N. Ahuja

Bioinsecurities: Disease Interventions, Empire, and the Government of Species, Durham, Duke University Press, 2016, pp. 288
   by Lina Beatriz Pinto Garcia

D. Bennato

Il computer come macroscopio. Big data e approccio computazionale per comprendere i cambiamenti sociali e culturali. [The computer as a macroscope. Big data and computational approaches to understand social and cultural changes], Milano, Franco Angeli, 2015, pp. 148
   by Tommaso Venturini

S. Consigliere (ed.)

Mondi Multipli, vol. 1 - Oltre la grande partizione [Multiple Worlds - vol. 1 - Beyond the great divide], Napoli, Kajak, 2014, pp. 220
Mondi Multipli, vol. 11 - Lo splendore dei mondi [Multiple Worlds - vol. 11 - The splendor of the worlds], Napoli, Kajak, 2014, pp. 256
   by Tatsuma Padoan

A. Lowenhaupt Tsing

The Mushroom at the End of the World. On the Possibility of Life in Capitalist Ruins, Princeton, Princeton University Press, 2015, pp. 332
   by Laura Centemeri

L. Pelizzoni

Ontological Politics in a Disposable World: The New Mastery of Nature, Farnham, Ashgate, 2015, pp. 260
   by Roberta Raffaetà

D. Pontille

Signer ensemble. Contribution et évaluation en sciences [Signing Together. Contribution and Evaluation in Sciences], Paris, Economica, 2016, pp. 206
   by Barbara Pentimalli

T/S TECNOSCIENZA
Italian Journal of Science & Technology Studies

S. Tosoni with T. Pinch
Entanglements: Conversations on the Human Traces of Science, Technology, and Sound, Cambridge, MA, MIT Press, 2017, pp. 200
   by Mariacristina Sciannnamblo

T. Zuiderent-Jerak
Situated Intervention: Sociological Experiments in Health Care, Cambridge, MA, MIT Press, 2015, pp. 248
   by Stefano Crabu

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Neel Ahuja
Bioinsecurities: Disease Interventions, Empire, and the Government of Species, Durham, Duke University Press, 2016, pp. 288

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The book cover of *Bioinsecurities* arouses the curiosity of the reader with an exceptional black and white picture of a lonely rhesus macaque, in an introspective emotional state, in the midst of an undulating sea. It was one of the 409 monkeys that the US brought from India to Puerto Rico in the 1930s to start the first colony of free-ranging rhesus macaques in US-occupied territories for biomedical research on poliomyelitis. The image is troubling, perplexing and surprising. It condenses the kind of evidence and interspecies relations Neel Ahuja is interested in – visual and literary materials showing the entanglement of human, animal, bacterial and viral bodies in the US project of imperial expansion over the course of the long twentieth century (1870 – present). Ahuja's interdisciplinary work combines methodological approaches that are, for the most part, rooted in historiography and cultural studies, paying as much attention to archival materials as to photographs, films and literary works.

Through historical accounts of state intervention episodes involving interspecies contact, disease, and medical technologies, *Bioinsecurities* provides a genealogical understanding of the ways in which the US, as an

imperialistic machine, has sought to expand its dominance and control not only over territories and economies but also over varied domains of life. Based on this distinctive interspecies – bodily and material – approach to the history of US empire history, Neel Ahuja argues that disease interventions over interspecies relations have been crucial for the imperial project of US economic, territorial and military expansion, and also for the production of inequality in the distribution of life and death across the planet.

Two concepts are transversal to Ahuja's book and his overall argument. The *government of species* is the term he uses to refer to the ways in which "empire takes on life as a field of potential intervention" (p. 11). It is a double-way concept that comprises not only the modernizing – and more conventional – perspective that sees science and medicine as technologies used by states to control and dominate disease and human and non-human lives. This concept also encompasses the multiple ways in which species "govern the normatively anthropomorphized space of politics" (p. 11) and successfully challenge human-made dreams of species extermination and disease eradication. *Dread life* is the second concept Ahuja has crafted in order to capture the racialization of disease and contagion and the fears and anxieties towards foreign black and brown bodies as a means to channel optimism towards life-enabling medical technologies and state interventions.

Each of the five chapters of the book tackles one disease intervention, at a certain moment of US twentieth-century history, dictated by a specific racialization process of contagion, infectious risk and deviant behaviours through their association to foreign – constructed as alien, feared and even monstrous – populations and environments. The first two chapters provide examples of state interventions in US-occupied territories that employed spatial technologies, such as quarantine and incarceration, to disrupt interspecies contacts between settler bodies and viral and bacterial contagions. The first one explores the segregation of Hawaiians affected by Hansen's disease (leprosy) at a time when Hawaii's annexation to the US was at the centre of a polemic debate. The second chapter delves into the high incidence of venereal diseases among US soldiers deployed at the Panamá Canal Zone during the two world wars. It discusses the offensive strategy against Panamanian women who came to embody the threat of gonorrhoea and syphilis to the vulnerable bodies of white servicemen, with innate and uncontainable sexual desires, making women targets of criminalization, incarceration, forced medicalization and surveillance.

The third chapter moves away from the classic spatial battles of public health to one against infectious diseases by means of pharmaceuticals. Here, what matters is the management of time rather than space through the introduction of technologies used before (vaccines) or during the infection (antibiotics) to tackle the risk of bacterial and viral contact. This

strategy is explored through the importation of rhesus macaques from India to Puerto Rico and the use of these and other primates' bodies as "almost-but-not-quite-human models for testing drug safety and efficacy" (p. 20). This is, in my view, the chapter where the concept of *dread life* is at its most graspable state in Ahuja's work. Thinking along these conceptual lines, the author shows how primate trade and subsequent domestication in US-based institutionalized settings raised fears and concerns about human/animal and first/third-world contacts that were gradually appeased by fashioning primates into national subjects, "almost, but not quite, humans" (p. 117). The extraction of primates from (neo)colonialized regions and their exploitation as strategic resources for biomedical research made primates into *dread life*, provoking – ambiguously and simultaneously – anxiety towards their foreign bodies and optimism about their nationalization process and their use in the development of biomedical technologies. Ahuja argues that this episode in the history of the government of species was key in achieving public embracement and acceptance of biomedical interventions.

The fourth chapter of *Bioinsecurities* draws on the establishment of the international health movement during the Cold War and the efforts of scaling up public health interventions throughout the planet. Smallpox, the first disease to be worldwide eradicated in 1977, is the focus of this chapter. It explores the Smallpox Vaccination Program during the Iraq war and the fictitious idea of smallpox reemergence and weaponisation by Saddam Hussein as a pervasive incitement to war at the end of the twentieth century. In the fifth and last chapter of the book, time, space and scale strategies to manage an infectious threat converge in the case of HIV-positive Haitian refugees who were incarcerated in Guantánamo Bay, Cuba, in early 1991. Ahuja explores how the deployment of sovereign power – the right to kill – over the bodies of Haitian refugees was articulated through imperialist discourses that combine the threat of emerging diseases with biosecurity demands.

Neel Ahuja's work is a great example of the kind of ground-breaking interpretations of the political and historical consequences of imperialism and governance when seen through the prism of interspecies and decolonial epistemologies. They reveal the shortcomings of dominant anthropomorphic, white narratives of imperialism, science, health and diseases. They open up a wide field of inquiry to rewrite and re-account the myths behind these processes, as witnessed by Ahuja's study of episodes that question linear considerations of scientific progress or reductionist economic interpretations of imperialism and capitalism. Sometimes these efforts in departing from already explored angles come at a price: they demand very intricate arguments and interpretations, at times challenging for the reader for the number of aspects and consideration they involve in each case. Yet, the reader will be satisfied with the final outcome after reading *Bioinsecurities*.

Davide Bennato
Il computer come macroscopio. Big data e approccio computazionale per comprendere i cambiamenti sociali e culturali. [*The computer as a macroscope. Big data and computational approaches to understand social and cultural changes*], Milano, Angeli, 2015, pp. 148

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The Computer as a Macroscope is interesting book with a well-defined angle. Rather than delivering the umpteenth prophecy on how digital technologies will affect social life, the book describes how they already started to affect social research. Such angle (discussed in the first chapter of the book) allows Davide Bennato to steer clear of the vast and often shallow debate about the "digital age" and focus instead on the specific approaches and techniques of computational social sciences.

In its second chapter, the books focuses in particular on seven among the main approaches of computational social sciences: 1. analytical sociology (i.e. the effort to explain how global and long lasting structures are produced by local and ephemeral interactions); 2. network sciences and social network analysis (i.e. the investigation of the associations connecting individual in complex collective patterns); 3. social simulation (i.e. the struggle to understand social mechanisms by modelling them through agent-based models); 4. mimetics (i.e. the study of the 'viral' spreading of cultural items through media and especially social media); 5. cliometrics (i.e. the quantitative study of long-term historical trends); 6. behavioural economics (i.e. the use of experimental games, sometime in a digital form, to investigate or predict dynamics of cooperation or competition); 7. culturonomics and distant reading (i.e. the study of cultural and artistic phenomena through the analysis of large corpora).

The third chapter introduces four examples, allowing the readers to gain a deeper understanding of this emerging approach. The cases discussed include several influential studies. It is a pity, however, that all the examples concern traces extracted from social media (Facebook and Twitter in particular) and analysed through network models. While this type of studies does represent an important part of computational social sciences, it is far from covering the variety of such field. The richness and diversity of digital research, which is described in chapter 2, is here reduced to its most visible examples. This choice is unfortunate as much of the interest of digital methods comes precisely from their capacity to diversify and open the imagination of social sciences. Against "big data" prophecies, it is not the size of digital datasets that renews our understanding of the collective world, but their richness and variety. While the jungle of digital inscription meets the eye for its extension, its most amaz-

ing feature remains the stunning diversity of the species that it shelters.

The book of Davide Bennato does a good job in portraying the changing field of computational social sciences in a way that is both accurate and palatable. Instead of playing on the hype of big data and on the exoticism of computational research, it describes with plain words and vivid examples the practices of this new discipline. *The Computer as a Macroscope* is not a book for experts, it does not discuss the latest developments of digital techniques or their theoretical consequences. To borrow an expression from computer science, Bennato's book is "breadth first" (rather than "depth first"). Pushing the vanguard of digital sociology or perfecting this or that method is not the purpose of this volume, which strive instead to paint a wide portrait of the landscape of computational social sciences. In this, Bennato achieves the goal: readers searching a quick but exhaustive overview of this emerging research field will not be disappointed. The book touches upon the most important strains of digital scholarship in a way that is sometime rapid, but never inaccurate.

The main critique that could be addressed to *The Computer as a Macroscope*, however, concern its rather positivist view of social sciences. While Bennato introduces his work by observing that, in early modernity, the development of quantification techniques has played key role in the construction of our societies, he does not push his reflection to describe how the new computational research is currently affecting our collective life. He thoroughly describes the way in which digital technologies offers new investigation tools, but does not discusses the societal impacts of these research innovations. He introduced some of the most popular approaches of computational social sciences, but does not clarify which social visions are associated with them.

This is why the metaphor contained in the title of this book is misleading. The concept of "macroscope" risks to convey an idea of digital technologies as mere "observation devices" – instruments allowing researchers to see phenomena invisible to the naked eye. This is true, but also reductive. Besides being scientific instruments, digital technologies are also powerful social actors and mediating infrastructures. They certainly make the social more traceable, but they also do shape it in a variety of intended and unintended ways.

Even when considered specifically under the angle of social sciences (as in Bennato's book), digital technologies are not just observation devices, but also tools through which certain forms of collective coordination are promoted, while other are opposed. This type of is observation is presented in an 8th strand of digital research, absent from Bennato's book. Developing a sort of meta-reflection on computational social sciences, a number of researchers coming from the Science and Technology tradition have extensively showed how, far from being neutral, digital methods are associated with specific forms of visibility (cfr. among others, Bowker et al. 2009; Law, Ruppert and Savage 2011; Rogers 2013; Marres 2017).

More than to microscope or telescope observation, computational research resembles to cartography in the 16th century (cfr. Turnbull 2000) or demography in the 19th century (cfr. Desrosières 1993). As geography and statistics supported the rise of the national state in its modern form (cfr. Porter 1995), so the new computational research influences the way in which we live, buy and vote – and such influence will no doubt grow in the next years.

This is why books like *The Computer as a Macroscope* are deeply needed. Describing the emergence of new computational paradigms, they help us reflecting on the many ways in which digital technologies affect scientific research. This a very important contribution, but one that leaves open the most important question of contemporary sociology: do we understand what forms of social organization are we promoting through our computational research? And are we ready to stand by them?

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Stefania Consigliere (ed.)
Mondi Multipli, vol. 1 - Oltre la grande partizione [*Multiple Worlds - vol. 1 - Beyond the great divide*], Napoli, Kajak, 2014, pp. 220
Mondi Multipli, vol. II - Lo splendore dei mondi [*Multiple Worlds - vol. II - The splendour of the worlds*], Napoli, Kajak, 2014, pp. 255

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This collection of works is one of the first attempts to provide Italian readers with a panoramic overview of the so-called "ontological turn" (OT) in social and cultural anthropology.

The two volumes of *Mondi multipli*—fifteen articles in total, of which thirteen in translation—present a wide range of authors and topics, dealing with the methodological, philosophical, and political implications of the use of ethnographic concepts in order to dismantle the modern idea of a unified nature of the world. While the first volume, *Oltre la grande partizione*, focuses on general theoretical issues concerning the OT, the second volume *Lo splendore dei mondi* is more ethnographically oriented and approaches the problems raised in the first volume by offering examples and case studies from specific field sites.

Moved by the question "What happens when one takes indigenous thought seriously […] verifying the effects it can produce in our own thought?" (De Castro 2014, 194), the authors try to trace a different cartography of human and nonhuman collectives, following not only the proliferation of different cultures, but also of different ontological realities emerging with them. While the idea of variable "ontologies" has circulated in STS for more than two decades (Latour 1993; Mol 2002), and might be considered – along with the concept of "nonhuman agency" (Latour 2005) – as the specific contribution of STS to anthropology (de la Cadena et al. 2015), the OT in anthropology characterises itself through four specific features: multinaturalism, antirepresentationism, induction, and self-determination.

The first one, multinaturalism, is based on the idea of multiplying the natural reality, often presented in Western societies as a singular material entity. This theoretical move, which introduces an inversion of the one nature/many cultures approach that has characterised social and natural sciences, is heavily indebted to ethnographic research conducted in Amerindian societies over the last three decades, notably within the work of Eduardo Viveiros de Castro and Philippe Descola (two of the authors translated in the collection).

They both show that for Amerindians what distinguishes humans from nonhumans is not a different interiority – a soul –, as animals and supernatural entities may also have the same kind of soul according to na-

tive animistic conceptions, but their exteriority – the physical body itself.

In the seminal article "Cosmological pronouns and Amerindian perspectivism"— translated in the vol. II of this collection — Viveiros de Castro delves into this interiority/exteriority issue. He then underlines that if animals and spirits, like humans, have the same interiority or soul, they do also have similar *cultural* institutions, customs, ceremonies and their own kinship relations, akin to humans ones. However, he also brings attention to the fact that each group (humans, jaguars, peccaries, spirits, etc.) perceives the other as non-human, because they present a different natural exteriority. What we see as blood, to the jaguar is maize beer, what we perceive as a waterhole in the ground, is ceremonial house to peccaries; jaguars see themselves as humans and perceive us as game animals to hunt, while peccaries, who see themselves as persons, consider both humans and predators as spirits who chase them. Amerindian therefore only have one animistic model of humanity and culture, distributed across different species, and several natural worlds, one for each point of view. Wherever the perspective changes, "culture" will always be marked by the pronoun *us*, while "nature" will be marked by *them*.

The second feature, emerged in association with multinaturalism, is the antirepresentationism, which is also shared by STS (Woolgar and Lezaun 2013). This feature marks a strong shift from epistemology to ontology, i.e. from an idea of multiple worldviews as cultural representations of a single natural world, to the emergence of different native ontologies that people inhabit. This goes against a divide or partition — extensively discussed by both Bruno Latour and Isabelle Stengers in their articles in vol. I — set by Western modern societies between a supposedly inert material reality, only grasped by Western science, and the transient mental representations through which non-Western people imagine such a reality. The rejection of the concept of representation is thus linked to the refusal to reduce non-Western people's real worlds to mental artefacts subordinated to Western knowledge.

A third feature characterising the anthropological trend presented in this collection is instead the concept of recursivity – which seems to us more adequate to call "induction"[1]. One of the major proponents of this concept, together with Viveiros De Castro, is undoubtedly Martin Holbraad, whose article is included in vol. II. According to Holbraad (2012, 276), the term "recursivity" refers to "operations whose formal properties are modified by the contents on which they operate". In other words, anthropological theory and methods may be affected by the concepts expressed by the people ethnographers are working with. This idea led exponents of the OT to formulate an inductive methodology, consist-

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[1] The term "recursivity" in fact, in mathematics, linguistics and semiotics, refers to the indefinite application of the same rule to products of preceding operations.

ing in the adoption of ethnographic concepts emerging from the field, in-
to the theoretical apparatus of the anthropologists themselves. Concepts
like the animistic perspectivism outlined above, would thus become part
of our theoretical framework, with the precise effect of shaking common
Eurocentric conventions and assumptions.

A last and fourth feature is what I termed self-determination. Alt-
hough not shared by all the proponents of the OT (see Holbraad and De
Castro 2016), it is incisively presented in the last article of vol. I by
Viveiros De Castro, and concerns a more "engaged" side of this trend (al-
so discussed in Latour's article in the same volume). This element has
been particularly emphasised by the editor Consigliere in her article (vol.
I), and can be considered as a political implication of the theoretical move
suggested by the other three elements. It refers to a possible reconception
(Nelson Goodman) of anthropology as "the science of the ontological
self-determination of the world's people" (De Castro in vol. I, 203). The
"new mission" of anthropology should in fact consist in giving voice to
local ontologies through a "theory/practice of the permanent decoloniza-
tion of thought" (De Castro 2014, 40). Such position, which may slightly
sound as a manifesto for indigenous rights, is actually part of a wider the-
oretical trend, partly shared by STS, which tries to decentre the modern
Western idea of human subject by opening the range of ontological pos-
sibilities to also include nonhuman actors. The idea of self-determination
implies both the denial of the intellectual superiority of the modern West,
and the destabilisation of its political authority over the right of indige-
nous cosmologies to exist as real ontologies.

The four features I listed may be useful to provide an overview of the
OT in anthropology as it also emerges from the two *Mondi Multipli* vol-
umes. These features, however, are far from covering the complexity of
each position and author, as well as the various issues addressed by this
collection. Some of these authors are already well known within STS (In-
gold, Latour, Stengers, and Strathern), other are more specifically related
to social anthropology (Descola, De Castro, Santos-Granero, McCallum,
and Holbraad), having worked on topics not directly connected to STS.
This collection also includes scholars who would hardly be associated
with the OT in international debates like Jean and John Comaroff, advo-
cates of "historical anthropology", or like Piero Coppo and Mike Single-
ton. The inclusion of these last two authors in the collection resulted from
collaborations with the editor in the field of ethnopsychiatry, a discipline
which already has deep connections with STS *via* the work of Nathan
with Stengers, reconsidered by Latour in term of factishes. Coppo and
Singleton seek to further explore ethnopsychiatry by presenting their re-
spective ethnographic experiences in Africa.

While the collection is valuable for the range of scholars and ideas
presented, the way the different authors are portrayed might not reflect
current anthropological discussion at the international level. Indeed, in

her article and prefaces to the two volumes, the editor never tries to clarify and problematize the great diversity of opinions and positions found within the OT, between, e.g. Latour, Descola, De Castro, and Ingold, and thus hardly engages with the current debate.

Also, the way the editor connects the OT to a possible Italian antecedent is quite questionable. Consigliere finds in the figure of Ernesto de Martino a possible forerunner for this trend (vol. I, p. 19). She seems to be implicitly driven by De Martino's idea of *crisis of presence*, thinking about it as possible explanatory model for the emergence of the Turn. While such application of an explanatory model of "crisis" related to a "social context" in Consigliere's article may sound highly suspicious to STS readers (cfr. Latour 2005), we should also keep in mind that de Martino's historicism stems from a Hegelian idealistic tradition diametrically opposed to the structuralist and post-structuralist movement from which the OT emerged (de Castro 2014). De Martino (1982) on the contrary sees history as active and pure human presence, where individuals affirm themselves against a backdrop of nature from which they forcefully emerge. This strong idea of subjectivity, where history is only defined in terms of "human society," or "a mode of collective organisation for the technical domination of nature" (De Martino 2012, 442), considerably diverges from STS concerns for the social role of nonhumans, as well as from the Amerindian reversal of the nature/culture relationship. In Amerindian myths the original condition of both humans and animals is in fact humanity and not animality (De Castro in vol. II), so that nature progressively emerged from culture and not vice versa.

This underlying identification of themes from the OT and the Italian historicism seems rather puzzling, all the more when the editor contrasts a supposedly Western "ontological monism" stemming from Greek and Christian thought, with the plurality of non-Western metaphysics. This position actually runs against Latour's idea of ontological monism as related, conversely, to the network-like complex interconnection between humans and nonhumans in non-Western cosmologies, whereas Western cosmology would instead be characterised by a dualism between nature and society, which radically spread with modernity (Latour 1993).

Despite such shortcomings, the two volumes can result relevant for the Italian STS community at least in two ways. On the one hand, they make available interesting ethnographic results coming from fieldwork in non-Euro-American societies, analysing radically different ways of thinking and living the relation with the environment. On the other hand, some of the translated articles make visible how some threads in the anthropological OT are at odds with STS's approaches and findings. For instance, in certain cases, anthropological OT is not able to go beyond the same modern dichotomies they are trying to question (e.g. Holbraad in vol. II) or it tends to project back onto "the West" old assumptions which STS scholars have been busy dismantling for at least the two last decades.

One example is Descola's quadripartite division of world ontologies into animism, naturalism, totemism and analogism (vol. I). In the same way as STS have demonstrated that one specific ontology does not refer to a whole collective of people, but people within the same collective emerge from different and often contrasting ontologies, general ontologies postulated by our informants in either Americas or Europe "in theory," are often subverted by local ontologies produced by the same informants "in practice" (Woolgar and Lezaun 2013). It remains thus highly questionable whether a general theory, either perspectivism or mononaturalism, would be heuristically useful to describe what "Amerindians" or "Europeans" do in practice in their lives.

To conclude, apart from the shortcomings of the Italian editorial operation, and a few questionable assumptions made by some of the authors about a monolithic "West" and the applicability of general ontologies, I would recommend this collection for the breadth of its themes, the quality of the articles translated, and the specific ethnographic contribution, which should appeal to STS scholars.

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Anna Lowenhaupt Tsing

The Mushroom at the End of the World. On the Possibility of Life in Capitalist Ruins, Princeton, Princeton University Press, 2015, pp. 331

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Can a mushroom become our guide to explore the "dark wood" of the current global capitalism, the "savage, dense and harsh" wood in which, paraphrasing Dante, we seem to have lost "the straightway"? This is the journey that anthropologist Anna Tsing invites us to engage in: the journey of the matsutake mushroom (*Tricholoma matsutake*), from gift to commodity and back. This journey brings us from "disturbed" forestry landscapes that, in such disparate places as the US state of Oregon, the Chinese province of Yunnan, Finland and Japan, result from "the overlapping world-making activities of many agents, human and not human" to the realm of disembedded market commodities in which the mushroom shortly, but decisively, dwells before its transformation into what is considered in Japan as a highly appreciated gift.

With this book Tsing pursues the programme of ethnography of "global connections" she began in the 1990s, with her work on predatory business and local struggles around Indonesian tropical rainforests. That work already focused on the study of "frictions", meaning the potentially empowering but also compromising effects of "encounters across differences". Now Tsing observes these frictions in the encounters of value regimes across the Matsutake mushroom global supply chain. Along the way, Tsing develops an original analysis of the value regime of our current capitalist economy that rests on three key-concepts: *scalability* (and its contrary, *nonscalability*), *salvage accumulation* and *global supply chain*. According to the author, scalability means "the ability of a project to change scales smoothly without any change in project frames. A scalable business, for example, does not change its organization as it expands. This is possible only if business relations are not transformative, changing the business as new relations are added" (38). Modernity and capitalism, according to Tsing, are filled up with dreams (and nightmares) of scalability that shape progress in the form of expansion. Scalable projects (be them social, economic or political) are oblivious to the diversity of contexts and the indeterminacies that originate from the encounter with this diversity. Nonscalability, on the contrary, refers to everything that is without that feature, "whether good or bad". In fact "nonscalability is by no means better than scalability (…). Feudal service was a nonscalable form of labor but not commendable because of it. (…) At the same time, ecological complexity is nonscalable, and so is love; and we value these things". According to Tsing we need a theory of the nonscalable, intend-

ed as an analytical frame designed so to notice nonscalable phenomena, because only through noticing the nonscalable it is possible to recognize "salvage accumulation". Salvage accumulation is the feature of capitalism consisting in "taking advantage of value produced without capitalist control" (63) or, more precisely, the ability to create capitalist value from nonscalable value regimes. Salvage accumulation operates through global supply chains that have become the dominant form of organization of commodity production in today world capitalism: "Supply chains are commodity chains that translate value to the benefit of dominant firms; translation between noncapitalist and capitalist value systems is what they do" (63). Wal-Mart is a good example of how a supply chain works. Retail expansion does not require that production be scalable: "Production is left to the riotous diversity of nonscalability, with its relationally particular dreams and schemes. We know this best in 'the race to the bottom': the role of global supply chains in promoting coerced labour, dangerous sweatshops, poisonous substitute ingredients, and irresponsible environmental gouging and dumping" (64). As explained by Tsing: "in this 'salvage' capitalism, supply chains organize the translation process in which wildly diverse forms of work and nature are made commensurate –for capital" (43).

In this respect, Tsing's analysis should be of interest to the community of sociologists and other social scientists working on issues of value and valuation. Shifting the analytical focus from the variety of technical devices of "qualculation" to the irreducibly contextual value regimes that emerge in livelihood processes, Tsing stresses the importance of paying attention to the nonscalable modes of valuation that innervate livelihood practices.

"Noncapitalist value systems" are defined by Tsing as "gift economies": not much more is said in the book about the specific modes of valuation that organize these evaluative spaces, beyond the fact that they are nonscalable, i.e. they cannot be scaled without changing the framework of knowledge or action. Still, Tsing's contribution to the debate on valuation and evaluation is important in that it points to the relevance, both in research and in politics, of *noticing* the nonscalable value regimes embedded in life processes.

Somehow, Tsing's idea of "salvage accumulation" echoes the analysis of the feminist thinker Silvia Federici (2012) and her denunciation of the systematic devaluation of "reproductive work", the largely unnoticed work that is needed for the maintaining of life processes. For Federici too, the sphere of reproduction (extended to include the reproduction of life in the environment) is a sphere of nonscalable modes of valuation that can be shared through practices of "commoning". Tsing, for her part, introduces the idea of "latent commons" to point to "entanglements" of human and non-human beings "that might be mobilized in common cause" (135). They are not "exclusive human enclaves" and the opening

of the commons to other beings shifts everything: "Once we include pests and diseases, we can't hope for harmony" (255).

Tsing's tone is in fact much less optimistic than Federici's call for a revolutionary resistance against capitalism, led by women and built on the "commoning" of reproductive work. In line with recent developments in feminist new materialism, Tsing embraces the perspective of a fluid state of reality, of an "earthwide condition of precarity" seen as an opportunity for new possibilities of multispecies coexistence, shaping a "third nature", that is, "what manages to live despite capitalism" (viii). Her enthusiasm for the perspective of the adventurous "life without the promise of stability", however, is quite moderate. In fact, "a precarious world is a world without teleology" (20), which means that "progress stopped making sense", for better or worse. The "end of the world" evoked in the book's title is the end of the modern world, with its progressive destinies and its oppression, both related to projects of scalability. On the one hand, the author argues, "dreams of progress" have blinded us to the diversity of the many world-making projects, human and non-human, that surround us. Without progress, capitalism has no teleology either, which means that "we need to see what comes together – not just by prefabrication, but also by juxtaposition" (23). According to Tsing, descriptions of capitalism as an all-encompassing global political economy (as, for example, in David Harvey's or Michael Hardt and Antonio Negri's analysis) may be accurate when pointing to the capitalist ambition of generalizable commensuration of all forms of value, but they can also underestimate the interweaving of historical contingencies and the fact that unexpected social forms can still emerge within capitalism.

On the other hand, Tsing acknowledges that "progress gave us the 'progressive' political causes with which I grew up. I hardly know how to think about justice without progress" (24). Scalability is a two-faced Janus and Tsing's book does not provide a solution to its enigma.

The author points to the possibility of "collaborative survival" within environmental disturbance; here it should be stressed that "survival" is not the same as flourishing. There is no optimism in Tsing's account of the adventures of the matsutake mushroom. But neither is there total despair. Even if she believes speaking of "postcapitalist politics" and economies is premature, she argues that out there are "pericapitalist economic forms" that "can be sites for rethinking the unquestioned authority of capitalism in our lives. At the very least, diversity offers a chance for multiple ways forward – not just one" (65). Still "since no patch is 'representative', no group's struggle taken alone will overturn capitalism. Yet this is not the end of politics" (134). However, the question of how to build equivalence between nonscalable "social demands", in Ernesto Laclau's sense (Lacau 2005), remains open.

Should we then really give up on all ideas of progress? As Peter Wagner (2015) suggested, we should at least not renounce the idea of progress

towards "a more adequate interpretation of the world we live in", by identifying new forms of domination while combatting "the hubristic inclination of considering human beings as actually capable of mastering all aspects of their existence on this earth" (Wagner 2015). In this respect, there is something that, according to Tsing, we, as social scientists, can do for a start: practice the art of noticing in our research. This means "to look around rather than ahead", to cultivate the vulnerability to unexpected encounters (with entities, objects, disciplines); to pay attention to the margins, with no rush to adhere to a pre-formatted narrative.

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Luigi Pellizzoni
Ontological Politics in a Disposable World: The New Mastery of Nature, Farnham, Ashgate, 2015, pp. 259

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Since roughly the 1990s, the "ontological turn" has been one of the most thrilling "turns" within social sciences. It has been a breath of fresh air beyond the limits and impasses of either constructionism and positivism. However, its thrill stems also from the controversies it raised, as STS scholars know (see, for instance, the debate in a recent issue of *Social Studies of Science*, 3/45 of 2015, spurred by a previous issue of *SSS*, 3/43 of 2013, dedicated to the issue).

Luigi Pellizzoni, in his book, brings such turn under deep scrutiny. Is it really the case, he asks, that the ontological turn has emancipatory implications? Can the conflation of the epistemological under the ontological liberate humans and non-humans from a dominative, hierarchical and exploitative logic which is based on dichotomies (of nature/culture, thing/thought etc.)? His answer is substantially negative. Pellizzoni, indeed, argues that the ontological turn is paradoxically nourishing neolib-

eral values and very consistent with them by celebrating flexibility, contingency and precariousness together with the "ever-green" capitalistic value of endless growth.

His critique is illuminating and, even if not always totally convincing, it is an engaging contribution, which encourage critical thinking. Through an unprecedented broad and very analytical examination, this book is also an impressive work of erudition, an exciting journey that connects ancient Greeks to most recent approaches in philosophy, social sciences and anthropology. For this reason, it can be read as a good – even if not short – introduction to the ontological turn, as well as a critical in-depth analysis of it. By drawing together the apparently unconnected threads of the ontological turn, it allows to grasp a broad intellectual landscape. The book starts with four cases, which have gained salience since the '90s and which exemplify the commodification of fields of material reality previously unaffected by market dynamics: 1) Carbon markets: each company has the right to pollute up to a certain amount, but can always buy quota from companies that pollute less; connected to this exchange of pollution permits there are "weather derivatives", i.e. financial instruments transforming environmental risks into investment opportunities; 2) Geoengineering: it consists in the manipulation of the planetary environment to counteract climate change, through, for example, carbon dioxide removal or solar radiation management; 3) Biosciences and biotechnology patenting; 4) Human enhancement: i.e. techniques applied to the human body to enhance indefinitely its potentiality and efficiency.

The blurring of the distinction between matter and information, living and non-living, identity and difference is what these four cases have in common. In this way they legitimize an ecological politics based on the value of unlimited growth and ideas of mitigation of risks and adaptation, instead of one based on limits and equilibrium, thus weakening precaution as policy framework.

In the second chapter, Pellizzoni grounds these cases in the "ontology of the present", marked by the imbrication of humans things, nature, environment. Neoliberalism is seen as an intensification of liberalism, which, differently from the latter is not concerned by limits. Chapter 3 is the core of the book, the one in which Pellizzoni confronts himself with scholars linked to the ontological turn – the "postconstructionists", as he calls them. The main hypothesis of the book is the existence of a "subterranean complicity of social theory with neoliberalism" (69), defined by him not as simple subservience to capitalist interests, but "the sharing of a framing and sense-making which constitute the condition of possibility for certain problems to emerge and certain answers to these problems to become conceivable" (70). In the first part of the chapter he discusses the main features of the ontological turn: an exacerbation of constructionism, as an attempt to reconcile constructivism and realism. As everything is constructed, it is also real. This brings to 1)

the rejection of dualisms, hierarchies and identities, these replaced by fluid, emergent and contingent ontologies; 2) taking techno-scientific advancements as inspiration for innovation in social sciences; 3) connection of the "real" and the "political". In the second part of the chapter Pellizzoni analyses selected strands in the ontological turn: Marx and post structural-marxism; Actor-Network Theory; feminist new materialism; Paolo Virno; multinaturalism; speculative realist philosophers. There is no space to account for the detailed ways in which Pellizzoni examines these approaches. In general, he observes that indeterminacy is not a means for emancipation but a perspective of the world in contiguity with Neoliberalism, thus not a real alternative to it. Pellizzoni defines post-constructionism as just another analytics of truth (as positivism, for example), which defines what is right and true (contingency, fluidity, etc.) against what is not (stability, identities, etc.) (see also Laidlaw and Heywood 2013) and, as such, it is intolerant of other perspectives (see also Scott 2013).

In the fourth chapter, Pellizzoni analyses the limits of both post-constructionist theories and neoliberalism. He illustrates the metaphysical underpinning of modern science and technology, which, through Darwinism, conceive life as a general force, exceeding the life of singular living beings and thus establishing an ontological symmetry and continuity between humans and non-humans, where difference and variation are the base for contingent ontological outcomes. By assuming the Darwinian continuity between humans and animals, modern technology conflates nature into culture making ontology and epistemology overlap, thus justifying an unlimited exploitation of nature. Against this backdrop which characterizes both the *a-priori* of neoliberalism and of post-constructionism, Pellizzoni proposes Heideggerian theories: for Heidegger, technology is positive as long as it is used to dis-conceal nature through "bestowing", which is "listening to and respecting the poiesis of nature, its self-giving" (154). According to Pellizzoni's reading of Heidegger, humans and non-humans can never fully overlap and the acknowledgment of this gap, this "remainder" is key to respect nature's mystery. Thus, Pellizzoni, building on Heidegger, proposes a critical humanism which is critical because builds on the conditions specific to humans without drawing any hierarchical implication from it. I consider this call to a re-evaluation of a certain kind of humanism, as a solution to an increasing trend of exploitations, the most innovative contribution of this book.

In the final chapter, Pellizzoni, on one hand questions the way politics is addressed by these ontological approaches, transfiguring politics into ethics, on the other hand he introduces other possible approaches. By reconsidering biopolitics, Pellizzoni not only states the impossibility to deactivate biopower through desubjectivation, but also brings attention to how, through desubjectivation, biopower is enhanced: "the more deper-

sonalized one is, we could say, the more one can personalize itself in whatever direction" (183). Pellizzoni identifies a link between this process and current forms of self-capitalization, political consumerism, and – referring to the digital revolution – the coexistence of new monopolies thanks to "open" and ideological communities of commons. According to Pellizzoni, the current focus on ethics results in apolitical consequences because it prompts an ideal of fulfilment, expression and expansion of oneself, a move toward internalizing the world within oneself and, therefore, moulding and exploiting it in line with the capitalistic values of optimization, growth and expansion.

As alternatives, Pellizzoni considers Theodore Adorno and Giorgio Agamben. The German philosopher emphasizes the always present remainder out of the encounter between epistemology and ontology, the necessary violence (contrasted by Pellizzoni with the pacification of assemblages) necessary for change and critique. For Pellizzoni, the subtle but crucial difference between Adorno and post-constructionists is that for the former things are neither cultural nor natural, while for the latter things are both cultural and natural. The most recent work on Franciscanism of Agamben inspires, on the other hand, Pellizzoni's proposal for an alternative to both post-constructionism and realism or constructionism. It is to encourage a form of life based on our impotentialities, defined as "our possibility of not willing = doing = being" (215), against neoliberal understanding of "being" as consequence of the capacity to act, based on ideas of duty and will. Choose to not choose is, for Agamben-Pellizzoni, the crucial feature making us truly "human", as the capacity to deactivate the paradigm of operativity. This can be obtained granting primacy to acting over being (as according to the monastic rule) and establishing "use" as an alternative to property or right. This conclusion is somehow evocative and intriguing but it is not very clear how this alternative can be applied in real life and also intruding the doubt that the acting which should ground this new form of life is, at the end, very similar to "practice".

In general, Pellizzoni's critique of the ontological turn being not political is not a totally new observation but while similar critiques are mostly based on ideological and weak underpinnings easily deconstructed (Candea 2011; 2014; Holbraad and Pedersen 2014; Holbraad, Pedersen and De Castro 2013), Pellizzoni's argument is theoretically very solid and he deals with an in-depth and careful analysis of what he criticizes. Therefore, Pellizzoni's work cannot simply be dismissed as trivial "noncommon-sense" (Pedersen 2012) but it provides food for thought for the critical assessment of the limits and threats of the ontological turn.

Still, I have two main remarks: I do not totally agree that post-constructionists draw a complete overlap between the epistemological and the ontological: in the work of Barad (2007) "what is left" is often reminded and in the work of other scholars (see for example Abra-

hamsson, Bertoni, Mol and Ibáñez Martín 2015; Greco 2004) is the main topic. Secondly, and related, I am not sure that Pellizzoni's theoretical alternative is not in the order of an analytics of truth. Pellizzoni advances a privative ethics, a negative modality of knowledge based on what is not accessible because out of human limits, while post-constructionists propose an ethics of excess (see for example, de la Cadena 2015), this resulting, similarly, in the incapability to access a final truth, because there are too many truths and only one is realizable at a time. Both define truth as something beyond the human – and this is a statement of reality. Thus, I would find more appropriate to define both as analytics of truth: Pellizzoni's negative modality is a step in the dialectical construction of identity, therefore within a logic of identity. The difference is that one has affirmative connotations, while the other has critical tones. Probably, it is impossible for humans to escape an analytics of truth exactly because the constitutive gap between ontology and epistemology condemns us to stick to the epistemic side, these being critical or affirmative. Thought, these two options are fairly different, and with potential for supporting or criticizing very different applications, as they define the ethical and political posture in accessing and relating to reality.

To conclude, Pellizzoni seems guilty of the same sin he accuses post-constructionists: to exaggerate the differences among them. But after all, I do not see this as sin but as a skill, necessary for developing critique, which is to make visible some hidden or potential risky trends allowing us to reflect always deeper about who we are and what we are doing in this world.

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David Pontille

Signer ensemble. Contribution et évaluation en sciences [*Signing Together. Contribution and Evaluation in Sciences*], Paris, Economica, 2016, pp. 206

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Since the 1980s we have seen the rise – if not the obsession – of evaluation policies of the academic production through the proliferation of performance indicators and devices to judge and measure contribution in sciences (bibliometric indicators, journal classification, and peer review). The translation of new public management theories into the academic field with the aim of tracing and measuring the individual contribution becomes problematic since every scientific activity – as *Laboratory Studies* had proved – implies the participation of human teams and the use of many instruments, artefacts and techniques. So the question is: how to distinguish the contribution of each one? How to decide who is legitimated to acquire the status of *author* signing the publication of research results? How to establish, without any doubt, what a scientific contribution is? The book *Signer Ensemble. Contribution et évaluation en sciences*, by David Pontille, analyses scientific contribution by simultaneously taking into account the issues linked to the knowledge production, the work organization and the evaluation policies for different historical peri-

ods and in three research fields: Life sciences, Medicine and Physics of particles. What makes this book original is that it combines some concepts and approaches coming from *Laboratory Studies* and *Actor-Network Theory* – i.e. the scientific work as a result of alignment of heterogeneous elements – with those belonging to the sociology of work. Pontille asserts that, with the exception of the book *Epistemic cultures* by Knorr Cetina (1999), *Science and Technologies Studies* tended to focus on the production of scientific authority by neglecting the fine grained analysis of processes that circumscribe contribution in sciences. Therefore, Pontille investigates the vocabulary of scientific contributions and practices of signature by inscribing them into what he calls "agencements" of scientific work, involving human, economic and technical resources, and analyses differences in work division, hierarchy of tasks and *technologies of attribution* according to specific organizational forms and epistemic cultures. As the author stressed in a previous publication – *La signature scientifique: une sociologie pragmatique de l'attribution* – researchers' names in scientific papers have been massively considered in a quantitative way by transforming signatures into bibliometric measurement units instead of documents to be opened. Seeing that name ordering is characterized by ambiguity (Zuckerman 1968) that researchers try to reduce through specific practices (alphabetic or decreasing order with the relevance of the last position), these names are not neutral recipients for the allocation of credit but allow the evaluation of the *agency* supporting scientific statements. Instead of considering researchers as the unquestionable origin of scientific production, Pontille grasps how human actors and instruments that inhabit laboratories are considered in the evaluation and how technologies of attribution come up by establishing some shared conventions. Another interesting aspect of the book is that these conventions are not fixed once and for all, but unstable: they change and are questioned along historical periods and according to specific forms of work organization and knowledge production, imply controversies among actors of the scientific scene (researchers, scientific journals, editors, professional associations) and represent a temporary resolution of conflicts for defining what a scientific author and a scientific contribution are. Pontille takes into account the epistemic and organizational transformations of scientific work by showing how new forms of knowledge change not only the way to conceive and circumscribe the pertinent phenomena to be studied, but also the modes of work organization and the way to evaluate and identify scientific contribution. Chapter by chapter, the book traces the stabilisation of three regimes of contribution with their own drifts, conflicts and changes: *Authorship*, *Contributorship* and *Membership*. As in the literary world, where the agency of an author (heir of the romantic figure of *genius*) is considered as an instantaneous and creative action instead of a long distributed activity involving other participants to the production chain (ty-

pographer, printer, editor), *Authorship* in science proclaims and recognizes only some genius in spite of a crowd of assistants and technicians, who remain invisible (Star and Strauss 1999) even they contributed to the scientific discoveries. The organization of work is based on vertical division of specialized tasks and on administrative hierarchy of positions (professors, researchers, post-doc, PhD students, engineers, technicians). The owner of a production unit – who synthesizes in his name the combination of epistemic, geographic, social and material elements – acquires the administrative management and the scientific responsibility. This conception, coming from the 17th century experimental science (Shapiro 1994), determines also the signature assigning the major part of work to the responsible of the team (the last name), who cumulates scientific prestige and institutional authority. However, the *Authorship* becomes progressively not adapted to the epistemic and organisational changes of medical research, and an alternative one emerges: the *Contributorship*, proposed as a solution to the excessive growth of signatures in scientific papers. In the 1950s researchers and chief editors argued that the writing of many impedes the identification of individual contributions. In the 1980s the increase of fraud revealed unacceptable practices in signing papers presenting false results and the multiplication of honorary signatories proved the loss of credibility of authorship. Moreover, when research projects become more multidisciplinary and require the association of several teams and geographical sites, it becomes more difficult to establish a hierarchy of contributions or disciplines. In this more horizontal division of work, the primacy of a only one leader tends to fade away by undermining the regime of authorship (Wray 2006). The crusade of chief editors of scientific journals for establishing an alternative option more adjusted to the new conditions of biomedical research lead to the systematic description of the contribution of each signatory to trace the scientific work in a more transparent way. *Contributorship* no longer recognizes the team as an epistemic, instrumental and geographical unit around the leader who hold the bigger part of credit and responsibility. The attribution shifts towards the project federating several teams for a period of time. These new distributed organisational forms give less relevance to the planning of tasks or to the hierarchy of positions and more importance to the fluidity of activity, the temporary combination of competencies and the flexibility of operators involved in ephemeral teams. The third regime of contribution – the *Membership* – is practiced in the Physics of particles where a project consists in fabrication, adjustment and maintenance of a giant instrument (accelerator and detector of particles) requiring a federation of teams coming from diverse research institutes over a ten years period. The minuscule, furtive and ephemeral entities emerging from the collision between particles demand innumerable tests, regulations and controls to identify their effective presence among the ground sound. Since the 1990s several laboratories from over the world

participate in the same project associating a detector to an assembly of researchers. As the project lies upon a large and durable collaboration and a decentralized supervision of experiments, the technology of attribution does not glorify some researchers with exceptional qualities. Actors contributing to the fabrication, assemblage, regulation and maintenance of technical infrastructure are all legitimated to sign scientific publications, without any distinction between technical or intellectual work. The collective name of the project talks with one voice for multiple research groups and institutions by privileging the common biography of a massive instrument and of a large work team.

The book shows that scientific signatures act differently and gain different value according to their graphical arrangement. In *Authorship* only some names acquire relevance while others remain insignificant, the more the list of names grows the more it is difficult to distinguish the principal author, each name is in competition with the others and any additional one undermines the value of others because of the risk of fragmentation. In *Contributorship* the names don't have the same value, the perimeter of each action is well delineated, the credit is distributed but the responsibility is individual and the evaluation considers the personal contribution. In *Membership* the collective name prevails over the list of signatories, signing means to be collectively an author (Galison 2003) and the more we add signatures the more positive it is. Three metaphors for these types of regimes are as follow: the *authorship* is like the literary author of an oeuvre, the *contributorship* is like the list of professionals appearing in film credits and *the membership* is like a group of people signing a petition.

Signer Ensemble also suggests an opportunity to reflect within our sociological discipline, also characterised by evaluation policies aiming to distinguish individual performance within scientific work and by tensions caused by the consecration of some researchers according to their hierarchical positions. Does the signature in sociology tend to favour and award those who are already well known? Are we faced with a field in which rivals fight each other to obtain scientific prestige by making (in)visible some of the heterogeneous elements participating to the scientific activity as, for example, the work of research assistants or the agency of technologies? Does this obsession with bibliometric indicators and individual evaluation discourage collaborative work and collective publications? Does it cause a fragmentation of knowledge in a multitude of brief articles on very well-known scientific journals to the detriment of a richer theoretical reflection?

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Simone Tosoni with Trevor Pinch
Entanglements: Traces of Science, Technology, and Sound, Cambridge, MA, MIT Press, 2017, pp. 200

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Science and Technology Studies (STS) are a compelling and heterogeneous interdisciplinary body of knowledge that has come a long way and continues to attract new generations of researchers. Despite in some geographical areas, such as Southern Europe, they are still relatively new, the maturity acquired after decades of intellectual debate and research efforts in the field are spurring moments of reflection and reflexivity among STS leading scholars, who do not dodge providing their own stories and viewpoints on the development of the field through conversations and interviews. In reading them, we come to know that, for example, Donna Haraway started reading St. Thomas when she was about twelve years old because of the advice of a Jesuite priest (Lykke et al.

2000), that a young PhD candidate Michael Lynch, like most of Ph.D candidates, mastered "the dubious arts of writing" that combined "defensiveness and intellectual pretense" (Lynch 2016), and that, in her encouragement to be "wild, innovative, inventive, sharp" as STS scholars, Anne Marie Mol thinks that guerrilla tactics are far more effective models than "old fashioned battles over regionally demarcated pieces" when it comes to sex-struggle (Bauchspies and de la Bellacasa 2009). It is precisely this blend of personal anecdotes, daring claims, and intellectual commitment that characterizes "Entanglements. Conversations on the Human Traces of Science, Technology, and Sound" between Simone Tosoni and Trevor Pinch.

The two voices of this extended dialogue belong to an Italian media scholar – Tosoni – with a large knowledge of STS, and to one of the leading figures in STS – Pinch – also known in neighbouring fields for being the co-founder of Social Construction of Technology (SCOT), and for his substantial contribution to the development of the field of Sound Studies.

The book is the outcome of four rounds of conversations that took place physically in Ithaca (USA), Paris, and Milan between 2012 and 2014, and that were subsequently transcribed, edited, and enriched with supplemental material from epistolary exchanges. The content is divided into four sections that cover Pinch's career, intellectual and personal path, from his early steps in the Sociology of Scientific Knowledge (SSK) as Ph.D and postgraduate scholar to the funding of SCOT and the dispute with other schools of thought in STS, to his more recent interests in sound studies.

The volume takes the reader in a rich and lively "guided tour" of SCOT, as well as of the past and present history of STS as experienced and recounted by Pinch through the wise and often challenging inquiries of Tosoni. The editorial work undertaken by the latter is very accurate, so that each reference mentioned in the conversation (books, papers, authors, approaches) is associated to clarifications and quotations in the footnotes which, therefore, take up a remarkable amount of space. For being of great interest, I would have preferred a bigger font-size for the quotations, which might become hard to read after the first pages.

The first round of exchanges between Tosoni and Pinch begins with the dawn of STS within the Sociology of Scientific Knowledge (SSK) and the Strong Programme developed by the Edinburgh School, which coincides with Pinch's early work within the Bath School and the Empirical Programme of Relativism (EPOR) in collaboration with Harry Collins. These were the days in which the metaphor of the "black box" came out written by Richard Whithley, who probably did not foresee the huge success that the "opening of the black box" would have achieved within and beyond the STS community.

Pinch's memories of his encounter, relationship, and work with Harry Collins are rich of intellectual inquiries and personal tales. One of the

most unexpected passages of the book is, in fact, the strong link between the intellectual adventure taken up by a group of then unseasoned European scholars and the meaningful connections among them. This appears clear in the first place by looking at the mentorship relationship between Collins and Pinch, or "a discipulus-magister relationship" as Tosoni eruditely defines it. Like many of the things happened in those years, their collaboration starts by chance on the one hand, and because of their common work on the study of scientific controversies in physics and paranormal on the other. As Pinch recalls: "Turns out I was very lucky because Collins had this projects on Uri Geller and the paranormal […] I was the only guy in the world who could possibly do this! Unbelievable! He was interviewing all these postdocs with degrees and books, and suddenly this naive guy, Trevor Pinch, steps in saying '[…] I am working on this wild idea of scientific controversies from the sociology of science perspective. I don't know what it all means, but this is what I am interested in', and I was just perfect" (p. 24). Then Collins decided to hire him and teach him everything as Pinch gratefully claims: that included how to properly interview scientists, how to set up field work trips, how to write scientific articles. And Collins' intention to instruct Pinch did not stop at the methodological training, but it went on with some advices about how to build a reliable academic appearance, which, in that case, meant for Pinch to dismiss his hippie clothes, get rid of science fantasy readings, and start to approach "some decent stuff" such as Flann O'Brien and William Faulkner. The relationship between research work and personal bonds goes beyond the University of Bath where Collins and Pinch were based, and involves a wider academic community starting from the Edinburgh School with Barry Barnes, Donald MacKenzie, Steve Shapin, Andrew Pickering, and David Bloor, and people working in the area of laboratory studies such as Karin Knorr-Cetina, Steve Woolgar, and Bruno Latour. Personal relationships were crucial in order to reinforce the network and the newborn field of study, and defend it from the hostility of philosophers of science. As Pinch explains, it is easy for people who are in a new field surrounded by scepticism and hostility to develop a strong new feeling like "Hey, we're on something important, a whole new view of science" (p. 26). It is striking to learn that the people who are now deemed as some of the preeminent scholars in STS have been regarded as "a wild, weird French guy", "an incomprehensible German", "undergrads with physics envy", and "old hippies" back in the day. On second thought, the rejection of "the new" is a common trait of all avant-guard movements that challenges what has been considered "the canon".

The approach developed by Collins and Pinch for the study of scientific controversies in the 1980s, and then exposed in the Golem Trilogy in the 1990s, was also applied to the study of technology in the seminal article "The Social Construction of Facts and Artefacts" that Pinch authored with Wiebe Bijker in 1984. This paper set out a new approach for the so-

cial studies of technology with the formulation of three fundamental concepts: relevant social groups, interpretative flexibility, and closure. The account of the development of SCOT covers the third and longest section (over 50 pages) of the book, with Pinch clarifying the terms whereby SCOT should be taken, that is not as a list of fixed concepts to be applied mechanically to the study of technological phenomena, but rather as a methodological approach that aims to tell people how to think about technology, rather than what to think about it. This is a crucial point as it marks out the discussion around SCOT's most recent developments and its dialectic relationship with Actor-network theory (ANT). In explaining his position about the understanding of the role of materiality and the nonhumans, Pinch claims that while Callon and Latour agree with SCOT in many respects, their treatment of humans and nonhumans as equivalent is "too radical". Perhaps this is anything but new for STS scholars, but it becomes important because such discussion is interestingly framed in political terms. Thanks to Tosoni's shrewd observations that articulate the idea of morality and social responsibility delegated to nonhumans by picking up the famous example on the speed bump by Latour, the two conversationalists agree that such delegation is problematic because social responsibility and morality are not plans that can be granted by an artefact and because the detachment of functions, meanings and values is not a methodological move as it is in Latour's treatment, but it pertains to the political domain. As Tosoni points out, one may slow down with her/his car because she/he is forced by an artefact, but then this course of actions does not account for the contextual decision of, for example, avoiding honking or throwing the cigarette butt on someone else's yard: we need more than the engineering repertoire to explain this set of actions, that is a view that takes into account the set of cultural values, motivations, and social goals that coexist with technical scripts. Therefore, the entanglement of all these elements represents a pivotal point of reference in order to think about technology in political terms as it calls into question the practice of drawing boundaries between something/someone that is in, and something/someone that is left out.

"Entanglement" is not only an analytic category whereby to interpret the epistemological inquiries and disputes that characterize the development of STS as experienced by one of its key proponents. "Entanglement" is also a lens whereby to read the important role that colleagues, friends, mentors, chance encounters, students, intellectual contenders, and significant others play within Pinch's professional and personal journey, which, accordingly, appears to be full of unexpected consequences, inspiring, and funny.

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Teun Zuiderent-Jerak
Situated Intervention: Sociological Experiments in Health Care, Cambridge, MA, MIT Press, 2015, pp. 248

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Situated Intervention: Sociological Experiments in Health Care is certainly a book that the community of S&TS scholars interested in studying health care as sociomaterial knowledgeable doing could use to get a new promising outlook. In this book, Teun Zuiderent-Jerak, undermining the rigid opposition between basic and applied sociological knowledge, develops an interesting new methodological perspective for researchers engaged in studying and changing medical practices. Even from the opening pages, *Situated Intervention* outlines a fascinating challenge addressed to contemporary social scientists to advance the current understanding of medical work by actively being immersed in the health care organizations.

From the first moment I began to read the book, it brought to mind the seminal article, "The Human Sciences in a Biological Age", in which Nikolas Rose (2013) offered a deep discussion about some crucial implications to the social and human sciences stemming from the most relevant technoscientific transformations occurring in the field of contemporary life sciences. In his work, Rose was interested in discussing (and, in a certain sense, eroding) the epistemological boundaries traditionally erected between social sciences and life sciences to highlight how these two domains may have profitably contaminated each other. Conceptually speaking, Teun Zuiderent-Jerak's book can be considered a further and inno-

vative articulation of the intellectual project inaugurated by Rose by exploring the conditions of possibility of the social sciences' regimes of truth about life, medicine and health care.

On the whole, the book is grounded in empirical data collected from different qualitative research methods – such as ethnographic observations, interviews, focus groups and documentary analysis – within four different projects on quality improvement and cost efficiency in Dutch hospitals, in which the author has been engaged as "change agent" and "evaluator" for over ten years. Within the five main chapters of *Situated Intervention*, the author "considers the question of how the direct involvement of social scientists in the practices they study can lead to the production of interesting sociological knowledge" (3). In this sense, the fundamental issue addressed in the book relates to the modalities through which sociologically informed knowledge can be generated via the direct transformative intervention of the researcher in the management and doing of health care in situated context. This issue, in its complex ambivalence, is addressed by Zuiderent-Jerak in how it relates, on the one hand, to the situated processes of knowledge production in social sciences, and on the other hand, to the reconfiguration of the researchers' subjectivity involved in doing intervention in health care context by cooperating with practitioners and patients.

The main theoretical insights on these two points are developed in the introductory section, where Zuiderent-Jerak proposes a comprehensive review of the broad debate concerning the engagement and involvement of social researchers in doing fieldwork. Particularly, this section discusses one of the main dilemmas circulating for a long time in social sciences: How to find and evaluate a sensible balance between the (political) engagement with and epistemological distance from the process researchers are studying? Zuiderent-Jerak innovatively faced this cognitive dualism by deconstructing many dualities embedded in it (such as objectivism and activism; experimenting and intervening; efficiency and quality – just to mention the most relevant), and therefore taken for granted by sociological knowledge makers. In deconstructing these solid (but not necessarily virtuous) traditions and customs performed by some "settled populations" in the world of the social sciences, the author conceptualises a new methodological posture labelled situated intervention. According to the author, this posture – emerging from the mutual entanglement between knowing and acting (or representation of and intervention in) – enacts an open-ended process able to generate new S&TS knowledge. Within this framework, Zuiderent-Jerak developed a situated interventionist approach that can promote not only positive actions for organizational changes in health care settings, but also enable the production of relevant sociological knowledge of medical work and related practices.

Starting with ten years' worth of data collected by ethnographic investigations within the framework of the situated intervention, the five main

chapters of Zuiderent-Jerak's book address, in radically innovative ways, some of the major concerns that have characterized the STS debate on medical practices in the last fifteen years, such as standardization, compliance, safety and commitment of the patients and marketization of health care assistance. In relation to these crucially relevant issues, both for scholars and stakeholders interested in health care, a "thick" ethnographic description brings the reader inside haemophilia, haematology and oncology departments to highlight how situated intervention is performed in practice.

The first chapter investigates the possibilities and emerging outcomes of a transformative interventionist approach in the context of home haemophilia treatment implemented under the supervision of a haemophilia care centre. Here the author makes visible the ordinary invisible work that is aimed at attaining the compliance of the patient. Under the lens of situated intervention, Zuiderent-Jerak conceptualizes compliance not as a mere cognitive problem, but rather as a sociomaterial process composed of situated negotiations between the patient and the technologically dense environments which are encountered daily.

In the second chapter, the issue of compliance is explored in relation to the physicians' role and the readjustment of their daily work to clinical standards. The standardization of the medical work is often seen by health scientists as a problem to be addressed through top-down rationalization programs of the clinical action, so as to limit the ambiguity and incertitude of the clinical decision making process. In this way, they remain entangled within a dichotomy between universal clinical knowledge and patients' idiosyncratic characteristics, namely what Lampland and Star have labelled "the tyranny of structureless" and the "fallacy of one size fits all" (p. 92). In order to dismantle this dichotomy which does not help to explain the problems of clinical practice, the author proposes the notion of situated standardization, with the aim to "focus on actual changes in medical practices brought about by standardization and on the perceivable renegotiations of orders and autonomies that come with the standards" (p. 92). In this way, standards are not interpreted as regulatory/normative devices to be constructed and implemented, but rather as a collective competence and a practical accomplishment to help face peculiar organizational problems.

In a similar vein, the third chapter highlights the heuristic potential of situated standardization in relation to "patient-centre care", by showing how patient-centredness may be the emerging result of the sociological intervention in the organization of the care delivery. In the fourth chapter, situated intervention is framed as an experimental strategy in the regulatory infrastructure of health care markets. In so doing, the author highlights how sociological knowledge can get involved in configuring market practices and "health care markets as driven by value rather than by cost-saving" (p. 37).

Finally, Zuiderent-Jerak returns to the potential of sociological intervention within national improvement programs in chapter five, where the main topic relates to patients' safety. In this context, the author adopts Annemarie Mol's notion of "multiple ontologies" (Mol 2002) as an analytical strategy to explore ways in which effective care is "enacted through different approaches to dealing with patient safety and what their consequences are for the care practices under study" (38). The exploration of multiple ontologies of safety allows the author to develop an alternative conceptualisation of "useful research" in respect to the utilitarian paradigm. In this way, Zuiderent-Jerak situates the sociologist not only as an external consultant who "discovers" latent factors that may impede the assessment of and improvements in safety, but rather as an active actor who reconfigures the problem space of patient safety in itself.

Even if it is not an easy read, Zuiderent-Jerak's book is a challenging experience as it proposes a new style of practicing social research in the context of health care, which stimulates researchers to actively intervene in the study settings. According to Zuiderent-Jerak, situated intervention can allows to take the responsibility for undermining the certainties established by the hegemonic medical discourse, or the organizational equilibriums within the health care contexts in which they are acting. At the same time, this powerful stimulus leaves a significant problem in the hands of the reader: What are the constraints and the risks in performing situated intervention in practice, especially when the organization in which the researcher is intervening is also the funding agency of the project? Answers to this question can most likely be found by experimenting with situated intervention as a new style of social research that seems to have the potential to redefine the role of S&TS in public issues.

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