

tude in decision making: ‘open-ended’ cannot be confused with ‘democratic’;

- the power to define policies is the result of a relational process, not the origin of the policy at stake: looking at power in objectivist terms, as a resource individual actors can mobilize for their own interests, does not account for who, how and when actors acquire the capacity to mobilize resources, and what constitutes a resource in the actors’ perspective;

- sometimes, ANT looks for missing masses, but in this case social actors are missing: why didn’t the trade unions take part in the whole negotiation process?

If this book were a piece of music, as it often happens nowadays, it could be of interest for different audiences. ANT listeners would probably be its ‘natural’ public, but political scientists and environmental sociologists could maybe enjoy it even more, because of the ‘fresh sound’ this book brings into established canons. And social scientists (in general) could find new sounds and dissonances in it that could help them better frame the relationships between humans, technologies and nature.

## References

- Akrich, M. (1987) *Comment décrire les objets techniques?*, “Technique et Culture”, 9, pp. 49-64.
- Crozier, M., Friedberg, E. (1977) *L’acteur e le système*, Paris, Edition du Seuil.
- Czarniawska, B. (2004) *On Time, Space and Action Nets*, “Organization”, 11, pp. 777-795.
- Friedberg, E. (1993) *Le pouvoir et la règle. Dynamiques de l’action organisée*. Paris, Edition du Seuil.

Latour, B. (1999), *Politiques de la nature*, Paris, Editions La Decouverte & Syros.

Mény, Y., Thoenig, J.C. (1989) *Politiques publiques*. Paris, Presse Universitaires de France.

\*\*\*

João Arriscado Nunes, Ricardo Roque

### **Objectos Impuros. Experiências em Estudos sobre a Ciência**

*(Impure Objects. Science Studies Experiences)*

2008, Edições Afrontamento, 328 pp.

Laura Centemeri

*(CES – Universidade de Coimbra)*

Science Studies are today in Portugal a very dynamic field of investigation. Edited by two Portuguese scholars that actively participated in the emergence and development of this research field, the contributions collected in the volume aim at showing how the theoretical and empirical investigation on science practice, objects and institutions in the Portuguese society (a “semi-peripheral society” is the definition given by the authors) “interferes”, through original paths, with the broader international debate.

The interest in studying science and its impact on society is far from being a novelty in Portugal. In fact, the promotion of science and the dissemination of scientific knowledge, as part of a broader process of citizenship-building, have been a crucial component of the movement of opposition to the Estado Novo, the Portuguese authori-

tarian regime that for almost half a century (until 1974) controlled the Country. Starting from the 1970's Portugal has seen as well the emergence of a rich debate on epistemological issues, namely through the works of Boaventura de Sousa Santos and Hermínio Martins.

Rooted in this tradition, the field of Science Studies in Portugal is nevertheless an undoubtedly "young" field. It started to emerge in the 1990's through the creation, by the initiative of Maria Eduarda Gonçalves (currently professor of Law and Public Policy at ISCTE), of a community of researchers, otherwise dispersed in different research institutions (especially ISCTE and ICS in Lisbon, CES in Coimbra). Joint projects of investigation brought to collective publications, edited by Gonçalves, like *Ciência e Democracia* (1996) and *Cultura Científica e Participação Pública* (2000).

This specific history implies that the field of Science Studies in Portugal didn't emerge in opposition to a conventional sociology of science that never really came into existence. As a consequence, some of the main theoretical issues that oriented and structured the epistemological debate at the international level were never at the core of the Portuguese debate. The importance of collaborative projects in structuring the field accounts for its being strongly multi-disciplinary (not only sociologists are involved but historians and anthropologists as well) and for the variety of theoretical approaches that orient the investigation. These different theoretical and epistemological approaches are not the case for structured cleavages. As noted by

Nunes and Roque in their Introduction, the collaborative dimension of the research projects through which the field was built always prevails over these differences. An additional explanation to this lack of clear cleavages is as well the strong "practical" orientation of these projects, which were designed in order to actively participate in the shaping of a Portuguese scientific culture.

In fact, the emergence of the field of Science Studies in Portugal run parallel to the constitution of a national system of scientific production, via the creation of the Ministry of Science and Technology and a large investment in research, supported by European Programs – Portugal having entered in 1986 the European Union. This specific condition brought to a situation in which Portuguese researchers in the field of Science Studies have been able to actually follow the creation of the institutional and human infrastructure of science authority, studying obstacles, controversies and conflicts emerging in the process.

Through collecting contributions based on case-studies, written by young Portuguese researchers, this volume shows, first of all, the variety and dynamism of Science Studies research in Portugal, in terms of objects and approaches. However, the choice of the editors to have a first section of the book with contributions from prominent scholars (Bruno Latour, Annemarie Mol, Alan Irwin among others) is meant to demonstrate how the work of these young Portuguese researchers is oriented by issues currently core in the debate at the international level, like political ontology and

performativity.

The contributions of the second section of the book well illustrate the main themes structuring the research on science, technology and society in Portugal. They can be regrouped in three areas. First, ethnographic studies concerned with science “in the making”. Second, historical trajectories of scientific and technological innovations, oriented towards the understanding of the processes that shape the modern institutions of science and the state. Third, the study of socio-technical controversies, with an emphasis on the confrontation, in the public space, between different forms of knowledge and their expression in social conflicts, especially in the field of environmental and public health problems. They all share an approach to the study of how social and material entities are associated in complex and multiple ways that grants a privilege to what Nunes and Roque define in terms of a “sociology of impurity”, that is, the contamination of different tools and epistemic approaches.

In the subsection “Ethnographies”, Gonçalo Praça shows how the technical production of meteorological knowledge is based on two black-boxes: global models of weather forecasting, and the local experience of scientists working at the Portuguese Meteorological Institute, an experience made of a combination of subjective knowledge, texts, technologies, institutional rules. Tiago Moreira investigates the socio-technical organization of neurosurgery rehabilitation, through an ethnographic work in a neurosurgery clinic in Portugal. In order to reacquire a notion of “self in action”, pa-

tients are helped by technologies and forms of knowledge that exist in the clinic. These technologies and forms of knowledge act as “prostheses” so that patient personal agency is distributed in what can be defined as a “surgical collective”. The way in which these precarious and contingent collective orders function accounts for the rehabilitation path which is observed, in terms of successful recovery or not.

In the subsection “Histories”, João Vasconcelos investigates from an anthropological point of view the emergence of an empiricist discourse in Europe in the period 1850-1920, taking “spiritism” as its object of analysis. The author shows how spiritism challenges the separation between science and religion, thus breaking a fundamental principle of modern sciences. This fact accounts for the epistemic and normative marginalism to which spiritism has been condemned since then. Rui Branco studies the relationship between the construction of the state and the scientific-technical production of cartography in Portugal, using an approach of historical sociology and the analysis of material (and micro) processes of construction of science and the state. Ricardo Roque analyzes the trajectory of the only partially successful “scientific translation” of wild bananas seeds into recognized medical treatment against smallpox in India, at the beginning of the 20th century, crossing the biography of the physician Joaquim Vás, the history of the creation of Health Services, the conflict between medical powers.

In the subsection “Controversies”, Sofia Bento studies the case of the Alqueva dam and the controversy con-

cerning the existence of significant archaeological find in the area to be undated. The mobilization asking for the preservation of this archaeological heritage was not successful, a failure that Bento investigates with a focus on the role of media in the construction of scientific and technical objects. In the final chapter, Marisa Matias examines the controversy about the use of a cement factory in Souselas (a small town close to Coimbra) to incinerate industrial wastes. Matias discusses the dynamics through which the problem arises together with the objects of scientific controversy. She investigates as well how environmental policies and citizens' mobilisation enter the frame. The author suggests that this kind of studies can help in understanding the processes that confer existence (or non-existence) to public problems and collective actors. Far from being just a sample of Science Studies research in Portugal, the volume edited by Nunes and Roque is an important exercise in self-reflexivity that points out the originality of the Portuguese contribution to the study of science and technology in society, thus tracing a clear path for future developments.

### References

- Gonçalves, M.E. (ed) (1996) *Ciência e Democracia*, Venda Nova, Bertrand Editora.  
 Gonçalves, M.E. (ed) (2000) *Cultura Científica e Participação Pública*, Oeiras, Celta.

\*\*\*

Reiner Keller  
**Wissenssoziologische  
 Diskursanalyse. Grundlegung  
 eines Forschungsprogramms**  
*(The Sociology of Knowledge Approach to  
 Discourse Analysis. Groundwork for a  
 Research Programme)*  
 2011, VS Verlag, 360 pp.

Jan Cherlet  
*(Università di Bologna)*

Reiner Keller's work constitutes one of those "exceptions" that prove that the academic scene is not yet as global as we tend to think. Keller has developed a research programme for the sociological analysis of discourses and their effects. Thanks to its concreteness and practical applicability in empirical research, the method has been harnessed by German scholars in a wide range of disciplines – not only in sociology but also in history, pedagogics and educational science, linguistics, political science, studies of religion, criminology... That Keller's manual has reached a third edition in barely six years can be taken as an indicator of its success. Oddly enough, no English translation is available yet, and while he is widely cited in Germany, international publications referring to Keller's work are still rare.

Keller's research programme for discourse analysis – he prefers to call it a programme since it includes both a theoretical framework and methodological tools – is grounded in the sociology of knowledge but incorporates insights from Foucault's work. The proposed research programme originated in his own discourse research on waste politics in Germany and France