

the book is an interesting and consequent application of the Social Network Analysis to Science and Technology Studies. By itself, it delivers a set of case studies that will certainly be very inspiring for those interested in this methodology and its potentiality in the study of topics such as the evolution of research lines in research groups or the analysis of co-authorships as an indicator of the internationalization practices of institutions. Second, as a whole, the book offers a very complete outlook of the history and current debates regarding transgenic crops in Latin America, although specially focused on Mexico. Sometimes the reader might have the impression that authors are undertaking a descriptive task rather than an analytical one, but, in any case, it works as a conceptual map to situate relevant actors and to identify significant issues, i.e. the global food crisis, linked with the development of GMO. Finally, in its theoretical dimension, it is true that it cannot be said that there is a clear commitment with a particular theoretical option, but it is also true that Actor-Network Theory appears as a quite significant element in several chapters. In this sense, the book constitutes another example of the influence of this approach in Latin America, becoming a popular toolkit for social analysis.

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### **M. Audétat (ed.)**

*Sciences et technologies émergentes: pourquoi tant de promesses?*  
[*Emerging Sciences and Technologies: Why so many promises?*], Paris, Hermann, 2015, pp. 316.

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Expectations are important. When we are faced with a person or a situation (whether known or unknown), what we expect is somehow constitutive of the relationship that we are about to establish with that person or situation. One may cite various works by Goffman in this regard, but I expect that those reading this review will find the previous sentence so obvious that it requires no further specification. This makes it possible to immediately point out another feature of expectations: that they reduce complexity and facilitate communication and representation. In both sociology and social psychology, “expectation” is commonly defined as the individual’s reasonably realistic prediction about the behaviour of other members of society in a context of uncertainty. The more knowledge ac-

tors possess about social dynamics, the more they will be able to have solid and reliable expectations. The main problem therefore arises when expectations are not fulfilled.

If we move from the individual and everyday level to that of science, we realize that expectations are nothing more than assumptions that guide research. A research hypothesis can be seen as what the researcher/s who has/have formulated it expects/expect to happen as a result of a certain event. In this case, the non-fulfilment of the expectation coincides with the non-confirmation of the hypothesis, and therefore with its reformulation.

If we then move from the level of scientific research to that of research policies, we see that expectations concern issues directly connected to forms of knowledge and inquiry believed likely to be useful in the future and generate innovation. In this case, too, non-confirmation of expectations creates problems. But unlike in the other two cases, the matter is complicated by the fact that a great deal of time (and, in a certain sense, also a great deal of “space”) must pass before assessments can be made. Jean-Michel Fortin and David Currie (2013), for example, examined the scientific impact, in a certain period of time, of Canadian university researchers in three disciplines: animal biology; organic and inorganic chemistry; evolution and ecology. They demonstrated the lack of correlation between the amount of funding and scientific impact, suggesting that larger grants do not lead to more important discoveries. In other words, expectations about the results that some lines of research could have produced if properly funded were not fulfilled. Unfortunately, this necessarily happened at the expense of other lines of research, which in the same time span were not funded to the same extent because they were deemed less promising. This brings us to what is of most interest to STS (and to the text reviewed here): the promissory component inherent in scientific expectations, in their construction, and in their legitimization and institutionalization at social level.

In particular, Marc Audétat argues in the Introduction, compared to notions such as “expectations”, “visions”, and/or “imaginary”, that of “promises” is less neutral. It highlights the ambiguity and uncertainty they carry with them and makes it possible to grasp the technoscientific regime that guides research policies. In fact, it should be clear that the “economics of technoscientific promises” has direct effects on research funding, so as to generate outright speculative bubbles (Joly, Section 1, Chapter 1), like that of ICT in the early 2000s or, more recently, bio/nanotechnologies and neuroscience. In this regard, it may be worth mentioning that the *Human Brain Project* (whose objective was to develop a mathematical model of the human brain that would lead to the development of new drugs and the possibility of curing diseases such as Parkinson's or Alzheimer's) in 2013 received a grant of 1 billion euros from the European Commission, and then gave rise to an enormous scientific controversy (Panese, Section 3, Chapter 2). Published a year and a

half after approval of the project, in fact, was a letter signed by more than eight hundred European neuroscientists who criticized both the project's scientific objectives and its governance. Later, in face of the boycott threatened by the signatories, the European Commission appointed a committee of scientists in order to profoundly reorganize the project in an attempt to remedy the most critical issues.

Nevertheless, promises are both necessary and essential in the technoscientific domain. They are necessary because they make it possible to "naturalize" technological developments, thus satisfying two contradictory demands often made of science: it must be novel and credible (Joly, Section 1, Chapter 1). Promises are essential because they enable the actors involved to legitimize their projects, mobilize resources, and stabilize their networks and contexts of action. Thus, the focus is not simply on the public understanding or public communication of science; the various chapters of the book (mostly based on case studies) embraces much more heterogeneous (and scattered) processes, such as the "marketing" of promises, their situatedness and performativity, together with the network dynamics with which they engage.

Chapters are organized into four Sections ("Economy of scientific promises and time collapses"; "The making of information technology for social promises"; "Life science dynamics and horizons of expectations"; "How to engage with promises for social sciences and humanities?"). This helps to identify the main themes clearly. Given the orientation to future (or futuristic) scenarios, most authors concentrate on some of the latest "novelties" of technoscientific domains, such as neurosciences, nanotechnologies, and biomedicine. But given the promissory nature of the results that the alliance between the social sciences and information technology may generate, they also consider Moore's Law, and the debates that have developed around big data and digital humanities. This makes the book attractive in that it offers an updated journey through all contemporary technoscientific trends, avoiding the trap of confining the promises of technoscience to the domain of natural sciences or engineering.

Moreover, to be noted is that before the book was written, it was "spoken" and discussed. The book originates from a cycle of seminars (titled "Nanopublic") started in 2008 and held at the University of Lusanne as part of the "Science-Society Interface" programme (which also demonstrates how the geographies of STS in Europe are evolving). This means that the book is internally highly coherent, and that individual chapters converse fluidly with each other and help give continuity to the ideas and arguments. Accordingly, in this review I have decided to keep references to the individual contributions to a minimum, in an attempt to convey the book's sense of unitariness. However, I cannot fail to mention (and explicitly recommend) what is for me the most challenging and to some extent "unexpected" chapter of the entire book, the one by Sara Angeli Aguiton, Emilie Bovet and Sara Tocchetti, and significantly enti-

tled: “What kind of critical practices in the domain of scientific promises?” (Section 4, Chapter 4). Reading it reminded me of the ironic and reflexive stance taken by Sharon Traweek (1992) in “Transgressing Boundaries” to problematize the (disciplinary) processes of construction and institutionalization of knowledge, and this in order to emphasise the chapter’s capacity to consult the readers and have them participate in the discourse. It is a chapter, moreover, which provides an ironic and interesting “Malaise Bingo” of STS researchers, which consists in recognizing themselves in questions and statements such as: “Is the aim of STS to make science better?”; “The academic world is the place of social change?”; “I work with a natural science researcher who, whenever he revises an article of mine, systematically comments “I don’t understand” on the epistemological passages in which I question the linear progress of his field of research”.

Consistently with the attention to (and curiosity in) the construction of future scenarios in the technoscientific field, the book closes with a reflection by Arie Rip on: “The future of the regime of the promises” (Section 4, Chapter 5). Here the discussion returns to promises as integral elements of a knowledge regime (and therefore something that concerns the present more than the future) and the double linkage that ties scientific promises to research funding. In particular, Rip identifies in three current trends the most significant features of what will be the future scenarios: a) a focus on indicators, instead of the “reality of things”, which gives rise to an industry of “derived products” (such as, for example, the Shanghai ranking of the best universities in the world); b) the attempt to link emerging scientific technologies and knowledge to product innovation and the absorption of these products on a social level; 3) a certain deprofessionalisation of science.

These may not be the right trends for a happy ending, but the book deserves to be read anyway.

## References

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