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Paul Rabinow and Gaymon Bennett

Designing Human Practices: An Experiment with Synthetic Biology

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Rabinow and Bennett’s book addresses their experiments in what they term the design of human practices, which they conducted whilst working within the Synthetic Biology Engineering Research Centre (SynBERC) in the USA. Their work sits alongside a number of other projects internationally that have sought to develop new forms of collaboration between the natural, engineering and social sciences in the context of synthetic biology. They outline the phases through which their experiments in collaboration proceeded, describing their conceptual and methodological approach and reflecting on the various factors that eventually contributed to what appears to have been a rather acrimonious end to the collaboration and parting of ways.

The book has so far proven controversial in some communities, particularly perhaps within the synthetic biology community itself. Some in this field have characterised it as an intractable and intentionally abstruse description of the events that took place at SynBERC whereas others have labelled it an undignified airing of dirty laundry. For our part, being admirers of conceptual developments in human practices so far, we find ourselves wishing the book could update itself as its own reception unfolded, further detailing the ways in which the struggle to develop new

forms of collaboration continues today. But alas not.

Before describing some of the book's merits let us first make two comments on why it has been branded obscurantist by some. It is a book that poses a number of challenges for the reader. First, it is misleadingly slim, suggesting if not a light then at least a swift read. Not so. Certainly, the text is broken down into short sections and sensibly organised according to the various transitions in experimentation and subsequent re-orientations through which human practices at SynBERC developed. However, it is a conceptually rich and often complex work, so that periodically the reader must juggle not only a detailed knowledge of this particular case but also a number of rather difficult and multifaceted terms, drawn from various canonical thinkers, and here uniquely deployed alongside and reflected through each other. Second, and relatedly, to access the significant theoretical and methodological riches that this book has to offer, it is necessary for the reader to be familiar/well-versed with the works that precede, contextualise and inform it, in addition to the numerous working papers produced during the lifespan of the SynBERC collaboration. So the volume perhaps assumes too much of those readers who might approach chiefly out of interest in the development and implications of synthetic biology. Indeed this is, if anything, a book that laughs in the face of 'implications', scorns the language of 'downstream engagement' and simply will not tolerate anything that looks even vaguely like 'consequences'. Whilst it is clear that the authors have sought to make this a lighter read than some of their working papers and have tried to explicate the conceptual framework in as transparent a fashion as possible, they still struggle to chart a navigable course between their own understanding and that of a multidisciplinary and sometimes uncharitable audience. Moreover, as has already been lamented (quite rightly) by critics from STS dispositions, Rabinow and Bennett ignore much of the work that has been conducted in STS on the issues with which they deal, and are perhaps themselves guilty of an uncharitable reading of the literature. A more hospitable relationship with the STS tradition and contemporary developments might have helped to open a dialogue with a broader audience. Putting that issue aside, however, their findings and analysis remains of interest to those of us who are engaged in the study of scientific innovation and particularly those interested in collaboration.

So now on to some of the virtues. Presenting their research as a series of experiments is a fair description of what Rabinow and Bennett's work comprised since it undoubtedly involved many of the rhythms and practices that we take to be constitutive of experimental work. Moreover, against the backdrop of the struggles at SynBERC and the still fragile relations being established between humanities and science scholars in synthetic biology, the choice to present the work as experimental has to be understood as a political statement and as one response to the ongoing problematization of these relations. The question of what exactly collaboration might be, what it might do and what we might learn from it very

much remains open to question. Experimentation with the forms that collaborations might take, what they might aspire towards, and how they might orient themselves to questions of knowledge, technology and ethics is vital. Such experimentation is exactly what is at the heart of this book and although it can be conceptually dense it is often a refreshingly practical and down-to-earth account of people trying to innovate together.

In pursuing experimental forms of collaboration human practices work moves away from the more Foucauldian archaeology of the present, through which the past is interrogated in order to understand the present's contingency. Instead, Rabinow and others associated with the 'anthropology of the contemporary' have sought to entangle themselves with the near future. If Foucault examined problematizations (of the self, punishment, therapy and so forth) from the past to chart the formation of the present then Rabinow and Bennett have designed their anthropological enquiry so as to work from within an ongoing problematization.

Early on in their experimentation Rabinow and Bennett identified three principles to guide the design of human practices for synthetic biology: emergence, flourishing and remediation. Emergence is intended to capture the ways in which human practices must be attuned to the ongoing problematizations and innovations of synthetic biology from within the collaborative enterprise, so that it is able to adapt in real-time to ongoing reconfigurations of relations, materials and practices. Flourishing is a broad approach to ethics, so that the emphasis is not on the ethical consequences of innovations but instead extends throughout the project and into life more generally. As they say, it should range over: "physical and spiritual well-being, courage, dignity, friendship, and justice" (p. 42). Flourishing, in their view, should be both the mode and *telos* of scientific and ethical practice. It is clear then, that for these authors the collaborative enterprise is intended to help reflexively to constitute practices that are organised through these ethical imperatives, so that what happens in a scientific collaboration should be open to scrutiny as regards justice, dignity and so forth. In attending to these kinds of ethical dimensions in all levels of scientific work, the knowledge, technologies and styles of governance that emerge should help to secure the foundational principles of human practice in the world more broadly. Ultimately, the ambition for human practices is nothing short of a significant if not complete recalibration of the way in which scientists (and social scientists) view themselves and their work, practice research and work towards the implementation of industrially-relevant innovations.

Their attempts to begin such a recalibration were – perhaps predictably – thwarted. It is here that one of the book's most engaging contributions emerges. They describe how discordancy at SynBERC was importantly connected to a mismatch between the ethical equipment that they wanted to develop in human practices and the adoption of "ethical, legal and social implications" (or ELSI) by other actors in the research groups (p. 85-90). That Rabinow and Bennett find the ELSI-paradigm to

be obstinate even in the face of its open refusal should be no surprise to the readership of *Tecnoscienza* since it is well documented in the field. However, the elaboration of the factors involved in ELSI's obstinacy does prove for interesting and illuminating reading. They argue that the individual dispositions and affects displayed by actors at SynBERC were instrumental in sustaining these established modes of equipment but that these forms of resistance were also deeply embedded in activity at all levels of social organisation. In this regard they connect behaviour at the everyday individual level (for example, stubbornness and learned incapacity) to group dynamics and practices (the distribution of funding within the research group) and to larger sequences of collective action (the contestation around ontologies of standards and parts and the National Science Foundation's management of the funding). As such, their experiments in human practices draw attention to the significance of mundane daily micro-interactions in the continuation of more long-lasting structures of power, research organisation and scientific work and how those structures inform everyday practice. This reciprocal, co-productive relation between the general and the specific is familiar territory for anthropologists and sociologists of science. Nonetheless, it is a vitally important lesson to be learned as we, in Europe and elsewhere, seek to transform the relations between the natural and social sciences. As such, the book makes for good reading if given time and a little hospitality.

It is important to note, in concluding, that the book itself has begun to play a role in the negotiation, upkeep and closure of collaborations. As SynBERC has been so central to the ramification of synthetic biology the (at least partial) failure of the human practices enterprise has had consequences for those of us working to develop such collaborations elsewhere. The book, and more acutely Rabinow himself, has come to stand in for – and is sometimes used in conversation as a shorthand for – a series of anxieties that natural and engineering scientists feel as regards the place and purpose of the human sciences in synthetic biology. The book contains a wealth of information that is of use to those of us confronted with negotiating relationships in light of such anxieties and will be of interest to many currently engaged in the important work of experimenting with new ways of working together.

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