

## Messy material politics of cell science and technology (studies)

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Mianna Meskus: *Craft in Bio-medical Research: The iPS Cell Technology and the Future of Stem Cell Science*. New York: Palgrave Macmillan, 2019, 240 pages. ISBN 978-1-137-47552-7

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Mianna Meskus's *Craft in Bio-medical Research (CiBR)* "reports an ethnographic study about *the making of a new biological research tool*, called the induced pluripotent stem (iPS) cell technology" (p. 2). This revolutionary technology is based on the controlled development of iPS cells – "cellular material that does not exist in nature but

is generated from donor tissue in laboratory conditions" (p. 5). In other words, the cells are both living and artificial.

Meskus's key interest lies in the new ways of translating biology into technology. She approaches iPS cells from the viewpoint of "the mundane making and use [of them] in laboratories for the purpose of discussing conditions and value of practical scientific work in efforts to capitalize on biological processes" (p. 6). In *CiBR*, these processes are illuminated from a multifaceted point of view, called rather cryptically "material politics of science." The practical connections between three "perspectives" or "regimes" (p. 3) – clinical translation, experimental research, and tissue donation by voluntary patients – emerge as important issues. Meskus explores the manifold connections and entanglements, as well as challenges and frictions both in the development and use of this revolutionary cell technology and in its passage through the three perspectives.

Accomplishing this kind of research task requires an immense amount of work, both conceptual and empirical. In general, *CiBR* succeeds in compressing this intricate issue into a book-length narrative. It consists of an introductory chapter, focusing on the approach and research

design, and three substantial parts, containing two chapters each. The first part, "Clinical Translation," discusses the translation process of cellular material into clinical applications from the point of view of drafting anticipatory regulation. Interestingly, instead of placing mere restrictions, supranational regulation paves the way for creating a platform to cultivate large cell line collections and craft them into clinical technologies that benefit not only patients but also the pharmaceutical industry. Studying regulation opens a view to what scientific research is envisioned to transform into; to draft regulations is to anticipate potential futures. At the center of the second part, "Experimentation," is – as the title suggests – the tentative laboratory work as transaction between the researchers and their peculiar research material, the living cells, which need an additional level of care. The role of life science companies is central as they, firstly, participate in the laboratory practice – for instance, by providing research instruments – and secondly, link local labor to global accumulation. The last part, "Tissue Donation," discusses the crucial role of the voluntary tissue donors in the development of the new cell technology. The rationale of the donating patients blends with that of researchers, and Meskus illuminates in an interesting way

the ethical side of the process in this regard.

Meskus does well grasping the diverse issues around iPSCs in a comprehensive manner. The book is well-written throughout. As the topic is a highly complex one, the reader welcomes the clear expression. The concluding sections are also of much help, as every chapter is rich in information and the text is rather pruned than loose. I learned a great deal by reading the book, not so much about the new and promising iPSC cell technology itself as about actors, artifacts, legislation, patients, as well as the skills and care attached to it. The multisitedness of the study and the ensuing focus on crafting commensuration across the sites make the book particularly interesting. Aesthetically, the combination of nuance and narrative in portraying these processes works elegantly.

Meskus utilizes an approach of Science and Technology Studies (STS), and especially its Actor-Network Theory (ANT) variant: getting in the field and trying to find out what is going on by following the more-than-human actors. In ANT-STS, the case study is the queen, and there is no method nor research design before and above the case at hand. Instead of systematic and separate phases of data gather-

ing and analysis, the research phases are intermingled and reported as such in the descriptive narrative. Moreover, specificity and nuance of the empirical are favored over theoretical abstractions and generalizations, and structural continuities (i.e., contexts) are flattened to the actual-empirical. Concepts are important nonetheless; yet, they are neither ontological nor generalizing ones but tightly knitted to the particular case at hand. Concepts sensitize the study, operating as tools to think with or as vehicles to traverse the specific research terrain (metaphors abound). Even though some points of this methodography have also influenced my own thinking, the reader should know that my following reservations are a bit unfair: they are based on a different view on methodology and research design to Meskus's study and are thus external.

I wholeheartedly sympathize with Meskus's decision to write a monograph in our era of academic Fordism. To commit to slow science and thorough thinking in an academia of track records measured (performatively) with rulers and calculators is an audacious and respectable choice, and to write a book-length research narrative is a bold move, as it enables and demands scholarly intelligence. There is enough room to grasp

the roots of the study, to illuminate the ontological, epistemological, and methodological underpinnings of the research work and setting. These scholarly ponderings are precisely what makes monographs interesting for an old-fashioned generalist. However, much as I enjoyed reading the underlying register of the study, the theoretical underpinnings, research design, and conceptual positioning also caused me some uneasiness.

In the opening chapter, a twofold approach is presented. First, a "conceptual discussion on relationality, materiality, nonhuman agency, and laboratory ethnography" is assembled under the umbrella of "relational materialism" (p. 8). Second, a tireless workhorse of pragmatism is harnessed, yet only as broad ideas on labor and learning. As much as relational materialism is cryptic to me, pragmatism is not.

"[R]elationality is the one fundamental thing about the world," Meskus contends, paraphrasing Donna Haraway. Consequently, "the division between reality and representation" turns to "an unproductive" one. Based on these premises, Haraway's "notion of constitutive relationality propagates throughout as a methodological tool to examine the emergence of the iPSC cell technology and

related craftwork.” Relatedly, Karen Barad tells us that “the world kicks back.” Further, the inseparability of thought and craftwork is approached via the findings of Bruno Latour and Steve Woolgar’s seminal laboratory studies and summarized in Heidegger’s maxim “Gedankel ist Handwerk” (p. 21–24).

None of these theoretical keystones, however, are of much novelty value, nor are they inventions of the abovementioned scholars. Instead, and curiously, all of them lie at the heart of the second approach utilized: the intellectual tradition of American pragmatism. There is not much more to classic pragmatism than the premises of trans-action as mutual constitutiveness of subject and object (even though this does not mean to defeat semiotics); of knowing as inquiry and reflection and learning as inseparable from (bodily) action; and of the material world approaching more-than-human actors. No fancy Haraway, Barad, or Latour and Woolgar would have been needed.

The basic concept around which the book revolves is *craft*. The concept fits the STS approach well and serves as a guide to focus on situated doings, things, actors, and artifacts. In a footnote on page 33, Meskus expresses the hope

that “this book proves that by sensitizing to the constitutive relations between researchers and their research material and nonhuman agency, the external world of laboratory life and the ‘structural’ aspects such as commercial practices can be included in the research setting.” Thinking with craft complicates this task, however. The concept guides to grasp the issues at hand in their concrete granularity, making it hard to broaden and abstract the analysis.

The promise of concreteness is not completely redeemed, either. One of the core ideas of the book is materiality. There has been a big buzz around materiality in social sciences in recent years, and STS aficionados keep using it as their main bludgeon against the outdated human-centered sociology. Yet, even though Meskus writes a great deal about materiality and thinking with craft focuses on concrete working on and of tangible objects, there is not much materiality present in itself. This troubles me, given the mentioned premise of “relational materiality,” concomitant with diminishing the “the division between reality and representation.”

Meskus has spent years studying the extended domain of IPS research from different angles and undoubtedly knows the domain well. However, much as the

topic is new and interesting and Meskus has created an appealing narrative of it, the research design is not easy to follow at every turn. It is not always clear what is analyzed, how, and with what results. Crafting the materiality and materiality crafting the crafter warrant scholarly attention well and truly. But how is craft vis-à-vis materiality actually explored as it happens, with no bifurcation between reality and representation?

In my reading, the cell researchers and other humans *tell in interviews* and *present in the meetings and workshops* how they craft in their laboratories and how the cellular materials that they craft allow or resist this crafting. The materiality – of cell lines, for instance – is evidently there, but I am not sure whether it can be grasped in its tangible materialness by asking the informants about it. This is not an argument against the importance of nonhuman agency, however. The cell lines undeniably have agentic powers. They become co-workers on the bench as they change the world spontaneously. But to “explain” this material agency and craft related to it “in themselves” (p. 26), I think a systematic first-order observation would have been needed.

These reservations do not lessen the overall merits of Meskus’s

study, which are plenty. Moreover, a fellow STS scholar affirming the messiness of the empirical will certainly feel more at home with the book than me, trying to craft sociological theory and qualitative methodology. In a truly STS manner, Meskus has chosen to study the (political) crafting of iPS cell technology close-up, to grasp it in its actual nuances, and to let the narrative do the contextualization and generalization. Another option would have been to methodologically and conceptually control and guide the study to encompass more-than-actual and more-than-tangible objects as well, as well as to analyze the structural aspects of the regimes in and through which this ground-breaking cell technology is enacted.

**Mikko J. Virtanen**