A Review of Mark Dennis Robinson, *The Market in Mind—How Financialization is Shaping Neuroscience, Translational Medicine and Innovation in Biotechnology*

The MIT Press, Cambridge, MA, 2019, 309 pp., ISBN: 9780262536875

Barbara Hendriks^{1,2}

Accepted: 28 November 2020 / Published online: 3 February 2021
© The Author(s) 2021

The interplay of Translational Science and Medicine (TSM) and capitalism forms the starting point of *The Market in Mind* by Mark Dennis Robinson. It is uncontested that TSM has become one of the greatest challenges in regard to global medicine, health and economic welfare. How TSM as a concept is crossed by financialization represents an important research question and adds a new and relevant perspective to previous research about TSM and translation (Butler 2008; Wehling 2008; Woolf 2008; Blümel et al. 2016; Latour and Woolgar 1979; Callon 1986). In the **preface**, the author starts with a simple but controversial argument: “TSM is not principally about health. In fact, it is constitutively about something else” (p. viii). Of course, TSM is not only about health; it is also about economics, politics and ethics, and much more (see e.g. Krueger et al. 2019; Simons et al. 2020). But, to state that TSM is not principally about health, a term emerging in the field of medicine, is an unusual and at the same time progressive starting point for a study dealing with the *fuzzy concept* of TSM.

In his **introduction** “An Ethnographic Analysis of Translational Neuroscience”, Robinson starts with different perspectives on what TSM is about: it is e.g. about “fantasies made bare against the backdrop of scientific failure” (p. 19), about the “institutional influence of market-oriented approaches on knowledge production”

✉ Barbara Hendriks
barbara.hendriks@hu-berlin.de

¹ Robert K. Merton Center for Science Studies, Humboldt-Universität zu Berlin, Berlin, Germany

² German Centre for Higher Education Research and Science Studies, Berlin, Germany

and/or about “public-private partnerships” (p. 25). Literally, he simply draws attention to what one might call the *multiple meanings of TSM* (Krueger et al. 2019). In any case, one of the key insights of Robinson’s study, which is, among others, summarized in this chapter, lies in a rather detailed description regarding the pharmaceuticalization of health; more precisely: the explanation of the shift from *hope* to a certain kind of *pharmaceutical power*. This certain aspect in the context of TSM is both new and inspiring. In order to disclose the pharmaceuticalization and thus the financialization of health, the author empirically engaged in investor conferences, venture capital firms, neuroscience labs and the clinic. He interviewed various people in the field of translational neuroscience (TN), a field that financially and politically plays a crucial role in TSM. The empirical work undertaken in this study is absolutely convincing and appropriate in regard to the ethnographically-driven research question.

In the **second chapter** “The Histories of Translational Science and Medicine: Translation as a Political Economic Imperative”, the author explores the history of TSM and asks what was behind the global emergence of TSM (p. 30)? In accordance with different historians such as Alison Kraft (2013), who had analyzed the emergence of TSM, Robinson carefully points to the fact that different narratives about TSM and its historical emergence exist. The common and uncontested history of TSM, so the author, first begins in 2005 when Zerhouni (2005) introduced the term in his article “Translational and Clinical Science: Time for a New Vision” in the *New England Journal of Medicine*. I argue that it is not only the history of TSM but the narrative itself that is fuzzy. TSM is often summarized in the phrase “from bench to bedside”—leaving undefined what is taking place between bench and bedside and disregarding the fact that bench and bedside themselves are complex systems. However, TSM is not necessarily about a linear innovation process beginning at the bench. TSM is rooted in complex in-between preclinical and clinical phases that may also lead in the opposite direction: from bedside to laboratory—a viewpoint that is missing in this chapter, especially as it is important for Robinson’s argument, which claims that the emergence and stability of TSM refers to “semipermanent commercial architectures” (p. 30). But it is the multilayeredness of TSM that takes center stage in the production of stability, which is clearly missing in that argument. Despite a shortcoming in the definition of TSM, this chapter provides an interesting view about the beginning of TSM *as a policy driven term* and in doing so it complements existing historical studies about the history of TSM (see Kraft 2013).

In **chapter three** “Science as Finance: The Financialization of Translational Science and Medicine”, Robinson proposes that TN is not merely about innovation but must be understood in relation to a certain strategy undertaken by biopharmaceutical companies, which outsourced the riskiest parts of early-stage neuroscience to universities. As a consequence, translational partnerships between universities and industries turned university research projects into “development arms for industry” (p. 49). The “[t]ranslational shift enabled shareholder value creation through lowering R&D costs and outsourcing risk, it may be better to analyze TN as form of finance rather than merely a new form of science of medicine” (p. 49). Robinson carefully underpins his partially normative argument with interview sections and

field observations and notes that he took during his field study. Later in this chapter, he sharpens his argument by proposing that *externalization* is the more appropriate term than innovation (p. 60). Externalization itself means “outsourcing of research in life science” (p. 61). Outlining the role and responsibility of pharmaceutical companies according to this economic shift appears well elaborated and contributes a new perspective towards the rationalization and bureaucratization (Apple 2005; Shore and Wright 1999) of research universities. However, the argumentation sometimes appears to be too normative in this chapter, particularly for an ethnographic study.

In **chapter four** “The Bench: Universities and Laboratories under Translation” the author addresses two questions: how the work done in translational laboratories is understood as innovation and how translational research itself becomes constituted as an innovation in health (p. 97)? He traces the path of how “all research [at the bench] becomes potentially translatable” (p. 98). “Translational thinking” (p. 128), so the author, allows lab workers to adapt their research to the broader aims of health and specific disease categories (p. 126)—regardless of how far their research is actually away from these categories. In this chapter, Robinson further takes special notice of infrastructures, as they are “both ‘connective’ forms and ‘material’ ones” (p. 99). In order to describe how infrastructures shape TN, the author shows and explains in more detail what kind of TN-supporting infrastructures exist in laboratories. In a rather typical STS-manner (it strongly reminds one of Latour’s (1993) essay about the Berlin hotel key), he specifically focuses on details: he shows that researchers in that specific lab exchanged key cards as a symbol for collaboration and innovation (p. 107) or he reveals the meaning of the “creation of template agreements to streamline the process by limiting negotiation before a process even has started” (p. 107). With this viewpoint, the author draws special attention to micro-translations and how they contribute to innovation. This chapter connects to classical theories of translation (Latour and Woolgar 1979; Callon 1986) in science and technology studies.

In **chapter five** “Bridging the ‘Valley of Death’: Does Translational Research Nurture Innovation?” the author proposes that investor conferences represent important theatres in which patient subjects are constituted due to their biological parts. He construes that TN relies on an epistemology of body parts, which tethers discussions about patient’s brains, cells... and health. “[B]y the constitution of people via their parts, translational science and medicine help to produce a partial subject” (p. 199). In my view, investor conferences provide an interesting example for the reverse translation: How do commercialization and innovation shape research at the bench? With reference to such investor conferences, this chapter sheds light on new and yet hidden places, where translation [perhaps also] takes place.

Chapter six “The Bedside: Patients and Pragmatics and the Promise of Health” describes an entanglement of “clinical and academic labour and value, which renders both in market and moral terms through the risks of failing to be ‘productive’” (p. 227). Now, towards the end of this book, the second ‘endpoint’ of translation is finally highlighted: the *bedside* to bench translation (p. 204; Marincola 2003: 1479), which has been missing so far. Although I support that the author added this important perspective on translation, this chapter is the least convincing in this otherwise

persuasive study. The fieldwork at the Cleveland Clinic raises far more (valuable) questions for the field of translational research and translation than it provides answers. This might be the result of limited interviews presented in this chapter. And beyond that: how is it possible that the author concludes that “TN operates as a ‘vision’ that does not begin with the experiences of patients” (p. 220) and then simultaneously “think[s] about the stakes of translational science for clinician-researchers for whom research and competition are part of professional livelihoods” (p. 226)? I totally agree with the author “that competition for research dollars have become part and parcel of academic work” (p. 226), especially for clinician scientists, but clinician scientists *begin translation with the experiences of patients*, which makes them so valuable in the context of TSM (Hendriks et al. 2019). The question should rather be *where*—at which stages of translation—patients are included in the process of translation and *by whom*, and less *if* they are included.

In **the conclusion**, Robinson summarizes the main findings and raises a new and larger question beyond this ethnographic and contextual understanding: “Does translation actually ‘deliver’ on its grand promises to patients” (p. 229)? The author claims that, as a certain finance strategy, TSM is “a fully realized financial outcome” (p. 230), caused by externalization of the riskiest parts of translation towards publicly-funded universities. In terms of finance, so the author, TSM is “successful”, however, it fails to consider patients and their views adequately in the translation process. I agree that TSM is not only about health, as stated at the beginning of this book, but the conclusion of this book, somehow resulting in the argument that TSM is more about money and less about patients, is irritating. When TSM itself is embedded in capitalism, how can one (at least analytically) untangle TSM from it? Economics is an important part in TSM—I agree with that—but it’s not its primary obligation. Instead, TSM is often strategically used to overcome economic pressures in the health sector. I would rather argue that TSM is a double-edged sword: it fights the evil but it reproduces it at the same time.

Besides the listed shortcomings, this ethnographic study represents new and valuable insights about the concept and meaning of TSM and it complements existing research dealing with the ‘nature’ of TSM and translation. Sometimes the author himself appears to get lost in translation, mixing up the concepts of “TSM” and “translation”, which are in fact different theoretical concepts. However, this conceptual fuzziness does not harm the overall quality of this book.

Funding Open Access funding enabled and organized by Projekt DEAL.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article’s Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article’s Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Apple, Michael W. 2005. Education, Markets, and an Audit Culture. *Critical Quarterly* 47(1–2): 11–29. <https://doi.org/10.1111/j.0011-1562.2005.00611.x>.
- Blümel, Clemens, Stephan Gauch, Barbara Hendriks, Anne K. Krüger, and Martin Reinhart. In Search of Translational Research—Report on the Development and Current Understanding of a New Terminology in Medical Research and Practice. Accessed January 19, 2016. https://www.bihealth.org/uploads/pics/iFQ-BIH-Report_2015_web.pdf.
- Butler, Declan. 2008. Translational Research: Crossing the Valley of Death. *Nature* 453: 840–842.
- Callon, Michel. 1986. Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay. In *Power, Action and Belief: A New Sociology of Knowledge?*, ed. J. Law, 196–223. London: Routledge.
- Hendriks, Barbara, Arno Simons, and Martin Reinhart. 2019. What Are Clinician Scientists Expected to Do? The Undefined Space for Professionalizable Work in Translational Biomedicine. *Minerva* 57(2): 219–237. <https://doi.org/10.1007/s11024-019-09367-4>.
- Kraft, Alison. 2013. New Light Through an Old Window?: The “Translational Turn” in Biomedical Research: A Historical Perspective. In *Translational Medicine: The Future of Therapy?* eds. James Mittra and Christopher-Paul Milne, 1st ed., 19–55. Singapore: Jenny Stanford Publishing.
- Krueger, Anne K., Barbara Hendriks, and Stephan Gauch. 2019. The Multiple Meanings of Translational Research in (Bio)Medical Research. *History and Philosophy of the Life Sciences* 41(4): 57. <https://doi.org/10.1007/s40656-019-0293-7>.
- Latour, Bruno. 1993. *La clef de Berlin: et autres leçons d'un amateur de sciences*. Paris: Éd. la Découverte.
- Latour, Bruno, and Steve Woolgar. 1979. *Laboratory Life: The Construction of Scientific Facts*. Princeton: Princeton University Press.
- Marincola, Francesco. 2003. Translational Medicine: A Two-Way Road. *Journal of Translational Medicine*. <https://doi.org/10.1186/1479-5876-1-1>.
- Shore, Cris, and Susan Wright. 1999. Audit Culture and Anthropology: Neo-Liberalism in British Higher Education. *The Journal of the Royal Anthropological Institute* 5(4): 557. <https://doi.org/10.2307/2661148>.
- Simons, Arno, Barbara Hendriks, Martin Reinhart, and Faten Ahmed. 2020. How Practitioners between Bench and Bedside Evaluate Biomedical Translation? *Science and Public Policy*. <https://doi.org/10.1093/scipol/scaa035>.
- Wehling, Martin. 2008. Translational Medicine: Science or Wishful Thinking? *Journal of Translational Medicine* 6: 31.
- Woolf, Steven H. 2008. The Meaning of Translational Research and Why It Matters. *Journal of American Medical Association* 299(2): 211–213.
- Zerhouni, Elias A. 2005. Translational and Clinical Science—Time for a New Vision. *New England Journal of Medicine* 353: 1621–1623.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.