as epiphenomenal froth) . (p. 380)

So, after trying to convince the reader that his work was rooted in a deep ontological tradition related to Heidegger's philosophy and critically positioned against Latour's idea of modernity, it turns out that the "major turning point in *his* intellectual life" is a marginal pragmatist philosopher from 1907.

Why did not he begin from there? The *veiling* of the real epistemologies – or theoretical conceptions of knowledge – seems to be a pattern with some STS writers, when all the real explanations are at the end. It looks like a calculated strategy to produce an effect on the audience: first there is a superficial justification of the research, then a detailed and repetitive – even tedious – engagement in research data and details, and at the end the epistemology, or theoretical basics, are presented as something *discovered*, when actually they were there from the very beginning. It seems like a dramatic representation of knowledge aimed to convince and seduce the audience, rather than a real motivation in the adventure of knowledge seeking.

11 James is very briefly mentioned in chapter two, but nothing that would make us intuit the relevance of his thought in Pickering's ideas.

This case is even more hazardous because of the all the misconceptions and contorted arguments the author must engage in to obscure his real theoretical background. Suddenly, all of his ideas make sense (or almost) inside the philosophical tradition of pragmatism, but it is this insincerity and show-off attitude that makes this work so useless and harmful. Instead, a pragmatic reading of cybernetics would have done a fair job.

In any case, this reminds us of the need to stay inside the theoretical fields that we are able to manage, instead of employing fancy references to build authority and credibility in order to satisfy our imaginary audience. It also speaks to the tension between science as a spectacle – in a TED fashion – and science as a communal engagement in the project of knowledge.

**Bibliography:**

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