



Editorial: Changing Worlds?

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Contemporary societies are permeated by technoscience: knowledges¹ and artefacts alike influence policy decisions and economic endeavours as much as choices in our everyday lives. Many who have worked on these technoscientific influences have shown that they are never neutral, but have the potential to carry power relations into all parts of society.

Winner's (1980) arguments on how artefacts can play political roles through their very material properties – though criticised by some (cf. Joerges 1999) – serve as an excellent example for how technoscientific artefacts can partake in producing political landscapes. He argues that poor and particularly Black residents of New York were effectively prohibited from reaching certain areas of the city by overpasses that were too low for buses – the main means of transport for New York's poor – to actually pass through underneath. At the same time, artefacts can be used in ways that do not adhere to or even contradict their initial design, thereby circumventing or subverting discriminatory effects (cf. Akrich 1992; Eglash forthcoming). Of course, this applies equally to artefacts that are intended as liberatory, but lead more precarious existences in their everyday lives (cf. Hasson 2012; Moser 2010).

Focusing on the role of knowledges, (Black) feminist and postcolonial critiques from within as well as outside academy have long suggested that scientific knowledge bears the marks of those most powerful in its making (cf. Barad 2011; Boston Women's Health Collective 1970; Collins 2000; Harding 2011). Foucault's (1998; see also Hacking 2007; Rose 1999) work on discourses – particularly scholarly and scientific ones – highlights their shaping of the subjects of social orders. Using the example of scientific classifications of 'the homosexual', he traces the emergence of an intelligible identity that people can take on (or not). The knowledge practices



that have produced ‘the homosexual’ have had a great many effects (positive and negative), ranging from producing an identity concept rife with pathologisation, discrimination, and oppression to co-constructing the groundwork for early homosexual liberation and modern-day gay rights movements (Tobin 2000). Similarly to artefacts, knowledges lead complex lives that cannot simply be reduced to being either oppressive or liberatory (cf. Collins 2002; Delgado 2010; Epstein 1996; Russo and Beresford 2014).

It seems fair to say, then, that science – as well as knowledges more generally – and technology have enormous impacts on the ways our societies are structured and function on an everyday level. It also seems fair to say that this impact is both shaped by and, in turn, shapes the ideological foundations of these societies. Finally, it seems equally fair to say that the outcomes of particular technoscientific practices are not predetermined: knowledges and artefacts alike can both oppress and liberate.

This was our point of departure for organising the first *Changing Worlds* conference with the support of the Department of Science and Technology Studies at the University of Vienna in 2014 from which this special issue emerged. The name alludes to multiple meanings as not only are we changing the world – or *worlds*² –, but they are simultaneously changing us, and are never stagnant in the first place. Our aim was to examine this interconnectedness – particularly in its relations to science and technology.

Proceeding from this overarching interest in the enmeshed changes and changings that we are part of and take part in, we put a particular emphasis on the *ideologies*, *utopias*, and *ambitions* that permeate science and technology. Following Sheila Jasanoff’s (2004) suggestion that ‘the ways in which we know and represent the world ... are inseparable from the ways in which we choose to live in it’ (2), we were interested in how these various ways of choosing – or wanting – to live in the world might be interlinked with technoscientific arte-/facts³.

The conference combined various ways of engaging with the world, from scholarly research into how worlds change us and how we change worlds, to artistic envisionings and explorations of other possible worlds⁴, to the production of technoscientific artefacts with the intention of changing the world, to collective exercises for finding ‘our’ places in these worlds that we inhabit. We are very happy that this special issue provides a similar breadth of ways of seeing and changing worlds:

Examining the politics of artefacts, **Olesya Benedikt**'s contribution explores the inbuilt power relations of the Smart City Songdo in South Korea: a city built from scratch, incorporating the newest and shiniest forms of technology – but for whom? As Benedikt shows, the city is built around a very one-dimensional vision of its population. In selecting highly educated individuals and putting them in a technological eco-system that replaces nearly every inconvenient aspect of daily life, Songdo's residents are given a very specific freedom – the freedom to be productive. Benedikt's argument thereby is not so much that the city generates a form of segregation. The city pre-selects white-collar workers or breeds them in a climate of technology-driven governance. Surveillance is here less emphasised as a means of social control, but more as a service of the city to its dwellers. Benedikt's article exemplifies what Scott (1998) meant when he described the meaning of seeing like a state. In Songdo, the absolutist gaze from above with its well-meaning attitude reminds us of the all too common Big Brother. Benedikt's contribution sheds light on the worlds built into concrete, steel, and fibre cables, and leaves us with the question: what would an inclusive Smart City look like?

Continuing these explorations of how artefacts, knowledges, and politics are connected, **Boka En and Mercedes Pöll** investigate the ever-increasing dissemination of computers and digital devices – such as smartphones in pockets and bags, or wearables directly on the body –, specifically in their role in self-tracking as popularised through health care systems and the Quantified Self movement alike. In reference to Foucault, En and Pöll examine how self-trackers engage in practices of governmentality and subjectification of the self. In doing so, the authors show how these practices often buy into neoliberal logics of individual responsibility and constitute an image of humans as always imperfect, and therefore to be improved. There are norms of optimisation and scientification at play, using specific notions of risk that are rooted in encountering the imagined human inadequacy and deficiency. Understanding self-tracking as multiple practices, En and Pöll argue for changing the world of self-tracking practices through queering them by enabling experiences beyond dichotomy-laden, benefit-maximising, and efficiency-increasing neoliberal ideals.

Chiara Carrozza and Andrea Gaspar address aspects of change in the context of digital knowledge production from a different angle. In their contribution, they narrate their attempts to study and make use of digital ways of knowledge pro-

duction in the social sciences, which after some familiarisation leads them to re-think and change their methodological approaches. Gaspar's realisation lies in the difficulty of studying ethnographically how digital tools change academics' ideas about research practices without reflecting one's own methods. Carrozza – after being initially frustrated with the lack of outcomes of her computer-aided analysis – comes to see her own method as an epistemic object worth investigating. On the basis of their experiences, Carrozza and Gaspar argue that it is useful to think of research as a craft that continuously creates knowledge in form of prototypes – and take this seriously in their own practice. They do not only theorise about knowledge production as prototyping, but actively perform it in their article in that they open up their research process in a way that includes what is often left out in descriptions: the failures and the changes.

Doris Arzmann, Teresa Wintersteller, and Veronika Wöhrer also address the role of knowledge-making practices by examining modes of participatory knowledge production in Participatory Action Research (PAR) with children. Their contribution asks how the roles of and connections between 'laypeople' and 'experts' may change in and through PAR. For example, Arzmann, Wintersteller, and Wöhrer connect 'traditional' academia with school education by working closely with children and young people – not only letting them participate in research, but encouraging them to work as researchers themselves. The authors critically address the role of power relations in participatory research, both in their own role as researchers and power hierarchies amongst their (other) research participants. They relate their experiences and insights to arguments from Disability Studies.

Linking participation and artefacts, **Tom Bieling, Tiago Martins, and Gesche Joost** also approach participatory work from the angle of attempting to work towards greater inclusivity. They argue that the concept and demands of diversity offer both challenges and opportunities particularly for designers, paying close attention to how different perspectives can be reflected in artefacts and design practices. Describing their experiments with designing for empowered interaction (including the participation of deaf-blind people in the design process), Bieling, Martins, and Joost argue that design should emphasise diversity and its strengths. Their *Lorm Hand* is a case in point for how attentive design of assistive technologies for deaf-blind individuals can emphasise talents and strengths rather than *correcting* 'disabled' or 'handicapped' bodies. Instead of taking for granted stand-

ardised, able-bodied users, the authors bring bodies with their different abilities into the focus of design. Equally an assistive device and outreach instrument for deaf-blind activists, the *Lorm Hand* becomes an interesting experiment for how design *in* society can become generative for societal change – particularly in regards to what can be accomplished through invitation and encouragement instead of adjustment and top-down intervention.

Andrea* Ida Malkah Klaura seeks to pursue inclusivity by leaving behind a science characterised by exclusiveness and elitism. Instead, their utopia embraces partiality in scientific endeavours, thrives on (self-)reflexivity, and calls for the inclusion of all those who may not be at the forefront of doing science, but still feel its effects – as well as people who bring their own knowledges and inspirations into scientific practice, but may not be heard. Drawing from feminist technoscience, Klaura moves towards this utopia by emphasising potential in the concept of trans*disciplinarity and inclusive efforts like Participatory Design, arguing to ‘actively intervene in each other’s work as well as in our own work to come to new insights’. Klaura’s Reflective Collective Positional Mapping exercise conducted at the conference gives insights into how the conference participants positioned themselves and reflected on obstacles in their own trans*disciplinary practices.

Finally, **Benedict Endler and Matilde Igual Capdevila**’s contribution constitutes a fictional piece of academic writing imagined in an alternate future in which the field of Science and Technology Studies (STS) has risen to prominence in social-scientific practice and public consciousness – a future whose direction was determined by majority vote of the Changing Worlds conference participants. Capdevila and Endler set their article in the 2030s, 20 years after the actions of a radical eco-activist group (the ‘Green Storm’) influenced engagements with science and technology as well as social issues on a global scale. From this vantage point, they imagine the aftermath of the Green Storm and examine/imagine, among other things, the development of new STS-related fields and theories, the growing relationship between STS and popular culture, the introduction of STS concepts into religious debates, the crucial role of STS thought in policy-making, as well as internal divisions. Capdevila and Endler’s imagined future lives on as the result of past events, reactions and decisions, and interpretations thereof, coloured by intent as well as circumstance. What remains present is their awareness of change as a historical and present reality: ‘History was written, by rewriting it’.

Each of the contributions frames its own microcosm of changing worlds through its emphasis on different ambitions, utopias, and ideologies. They represent a collection of text-based arte-/facts that appear in their particular forms in a miasma of circumstances, coincidences, and intentional decision-making on many people's parts – and within the greater frameworks that enable, restrict, and influence our abilities, opportunities, and willingness to take part in this publication process, worlds that change (around) us, and ways of changing worlds ourselves.

The texts in this special issue share many similarities and differences, and the order in which we present them here is but one of many possible ones. There are many threads that you can trace that hold the individual contributions together, from the links in the above segments, to concerns with artefacts and knowledges, to a shared interest how we are enabled to or barred from participating in changing worlds. We invite you to formulate your own connections between the different parts that make up the whole that is this special issue – and, particularly, to try to connect what you experience therein with your own life, your work, your visions for science, technology and society, and opportunities for change.

Endnotes

- ¹ We use the plural term 'knowledges' to emphasise that there is not simply *one* knowledge that people refer to, but manifold knowledges and knowledge practices that are situated in and shaped by specific socio-historical contexts (Haraway 1991).
- ² <http://foucaultnews.com/2013/12/08/poststructuralist-humour-2013/> (accessed 10 Jan 2016)
- ³ While we have been talking about 'knowledges' and 'artefacts' as distinct notions so far, we want to emphasise that these two facets are often inextricably entangled.
- ⁴ This phrase is borrowed from the title of Matilde Igual Capdevila's contribution to the 2015 instalment of the Changing Worlds conference.

References

- Akrich, Madeleine. 1992. "The De-Description of Technical Objects." In *Shaping Technology/Building Society: Studies in Sociotechnical Change*, edited by Wiebe E. Bijker and John Law, 205–224. Cambridge, MA: MIT Press.
- Barad, Karen. 2011. "Nature's queer performativity." *Qui Parle: Critical Humanities and Social Sciences* 19(2): 121–158.

- Boston Women's Health Collective. 1970. *Women and Their Bodies*. <http://www.ourbodiesourselves.org/cms/assets/uploads/2014/04/Women-and-Their-Bodies-1970.pdf>
- Collins, Patricia Hill. 2000. *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*. 2nd ed. New York/London: Routledge.
- Collins, Patricia Hill. 2002. *Intellectual Activism*. 2nd ed. Philadelphia, PA: Temple University.
- Delgado, Ana. 2010. "Activist Trust: The Diffusion of Green Expertise in a Brazilian Landscape." *Public Understanding of Science* 19(5): 562–77.
- Eglash, Ron. forthcoming, 2016. "An introduction to Generative Justice." *Teknokultura* 14(3).
- Epstein, Steven. 1996. *Impure Science: AIDS, Activism, and the Politics of Knowledge*. Berkeley, CA: University of California Press.
- Foucault, Michel. 1998. *The Will to Knowledge: The History of Sexuality 1*. Translated by Robert Hurley. London: Penguin Books.
- Hacking, Ian. 2007. "Kinds of People: Moving Targets." *Proceedings of the British Academy* 151: 285–318.
- Haraway, Donna. 1991. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." In *Simians, Cyborgs, and Women: The Reinvention of Nature*, 183–201. London: Free Association Books.
- Harding, Sandra, ed. 2011. *The Postcolonial Science and Technology Studies Reader*. Durham, NC: Duke University Press.
- Hasson, Katie Ann. 2012. "Making appropriation 'stick': Stabilizing politics in an 'inherently feminist' tool." *Social Studies of Science* 42(5): 638–661.
- Jasanoff, Sheila. 2004. *States of Knowledge: The Co-Production of Science and Social Order*. London/New York: Routledge.
- Joerges, Bernward. 1999. "Do Politics Have Artefacts?" *Social Studies of Science* 29(3): 411–431.
- Moser, Ingunn. 2006. "Disability and the promise of technology: Technology, subjectivity and embodiment within an order of the normal." *Information, Communication and Society* 9(3): 373–395.
- Rose, Nikolas. 1999. *Governing the Soul: The Shaping of the Private Self*. 2nd ed. London/New York: Free Association Books.
- Russo, Jasna, and Peter Beresford. 2014. "Between Exclusion and Colonisation: Seek-

ing a Place for Mad People's Knowledge in Academia." *Disability & Society* 30(1): 153-57.

Scott, James C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.

Tobin, Robert D. 2000. *Warm Brothers: Queer Theory and the Age of Goethe*. Philadelphia, PA: University of Pennsylvania Press.

Winner, Langdon. 1980. "Do Artifacts Have Politics?" *Daedalus* 109(1): 121-36.