Book Reviews

Nik Brown and Andrew Webster:
New Medical Technologies and Society – Reordering Life.
Polity Press, Cambridge, 2004. 216 pages.

The issue of new medical technologies and society is considerably determined by what we imagine it to be in the future. Hopes, expectations and fears, as bold or as absurd as they may seem, are relevant in the sense that they draw the boundaries around what constitutes the field today.

It is one of the core truths of STS that technologies do not speak for themselves, but they are given a voice by their social embedding. If one subscribes to this claim, then Brown and Webster´s book does not only provide a valuable discussion of recent social science work at the interface of new medical technologies and society, but they also co-determine the boundaries and points of gravity of the field by making sense of current activities of 'reordering life´. Organized along the line of the human lifecourse, Brown and Webster provide an understanding of STS work on new medical technologies. They do this by discussing the most influential arguments, and by laying out the ways of thinking through which the problematization (or non-problematization) of particular technologies takes place.

In the first chapter, the reader is introduced to the techno-speak of contemporary medicine and the main puzzles arising for the STS observer. The presence of such terms as 'wired welfare´, 'rotablator´ and 'cyborgs´ in discussions about contemporary medicine is not only indicative of increasing inroads of technology into clinical practice, but also of changing perceptions of the content and the boundaries of human life. Brown and Webster consider new medical technologies as instrumental in the production of a new temporal and spatial order of bodies (7). High-tech medicine at the beginning and at the end of life, as well as the increasing use and value of body elements detached from the patient's body (such as DNA and stem cells) are only two of several developments which relocate the boundaries of life. They also confuse our understanding of where and what the body is. After having posed their initial hypotheses, the authors ask to what extent is this new ordering of bodies through medical technologies distinctively new and different from previous orders and categories? Where does it represent 'only´ the continuation of a process that has started before? Acknowledging that the construction of medicine has never followed a straight and linear path but is full of inconsistencies and conflicting developments, the authors promise to

be alert not only to the discontinuities, but also to the continuities that new medical technologies represent in the process of ordering life. Also for this reason the metaphor of the human lifecourse proves to be a well-chosen tool for structuring the book: Like the history of medicine, the human life course is full of breaks and edges but often represented as a straightforward succession of discernable stages of growth, maintenance and ultimate displacement.

Before the story begins with the prestage of the human lifecourse, namely reproductive medical technologies, the second chapter of the book provides an introduction into the field of STS and its achievements with regard to understanding the contingencies and social impacts of medical technologies. While readers familiar with STS can skip this introductory section without detracting from their understanding of the book´s general argument, it gives less familiar readers a concise overview of the field which will be useful beyond the specific topic of the book.

The following chapters discuss the body-reordering activities of new medical technologies around the themes of reproducing, maintaining, substituting, and finally losing the body. The section on reproductive technologies takes into consideration not only assisted reproduction techniques, but all technologies that connect the female uterus to laboratories and genetic management strategies (such as stem cell and cloning research, and biobanking). From the (re)production of the body the authors then move to the issue of its maintenance, which they describe as having become a "question of stabilizing the order of the body across distributed systems" (81). Practices such as telemedicine, electronic patient records, bioinformatics and the `tailoring´ of pharmaceutical remedies according to the genetic makeup of patients, all contribute to a fractionizing of the body into its elements. These body elements then often obtain value as independent entities. The `de-composition´ and `re-composition´ of bodies (in the sense of re-combining elements not only with the individual body from which they originated, but also with bodies of data, or with each other) also disperses them across various times and spaces.

The subsequent section focuses on the case when body-maintenance is failing: 'Substituting the body´ – through ever more sophisticated tools which increasingly blur the boundaries between human and non-human, and between external and internal – represents an activity where the traditional ideas of what constitutes humanness are challenged in most immediate ways. 'Disgust´, a frequently used term in debates on topics such as xenotransplantation and the production of human/animal hybrids, is identified by the authors as an expression of anxiety about contamination and loss of "species integrity" (116). This deep rooted fear of paying for the cure of a condition or a prolonged lifespan by compromising one´s embodied identity as a human being is of course intertwined with conflicting feelings such as hope, and with the quest for immortality.

In their section on death and dying, Brown and Webster show that new medical technologies accelerate the speed with which the deconstruction of what has long been conceptualized as a punc-

tual event, becomes an increasingly dispersed process. Its management extends to a growing number of loci outside of the dying patient, including non-human entities such as preservation tools and databanks. The authors argue that cryopreservation of body parts and entire bodies, and the production of 'immortal cell lines´ in tissue repositories, prolong embodiment beyond the boundary that has traditionally marked the end of material existence.

The concluding chapter of the book summarizes the major continuities and discontinuities which new medical technologies bring to human embodiment. New medical technologies alter and develop basic categories of the organization and management of clinical practice, such as efficacy and intervention. They also contribute to the further medicalization of the human lifecourse and to the increasing importance of technology in the clinical encounter. Furthermore, the authors argue that new medical technologies are often perceived as empowering in the sense that they are claimed to enhance individual choice in the medical field, a characteristic that has previously been ascribed to the development of new drugs and therapies.

Besides the continuities that new medical technologies present, the authors mark five changes related to these developments. Most importantly, new medical technologies open up traditional socio-biological boundaries and disperse bodies in time and space. They also reshape the understanding of what life is, and where it starts and ends. The growing number of different places of clinical intervention, a result of the increasing influence of patients´ organizations coordinated through the internet, telemedicine, and globally accessible tissue banks, breaks open the monopoly position of the medical profession and leads to a de-medicalization of health (which runs parallel to the simultaneous process of ongoing medicalization at different levels). Finally, parallel to the perception of new medical technologies as enhancing individual choice, new medical technologies increase the variety of places where such choices are made. Because of this, the authors see risk management as ceasing to be understood as the sole responsibility of individual patients and their families. Responsibility is also shifted to institutions and collectives, some of which - such as biobanks – are involved in creating and managing risk groups.

New Medical Technologies and Society – Reordering Life is a very valuable contribution to the ongoing attempts to understand the role of new medical technologies in clinical practice and – inevitably – its role in redefining life itself. In many instances the authors extend their discussion of the topic beyond the dissection of mainstream views. For example, Brown and Webster show that the deconstruction of traditional boundaries in the medical field also challenges the separation line between the field of high-tech medicine, often constructed as dominated by calculative minds making sober and unemotional decisions on the one hand, and the field of humane and low-tech medicine, penetrated with affection and sensitivity, on the other. By quoting an article by Franklin and Roberts, which presents evidence that donating of embryos for research can stem from the donors´ desire to 'repay´ society for the help they experienced

through technologies such as pre-natal diagnosis,[1] the authors convincingly show that new medical technologies generate and attract new affective moments. Attitudes like caring and solidarity have previously been associated not primarily with high tech but rather with high touch medicine. Moreover, the authors´ discussion of the notion of 'disgust´ is an example of STS work at its best. It illustrates the need to explore the cognitive contents of what is often called 'gut feelings´ or 'instincts´, thereby raising the question of why particular technologies speak to us in one way and not in another.

The fact that even diligent and insightful authors such as Brown and Webster step into pitfalls only proves the difficulty of their task: The dispassionate analysis of the relationship between technology and society at times when anxieties, fears, and hopes, rise high. The weakness of the book is the over-emphasizing of the distinct novelty generated by some new medical technologies for the shaping of the social sphere. The richness and hipness of new labels tends to obscure the fact that they are sometimes only new words for known phenomena.

For example, it is unclear in what distinctively new way "'(e)ternal cell lines' of regenerative medicine undo the conventionally linear notions of birth, life and death"(128), given that means to preserve and store human biological materials have been available for decades. The claim of novelty could only be upheld if one subscribed to the view that what is prolonged here is the embodiment of a *particular* body, namely, the body of the donor of the cells from which the `eternal cell lines´ have been obtained. In case of obtaining cells from an embryo, this is unlikely because it is unclear why we should regard an early stage embryo as a `body´. It is equally unlikely in case of adult donors whose genetic material was cloned and then turned into a stem cell line. As long as it is impossible to reproduce a person from a cell line, in what sense is the corporality of this person prolonged in a more substantial manner than by simply storing other body elements (blood, organs) and using them for research? The means to "stretch the temporalities of embodiment" (128) have become more sophisticated, but their existence is not new. Similarly, it is not necessarily plausible that dying is "radically reshaped … through a complex mix of techno-social innovation" (135) in light of the fact that machines have been taking over life-functions of patients in ICUs for several decades. Such technological interventions have already turned the fixed and fixable event of death into a diffuse process. The difference between old and new is often more a gradual than a substantial shift.

Nevertheless, this does certainly not detract from the book´s value for both newcomers and veterans working in STS or a related field. It can be hoped that it will also attract non social scientists and medical practitioners, for whom it will provide useful insights into the tacit knowledges that everyday clinical practice bases upon.

The book is somewhat reminiscent of a text book. Its organization around the succession of themes in the human lifecourse guarantees its easy use for readers focusing in their work on a particular medical condition or a particular category of patients rather than on a

particular medical technology. Brief summaries of the main arguments at the end of each section also help readers who are not interested in the entire field to single out the aspects that are relevant to their work and interests. This organizational strategy results in more advantages than disadvantages and provides benefits to both people with knowledge of the field as well as readers less familiar with this material.

Notes

1 Franklin, S.,& Roberts, C. (2002): Listening to uncertainties: preliminary findings from an ethnography of PGD. Department of Sociology, Lancester University, http://www.comp.lancs.ac.uk/sociology/IHT/.

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**Yu Xie and Kimberlee A. Shauman:
Women in Science. Career Processes and Outcomes.
Harvard University Press, Cambridge, MA, 2003. 318 pages.**

Life Course Approach Towards Women in Science

Why are women underrepresented in science and engineering, both in educational trajectories and in labour markets? This is the main question, for which Yu Xie and Kimberlee Shauman are looking for answers in their book. In this review, we firstly summarize the major findings of the study and secondly, present our comments and evaluation of the book.

The book consists of two thematic parts. Firstly, Xie and Shauman concentrate on education in science and engineering. By science and engineering, they refer to four broad categories: biological science, engineering, mathematics and computer science, and physical science. In the second part, the focus shifts to the career outcomes of practicing scientists.

The research of Xie and Schauman explores both the early life course processes of selection into and out of the science educational track and the stratifying influences that operate after entry into the labour market. Consequently, Xie and Shauman adopt a life course perspective which suggests, that the significant events and transitions in an individual's life are age-dependent, interrelated, and contingent on earlier experiences and societal forces. Therefore, the authors aim to report and interpret gender disparities during different periods of the individual's life course.