

thors recall a few different, and sometimes opposite, positions on the medicalization of childbirth coming from feminist scholars; as explicitly stated, however, Nicolson and Fleming decided “not to interrupt the flow of the narrative with theoretical digressions or engagement with the work of other scholars” (7), and only briefly mention the controversies and conflicts following the changing attitude towards the fetus.

In conclusion, *Imaging and Imagining the Fetus* constitutes a valuable example of the messy path that leads to the emergence and stabilization of a new technology. Following Pickering's framing of research as a pattern of *modeling*, *resistance*, and *emergence* (1995), Nicolson and Fleming convincingly describe the complex entanglement of personal skills and interests, social and political context, technical and financial resources, as well as fortuitous encounters, fundamental for a technological innovation to be successful.

References

- Haraway, D. (1991) *Simians, Cyborgs, and Women: The Reinvention of Nature*, London, Free Association Press.
- Pickering, A. (1995) *The Mangle of Practice: Time, Agency, and Science*, Chicago, University of Chicago Press.

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Philippe Sormani

Respecifying Lab Ethnography: An Ethnomethodological Study of Experimental Physics, Farnham, Ashgate, 2014, pp. 278

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This book presents a laboratory study based on the conviction that laboratory studies have failed up to now to achieve their goal. According to the author, laboratory studies' failure is “the *failure to describe any particular discipline of the natural sciences in its constitutive practices*” (16). The very constructivist approach that has characterized lab studies from their beginning contributed to such failure, because it drove to interpret laboratory practices in terms of concepts alien to them. There arose the tendency to ignore any self-instruction in the enquired domain of research practice, and the interpretively analytic relevancies distanced themselves from the practically ordered ones. To avoid such trap, Sormani's study accomplishes a change in orientation lead by ethnomethodology. Its central concern is to recover the local production of social order in a physics

laboratory for the study of superconductivity. In a rigorous ethnomethodological approach, it focuses on the description of local order production instead of on a theoretical interpretation of the observed setting.

The setting is a laboratory for scanning tunneling microscopy of complex superconducting compounds. For human beings this is a place where special electronic microscopes are used to scan the surface of selected materials (superconductors) and infer their topographic and electronic properties. At the time of the research, the lab hosted six low temperature scanning tunneling microscopy facilities operated by PhD students, post-docs and senior researchers under the management and control of an operating lab chief and a lab director, for a total amount of 15 members at the peak of its activity.

In accordance with the ethnomethodological approach, Sormani's study aims at describing the field under scrutiny in its own terms. The book gives a detailed description of how work is conducted by lab members within the lab, through which methods and practices, under which circumstances and contingencies. It describes how members secure the locally achieved results of their day-to-day work in a way that allows them to generate accurate measurements. Moreover, since it "makes explicit the distinctive 'ethno-methods' of practicing experimental physics in (and as) the highlighted domain" (1), it corresponds to an ethnography of the indicated laboratory. Therefore, it aims at contributing to the ethnomethodological reinterpretation of ethnographic methods, namely to what in Garfinkel's terminology is called a "respecification" of the practices for the production of social order (Garfinkel 1991). Ethnography belongs to those practices. This ethnomethodological study of a physics lab is at the same time a contribution to the exhibition of the *Lebenswelt* origins of lab ethnography as such.

From a methodological point of view, the book tackles a widespread opposition in ethnomethodology between the recourse to the technology of video recording and the practical engagement in the technical activity that is enquired. By means of a combination between the use of video analysis to produce a procedural description of microscopic experimentation and the self-instructive engagement in the process, Sormani achieved with a long-term participant observation a broad and depth understanding of the practices, methods, routines and phenomena involved in the lab work. The researcher can exhibit the lab practices "by having them produced, filmed, and described 'from within'", in a research process ("film it, whilst you do it") that "may be best termed a *practice-based video analysis*" (15).

The book is structured in three parts. Part I aims at describing the laboratory activities by making "one step back" (233) with respect to the interpretative approach of lab ethnographies. The laboratory setting is investigated as a self-explicating setting and lab work is described in its own terms, i.e. according to the narrative that members themselves share. Moreover, lab work is described along with the ethnographer's activities

of talking and observing, which are subjected to a reflective analysis that shows their similarity to the members' activities. Part II reports the author's technical self-instruction in scanning tunneling microscopy and "describes how a valid, reliable, and manifestly objective measurement could be obtained through microscopic experimentation" (103). Practicing the practices constitutive of scanning tunneling microscopy proves indispensable to describe the lab work in its own terms. The practical engagement in the lab activities leads Sormani to discover the "hands on! / hands off!" distinction that the lab members employ to describe the divide between the practicing experimentalist's involvement with the facility and his or her colleague's retreat in the observing attitude of those who see others doing it. This distinction inhabits the laboratory setting rather than characterizing the divide between members and ethnographers. Finally, part III hosts the report of the practice-based video analysis. Thanks to its composition of filming from within while engaging in microscopic experimentation, the practice-based video analysis is presented here as the only methodological approach that fits adequately with the practical distinction between the researchers' collegial "hands off!" and experimental "hands on!" orientation. If doing it yourself is the only way to understand how to do it in microscopic experimentation, the only useful video is the one filmed while doing it.

Sormani's book is a sound and consequent application of the ethnomethodological approach to lab studies. As such, it delivers a double-sided contribution to the field. On the ethnomethodology side, the self-instructive circle it opens up engages in a pre-analytic endeavour that challenges Michael Lynch's post-analytic programme (Lynch 1993). Sormani, by resorting Garfinkel's requirements, attempts to give up the academic tradition of assuming an analytic focus before engaging the field on the base of issues discussed in the literature, either related to the philosophical and historical study of science or to its social study or to both. On the other side, the book brings into contention the established Science and Technology Studies' approach to lab ethnographies. From this point of view, it is a stimulating challenge to STS routines, that it criticizes severely, censuring the "multifaceted interest" and "theoretical eclecticism" (248) that prevents STS from engagement with first-order practicalities. Yet, precisely the focus on practices and first-order practicalities makes the confrontation with STS a little bit schematic. As laboratory practice is at the core of the proposed ethnography, and given that language is always theory-laden, a confrontation with practice theories, from Bourdieu to Shove, could have improved the broad significance of this study. More in general, Sormani's argumentation is hard to follow and to grasp for those who do not share the ethnomethodological stance. A wider confrontation with non-ethnomethodological literature would have helped in making the rich and exciting results more meaningful for the broader audience.

References

- Garfinkel H. (1991) *Respecification: Evidence for Locally Produced, Naturally Accountable Phenomena of Order, Logic, Reason, Meaning, Method, etc. in and as of the Essential Haecceity of Immortal Ordinary Society (I) an Announcement of Studies*, in G. Button (ed.), *Ethnomethodology and the Human Sciences*, Cambridge, Cambridge University Press, pp. 10-19.
- Lynch M. (1993) *Scientific Practice and Ordinary Action: Ethnomethodology and Social Studies of Science*, Cambridge, Cambridge University Press.

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Janet Vertesi

Seeing Like a Rover. How Robots, Teams and Images Craft Knowledge of Mars. Chicago, University of Chicago Press, 2015, pp. 304

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This is a book that I read with pleasure. It captured my imagination. And, I must admit, it wasn't fun when one of the rovers died. Alone. In the Martian desert. By that point, I had become almost convinced that I too could "see like a rover."

"After you've worked with the team for a while," says an informant, "you kind of learn to see like a Rover." The team is the Mars Exploration Rover Team, and this book studies what does it mean to say that a human member of the team can learn to see how a machine. To address this question, Vertesi take us on a step-by-step journey through the image-making practices that produce those familiar reddish Martian landscapes. The outcome is a well-crafted, highly textured ethnographic account of how the team works with the digital images sent back by Martian rovers. The reader learns how these scientists and engineers make sense of the images, manipulate them to make them "more objective," and use them to orient their action at a distance. A very long distance indeed.

Vertesi does a great job in mobilizing relevant work in the history of science and science studies, centering each chapter on a powerful insight. Her story vividly reminds us of the theory-ladenness of observation, the conventional and local nature of objectivity, and of the fact that scientific images, including photographs, are always and necessarily constructed. It reminds us that instrument calibration is an eminently social process, one that is as much about people as it is about machines. On this particular point, Vertesi goes beyond the narrative of alternative kinds of objectivity, to engage with the process of calibration as integrating machine work and human judgment, in a way that gestures interestingly toward recent