

Critique and Complicity: STS and Global Health

Catherine M. Montgomery

University of Oxford, UK / catherine.montgomery@phc.ox.ac.uk

Patricia Kingori

University of Oxford, UK / patricia.kingori@ethox.ox.ac.uk

Salla Sariola

University of Turku, Finland / salla.sariola@utu.fi

Nora Engel

Maastricht University, The Netherlands / n.engel@maastrichtuniversity.nl

Define STS. Define Global Health. Both terms are greatly contested.

Scholarly accounts of Science and Technology Studies and Global Health reveal that despite being very distinct and at times disparate pursuits, common ground exists between them. In the History and Philosophy of Science, both are relatively recent fields – STS emerged in the 1970s and Global Health in the late 1990s, early 2000s. However, one of their most obvious common grounds is the lack of consensus on their definition and whose interests they serve. So imagining how two such variably defined and saturated terms can be brought into conversation – let alone a happy working relationship – with each other is difficult. And yet, for an increasing number of scholars who self-identify as working in STS, Global Health forms the empirical ground of their research. This special issue attempts to demonstrate the productive tensions central to this endeavour while problematizing the very undertaking itself.

As the title of this special issue highlights, a spectrum of normative positions underpins the multiple standpoints from which STSers are working for, with and against Global Health projects. Certainly, it is not unusual to find an STS scholar co-authoring (with 25 others) a paper on clinical trial outcomes in the *Lancet Global Health*, whilst simultaneously sole-authoring a critique of trial ontology in *Social Studies of Science*. *Is this Global Health? Is this STS?* While some might argue such practices amount to double-handed dealings, are intellectually bankrupt or even immoral, for others it is simply evidence of the ‘publish or perish’ ethos of academic life or symmetry in practice, the pinnacle of Bloor’s Strong Programme (Bloor, 1991).

Referring to the Strong Programme will have many readers twitching in their seats. Haven’t we moved on? How passé! We were never SSK/EPOR/SCOT/modern/postmodern/[insert label of choice]. And yet, it is impossible to deny that debates about normativity, reflexivity, and

symmetry, the social in science and an agnostic relationship with scientific claims have formed a core stratum of the STS bedrock, from feminist techno-science to postcolonial science studies, from user studies to Actor Network Theory (ANT) and post-ANT – and that they have come to be fundamental to what it means to do social studies of Global Health. This is not least because many STSers working in Global Health arrive at this juncture through concerns with social justice, humanitarianism and a principled objection to the inequalities, which Global Health institutions argue that they seek to address. How can a field, grown out of radical epistemological relativism, find common purpose with a field based traditionally on positivist approaches? STS, formed as a Eurocentric endeavour, originated at a time when the current techno-scientific landscape which structures Global Health could not have been imagined. Can and should we reconcile the fact that while STS tells us practices are not general and always situated, Global Health entails the search for generalisability and universally applicable solutions? If so, how? Never before has it been more relevant to ask whether we can – or should – disentangle the methodological from the political when doing STS, or put another way, whether symmetry and agnosticism are possible or desirable in this pursuit.

We explored these questions at a workshop in Maastricht in 2013 with various participants working at the cusp of STS and Global Health (see list of participants at the end of this editorial). This special issue presents and builds on some of the discussions held at the meeting. Below, we briefly consider the divergent history, goals and methods of the two fields, always with the uncomfortable awareness that each is many things to different people and that both domains incite great passion in their practitioners. It is this very prospect that excites us here, and gives us cause to believe that STS and Global Health might act as accelerants to each other's intellectual fires.

What is Global Health?

We understand Global Health to be many things. At the risk of repeating what remain contested definitions, one way of describing Global Health is

through its evolution from international health – medicine related to health conditions relevant to the Global South¹ and diseases of the poor. More recent economic and epidemiological developments and their impact on health systems situate the concerns of Global Health also in the Global North. This shift in focus and a more inclusive approach to the eligible actors acknowledges the boundlessness of diseases and changes in illness patterns globally; what used to be thought of as 'lifestyle diseases' of the Global North, such as diabetes and cardio-vascular disease, today are also heavily present in the Global South, while diseases long-forgotten in Europe or North America are making a return e.g. malaria and tuberculosis. This shift is also constituted by growing concerns over ageing societies, exploding healthcare costs and human resource shortages in high-income countries and the potential to learn from healthcare provision in more resource-constrained contexts. Almost any health-related concern, therefore, can come under the all-encompassing interests of Global Health: cancer, mental health, reproductive conditions, tuberculosis, workforce migration, and on and on (Biehl and Petryna, 2013; Adams, 2016b). So how useful is a category that is this broad? What makes a healthcare problem a Global Health issue is the focus on interactions and entanglements between *local* and *global* dimensions or determinants of healthcare challenges that transcend disciplinary, geographical, political, institutional and sectorial boundaries (Engel, van Hoyweghen and Krumeich, 2014).

Now a central feature in contemporary biomedical practice, Global Health both generates and consumes vast resources. Key to its rise has been the mushrooming of non-governmental actors in the field, from NGOs and pharmaceutical companies to public-private partnerships and mega-philanthropists, or 'philanthrocapitalists' (Buse et al., 2009; Labonte et al., 2009; McGoey, 2015). Furthermore, interventions and activities guided by medical diplomacy increasingly feature in relations between states seeking political and economic influence through medical interventions (Erikson, 2012). The arrival and continued presence of these players has altered public and private domains, with a corresponding recon-

figuration of biomedical knowledge-production, value-creation, capital and expertise.

In addition to the diseases and health-related concerns themselves, Global Health is a mélange of patients, providers, institutions, research subjects and researchers; short and long-term research organisations and their corporate partners; research interventions and health care programmes; neoliberal funding schemes; and modes of governance for how these should be managed and ethically overseen, that connects sites across the globe over cultural and economic differences (see McGoey et al., 2011 for an incisive analysis of the Global Health complex). On the one hand, methodologically, Global Health research and thus also practice is heavily informed by metrics: statistics, randomised controlled trials (RCTs) and particular, evidence-based ways of proving what works (Adams, 2016a; Fan and Uretsky, 2017), a space owned by epidemiologists and statisticians. It is also possible to argue that, on the other hand, Global Health has responded to critiques and suggestions from social scientists as applied and analytical collaborators and research partners in its practices (Benatar, 2016). Indeed, all the four guest editors of this issue, trained as sociologists, anthropologists and STS scholars, have worked in and on Global Health collaborations. Precisely how these vast structures and networks are handled in designing and enacting Global Health research and solutions offers exciting opportunities for STS scholars and social scientists.

Scholars like Adams (2016b) have proposed a stance for 'Critical Global Health' from anthropological perspectives. As medical anthropologists acquainted with working on suffering and non-Western contexts, Adams and her colleagues describe a looming sense of seeing Global Health potentially repeating the mistakes of international health. For instance, that concerns of donors dominate over those of recipients, that investment in projects with technologically-oriented, disease-specific and quantifiable solutions happen at the expense of systems strengthening and attention to context, and that community engagement is considered politically necessary but scientifically irrelevant (Biehl, 2016). Critical Global Health, Adams (2016b) suggests, could investigate how

the global is produced on the local level, despite its expansive and boundary-crossing reach. Moreover, Adams proposes that a critical Global Health ought to pay attention, via the ethnographic method, to who the 'speaking subject' is. Through the commitment to ethnography, she proposes, it is possible to also maintain a reflexive connection to the objectives of Global Health and support its objectives in an ethical way.

What is STS?

Just as Global Health is an amalgam of fields, so it would be wrong – and very much against the spirit of STS – to represent it as a stable, fixed or unified discipline. The history of STS is one fraught with competing views on appropriate subject matter, its ontological and epistemological underpinnings and its role in contributing to science policy. Writing of the intersections between anthropology and STS, Emily Martin (1998: 25) has observed that *"the field of social and cultural studies of science is...thickly dotted with the flags of explorers from disciplines in the social sciences and humanities, many wielding selectively some of the analytic categories and practical techniques of anthropology"*. Certainly, some of the seminal works of STS have employed the ethnographic techniques where scholars would become embedded in laboratories, scientific communities and the implementation of technologies in investigating the everyday life of science and technology (See Harry Collins 1974 classic work on tacit knowledge in science). In recent years, STS has expanded beyond its traditional choice of topics and locations, such as scientific laboratories, controversies, and the development of particular technologies in the Global North, and has begun to engage with new disciplinary spaces and places. At least part of the rationale for doing so has been to extend STS influence and recruit new audiences for a set of approaches that far exceed their original analytical focus. This extension, beyond the natural and physical sciences, is not just a case of intellectual promiscuity or magpieing, but rather a form of provocation seen to keep STS on its toes. It is also a response, in some cases, to criticisms levelled at the field that its analyses are insular, and based on 'weak' scientific programmes and regressive

asymmetries and a pertinent example being STS subsequent (and ongoing) dialogue with postcolonial studies.

In 2002, a special issue in *'Social Studies of Science'* on postcolonial technoscience brought together a series of papers that attempted to redraw the map of European and North American technoscience. This followed a previous call by, among others, Sandra Harding (1994: 327) to *"relocate the projects of science and science studies that originate in the West on the more accurate historical map created by the new postcolonial studies"*. Introducing the special issue, Warwick Anderson (2002) emphasised analytical symmetry and inclusion between metropole and post-colony and a focus on global flows of knowledge and practice as key concepts. A postcolonial perspective, he suggested, *"might show us how scientific and technological endeavours become sites for fabricating and linking local and global identities, as well as sites for disrupting and challenging the distinctions between global and local"* (Anderson, 2002: 644). Although numerous other special issues on related topics have ensued, we find this the most succinct expression of STS endeavour to move beyond the boundedness of cultures towards an appreciation of mobile and multiple knowledge practices (see also e.g. Savansky, 2016; Hayden, 2003).

Such studies have engaged with STS ideas and concepts to, among others, unpack how subjectivity and Eurocentric ideas are embedded in how science is enacted in the Global South (Chakrabarty, 2012). Beyond postcolonial-inspired work, STS endeavours to engage with Global Health and/or the Global South have focused on three main approaches: 1) examining how science and technology travel by considering technological fluidity and global flows; 2) bringing to prominence voices from regions of the world which have traditionally been absent from STS; 3) 'provincializing' STS by seeking and appropriating new theoretical concepts from places outside the Global North.

The first – and most influential of these bodies of literature – addresses global flows between North and South, much of this based on ethnographies of science and technology in the Global South. For instance, Marianne de Laet (2000; also

de Laet and Mol, 2000) has provided insightful analyses of how science travels, and how technologies can unravel as they travel. Prasad's (2006) analysis of the development of the MRI scan between India, the US and Europe, shows how the innovation process is much more characterized by circulation rather than a diffusion of knowledge from an 'advanced' country to a less-developed recipient. Similarly, drawing on Latour and Jasanoff, Ruha Benjamin's (2015) work on the San people in South Africa shows how ideas of asocial, objective and morally-neutral science still need to be contested even in seemingly high-end technologies such as genetic and genomics research.

Many of these studies center on public and private forms of scientific knowledge production, as well as on the role of science and technology in public policy. Authors predominantly probe the social nature of scientific knowledge, how populations are enrolled in scientific experimentation, and what becomes of citizenship and ethics in that process. Such examples illustrate a still-nascent movement in STS, where the productivity of science and technology in postcolonial settings becomes the main event rather than a neglected other. In doing these studies, there are additional challenges for STS analysts in gaining access, how results are interpreted and put to use. Here the tensions for STSers have been about the trade-off between gaining access to scientific institutions and compromising impartiality and agnosticism to maintain relationships with hosts. Furthermore, the tendency of STS to produce microstudies can make this work appear to perpetuate the practice of 'hyperlocalization' (Callon, 1990), where any challenges and failures are geographically situated among specific localities or populations diverting attention away from possible inherent flaws in the macro-level design and conception of a technology, research project and practice. To avoid these pitfalls, Strong co-productionist approaches to analysis of technology have highlighted the importance of shifting between different scales of analysis (local and national to global and back) and moments in time (past, present, and future) (Joly, 2015).

The second approach has been to problematize STS in terms of its geographic bias towards high-income countries. A prime example is the

2014 special issue in *Science, Technology & Human Values* entitled 'Voices from within and Outside the South – Defying STS Epistemologies, Boundaries, and Theories' (Rajao et al., 2014). Akin to a present-day form of revisionism, the collection brings into the STS mainstream "the region's historical and contemporary technoscientific challenges and local thinkers" (Rajao et al., 2014: 770). It highlights how Southern voices resist and at times subvert Northern values embedded in science and technology applications as well as in STS concepts and analyses. There is a certain amount of mirroring going on between critiquing diffusionist ideas of how technology and innovation travel from the North to other places while simultaneously making northern STS concepts travel. Greater attention is needed in the way research teams are built and projects set up (Keim et al., 2016; Mavhunga, 2017).

A third approach has been to propose that STS expand and fundamentally shift its conceptual repertoire by considering the logic of 'other' (i.e. non-Western) knowledge practices. For instance Lin and Law's (2013) outline of a correlative STS, based on an analysis of a Chinese Medical consultation in Taiwan. While we agree with the approach to fundamentally rethink organizing assumptions and concepts of STS, in taking on board 'other' knowledge practices, we need to be aware that ontology does not exist out there awaiting its encounter with STS. As Lin and Law (2013) emphasize, both Chinese Medicine and STS are multiple and flexible. The analyst therefore needs to be mindful of the risk of orientalizing or essentializing the 'other'. Rather than provincializing STS and invoking a binary between metropole and provinces, urban and rural, advanced and backward, geography should be incorporated in a symmetrical way.

What each of the above approaches makes clear is that geography is a central organizing framework from which to critique or extend STS analyses of science and technology, particularly pertaining to health. In this special issue, we wish to move beyond the metaphor of travel, which presumes stable origins and destinations, and instead examine the diffuse and always entangled assemblages that arise when Global Health and STS encounter one another. There is, therefore,

not a singular "thing" that travels, as multiple moments, directions, actors and practices are involved in the encounter. We contend that not only does such an encounter disrupt the conceptual apparatus of each field, but that substantial work is required to arrive at a 'smooth' narrative². In the second part of this special issue (4/2017), we present a tongue-in-cheek dialogue in a 'rough narrative' that exposes some of the many layers of the involved positions and discussions, which caused moments of excitement, ambiguity, certainty, disagreement, self-critique and philosophical handwringing during the production of this collection.

A messy hybrid

The papers in this special issue represent various approaches to studying science and technology. We refrain from taking a stance on what the role of STS should be in and for Global Health; instead, we wish to stimulate reflection on what this encounter can generate in relation to Global Health. The latter, we suggest, can enrich STS analyses of how local and global dimensions interact in the development, evaluation and use of technologies across very different disciplines, geographies, epistemologies and ontologies. The papers collected here scrutinise in varied ways the features which often form the silent backdrop to Global Health interventions and research but not their object: ethics, experimentation and standardization. These mundane infrastructures of Global Health are the local elements of a well-oiled machinery, spanning geographies and interests, which transcend any particular locale. The analyses brought forward in this special issue thereby also trouble the grand narratives and assumptions underpinning many Global Health projects, such as race, gender, innovation, emergency and empowerment. Often, these universalising categories are used to justify intervention; to explain why things go wrong; or to make global standards appear self-evident. The papers here show how these categories are used strategically to organise work and thus play a role in creating, rather than merely representing, the realities they describe.

As STS scholarship has pointed out, the vantage point and the analyst's position often constitute what is defined as a problem. Strong objectivity (Strathern, 1991/2005; Harding, 2015) shows us that the tools and embeddedness of the social scientific observer need to be rendered subject to analysis and that what comes to be defined as a problem very much depends on the observer (the researcher being only one of them). Who defines the problem and how it is dealt with? Which disease priorities? Who defines which knowledge counts? How are units of analysis defined? Emphasis on priorities and designs set by Northern academics – irrespective of disciplinary background – is strikingly visible in international collaborations whereby aims and objectives between the groups and individuals involved can vary hugely (Kingori, 2015). The encounter with Global Health forces STS to continue its reflection about its own normativities and potential to intervene (Zuiderent-Jerak, 2015). This is not a question of positionality that can be resolved with a run of the mill reflexivity, identity politics and omphaloscepsis but rather requires a critical take on the positioning of social scientific enquiries along with the techno-scientific (Adams, 2016b).

Careful not to other or essentialise, with papers by Douglas-Jones (in the first part of the special issue 3/2017), Faulkner (3/2017), Montgomery (in the second part of the special issue 4/2017), and Wolf (4/2017), we propose that looking at different sites of techno-scientific interventions and knowledge production as symmetric can produce fruitful illustrations of how practices are made local and as such look very different. We don't suggest that treating STS objects as symmetric or 'flat' means that there is no hierarchy involved; on the contrary, we argue that shifting epistemic and institutional contexts with Global Health forces STS analyses to deal with power, hierarchy and cultural violence within those structures (Galtung, 1990).

Loaded with hermeneutics of suspicion and informed by post-colonial critiques, papers by Engel (3/2017) and van der Zaag (4/2017) in this special issue bring critical attention to the reasoning behind the selection of how locations for Global Health interventions are chosen: why are these sites and their peoples used as testing

grounds for new innovation, or implanted with technologies that are irrelevant, unusable or even destructive of the context? They contest the often heard critique of certain strands of STS according to which it does not deal with ideology well, and show that when it comes to Global Health, confronting questions of power, structural violence and politics is at times unavoidable.

Where next?

Philosophical handwriting

The messy hybrid of STS and Global Health sees the debate about normativity in social research rear its head. It concerns a troubled confluence of agendas: activist and reconstructivist on the one hand and deconstructivist on the other. A long-running debate within STS highlights the epistemological tensions that are likely to arise when philosophical radicalism comes up against normative expectations in such a venture. Briefly, the debate has turned around how far certain principles of Bloor's Strong Programme – specifically impartiality, symmetry and reflexivity – should be taken; if extended indefinitely, what value does radical epistemological relativism hold, since it precludes any commitment to normative belief and action? Numerous writers have argued that symmetry and impartiality are illusory and that STS scholars, as much as the scientists and technologists they study, are engaged in knowledge-politics. For example, by reshuffling the dualities in scientific controversies, analysts necessarily involve themselves in the controversy, subverting the dominant view and elevating that of the underdog (Wynne, 2006). In the debates in the 1990s, Pels (1996:278) suggested that epistemological neutrality was "*a misconceived methodological cloak for...the situated distance and interested autonomy of third positions*". Like Jasanoff's (1994) call for co-productionist accounts³, Pels (1996) suggested a re-conceptualisation of the symmetry principle that retains a commitment to deconstruction while admitting normative positions. In addition, Lynch (2000) also critiqued the emphasis on reflexivity as a critical weapon, source of epistemological or methodological advantage, or as a mark of distinction exclusive to the social sciences as unnecessarily divisive. Instead, he argues that

reflexivity is an ordinary, unremarkable and unavoidable feature of action across all scientific pursuits and accepting this helps to promote peace and epistemic democracy (Lynch, 2000).

More recently, in the so-called post-truth era, the debate about STS interventions and normativity is resurfacing, leading prominent STSers to question how to engage, intervene, and what position to take vis-à-vis the creation of scientific 'facts' (see EASST Review 36(1), April 2017). Law's (2017: 17) proposal provides one answer: "*try to intervene in modest ways in particular places. Directly by standing up and shouting, or by writing, voting, commenting, criticising, persuading or seducing. (The modes of analytical-political practice are many). Or indirectly (perhaps this is our unique selling proposition) by re-articulating and reframing. By chipping away at common sense to show that other ways of being might be possible...*". Fuller (2017) has argued how STS should intervene by embracing its own sensibilities of thinking about science as a game, which STS is also part of. Harding (2015), among others, suggests that STS work should address questions of social justice by redoubling efforts to understand scientific methods as well as advancing ethical concerns. Then again, STS work on design, user engagement and citizen participation point to ways in which STS concepts can be embedded in research from the start that provides new prospects for Global Health (e.g. Hyysalo, Elgaard Jensen and Oudshoorn, 2016; Suchman, 2002; Sariola and Reynolds 2018). The vast differences in Global Health across economic, epidemiological, geographic, disciplinary, political, cultural and public-private dimensions outlined above certainly add complexity and will inevitably also challenge engaged STS scholars. Yet, as the papers in this special issue show, being suspended/torn/oscillating between critique and complicity makes for fertile research grounds offering both empirical and theoretical opportunities.

Questions at the Intersections

Global Health presents manifold questions for critical researchers, many of which remain unasked within the field itself, yet for which STS scholars are well equipped to provide answers. For example, how can societies that play little or

no part in originating biomedical intervention, including new biotechnologies, nevertheless gain meaningful roles in governing the trajectory of innovation? At present, Global Health tends to focus on 'capacity building', but this presumes an expert North and lay South, where knowledge and skills are transferred from one to the other with little acknowledgement of existing 'capacity' (Beran et al., 2017). Secondly, how can a dialogue be forged between health technology designers and users, such that the process of technology and user configuration is more equitable? The current model in Global Health research is for technologies designed in the North to be introduced in the South and acceptability studies carried out alongside clinical trials. The tagging on of such acceptability studies has burgeoned in recent years, and been a great source of employment for social scientists. The problem with this approach, though, is that it ignores the contingent and interactive nature of innovation processes that STS has pointed out. The technology is already deemed 'finished' by the time these studies take place, and users are presented with a *fait accompli*. 'Acceptability' thus becomes a question of tolerability, with little recognition that (non-) users may re-configure new technologies in ways that meet their needs and desires. What is more, involving users is never uncontested nor does it necessarily democratize technology development (Hyysalo, Elgaard Jensen and Oudshoorn, 2016) and there are many more actors involved in Global Health than just users and producers in complex webs of relationships (Montgomery, 2012). Third, how do technology design and development mutually interact with (non-)existing infrastructure? Increasingly, there is a trend to develop Global Health technologies that promise circumventing the need to build, sustain or strengthen communication, sanitation, transportation or health system infrastructure (for instance m-health interventions using mobile phones, the water sterilizing LifeStraw, or point-of-care diagnostics). These promises often overlook what it means to enact these technologies in practice (Redfield, 2016; Engel, this special issue). Finally, Global Health might consider the processes that enable, hinder or otherwise affect the traffic in knowledges between interventionists and the users of new biotechnologies such

as vaccines and drugs. This is particularly the case during the testing phase of new drugs, for example during large RCTs. A greater degree of reflexivity about how data is created and moves between the networked geographical spaces of transnational trial teams, and the translations that take place across the North-South divide, might lead to improved procedures and more reliable results.

Conclusion

The encounter between STS and Global Health has been happening stealthily for a number of years. While various authors and edited collections have dealt with elements of this meeting, a full and frank discussion has been lacking. In our ambition to treat the two fields at a high level, we will inevitably be accused of partiality and superficiality. However, whatever is sacrificed in lack of attention to thematic detail we hope is outweighed by the larger provocation of disciplinary self-identity and the practices this engenders. In this introduction, we aimed to make three arguments. First, Global Health is not so much a place to which STS concepts travel, but a set of actors and practices with which STS can engage in fruitful encounters. Second, these encounters imply mutual conceptual disruption and require work to function. And lastly, symmetry in study design

and research teams across geographies and the way STS concepts are being put to use is required to avoid the risks of simply diffusing STS concepts and orienting, without creating new ideas. The papers that follow illustrate what can be gained when we disrupt the status quo in both our conceptual homes and our empirical workplaces; that things fall apart not just in 'other places' but in our own backyards; and that critique and complicity need not be mutually exclusive, but can be the start of a productive dialogue.

Workshop participants:

Abrishami, Payam; Adams, Samantha A.; Akrong, Lloyd; Bastos, Cristiana; Beumer, Koen; Bijker, Wiebe; Craddock, Susan; Douglas-Jones, Rachel; Erikson, Susan L.; Engel, Nora; Faulkner, Alex; Fiereck, Kirk; Graham, Janice E.; Hinterberger, Amy; Horstman, Klasien; Hutchinson, Lauren; Iyer, Parvathi K.; Kingori, Patricia; Krumeich, Anja; Linde-Ozola, Zane; Makoge, Valerie; Maldonado Castaneda, Oscar Javier; Meershoek, Agnes; Melnikova, Olga; Montgomery, Catherine; Park, Songi; Pastrana, Tania; Popova, Evgeniya; Reis-Castro, Luisa; Reubi, David; Sariola, Salla; Vernooij, Eva; Vimal, Manoj; Wolf, Meike; Yates-Doerr, Emily; van der Zaag, Annette-Carina; Zvonareva, Olga

References

- Adams V (2016a) Metrics: What counts in good global health? In: Adams V and Biehl J (eds) *Critical global health: Evidence, efficacy, ethnography*. Durham, London: Duke University Press, pp. 225-230.
- Adams V (2016b) What is critical global health? *Medicine Anthropology Theory* 3(2): 186-197.
- Anderson W (2002) Introduction: Postcolonial Technoscience. *Social Studies of Science* 32(5/6): 643-658.
- Benatar S (2016) Politics, Power, Poverty and Global Health: Systems and Frames. *International Journal of Health Policy and Management* 5(10): 599-604.
- Benjamin R (2015) The Emperor's New Genes: Science, Public Policy, and the Allure of Objectivity. *The ANNALS of the American Academy of Political and Social Science* 661(1): 130-142.
- Beran D, Byass P, Gbakima A, Kahn K, et al. (2017) Research capacity building: obligations for global health partners. *The Lancet Global Health* 5(6): e567–e568.
- Biehl J (2016) Theorizing global health. *Medicine Anthropology Theory* 3: 127–142.
- Biehl J (2007) *Will to live: AIDS therapies and the politics of survival*. Princeton, NJ: Princeton University Press.
- Biehl J and Petryna A (2013) *When people come first: Critical studies in global health*. Princeton, Woodstock: Princeton University Press.
- Bloor D (1991) *Knowledge and Social Imagery 2nd edition (first published 1976)*, Chicago: University of Chicago Press.
- Buse K, Hein W and Drager N (2009) *Making Sense of Global Health Governance - A Policy Perspective*. Basingstoke: Palgrave Macmillan.
- Callon M (1990) Techno-economic networks and irreversibility. *The Sociological Review* 38(S1): 132-161.
- Chakrabarty D (2012) Postcolonial studies and the challenge of climate change. *New Literary History* 43(1): 1-18.
- Collins H (1974) The TEA set: Tacit knowledge and scientific networks. *Science Studies* 4(2): 165-185.
- De Laet M (2000) Patents, travel, space: ethnographic encounters with objects in transit. *Environment and planning D: Society and Space* 18(2): 149-168.
- De Laet M and Mol A (2000) The Zimbabwe bush pump: Mechanics of a fluid technology. *Social Studies of Science* 30(2): 225-263.
- EASST Review* (2017) 36(1).
- Erikson SL (2012) Global health business: the production and performativity of statistics in Sierra Leone and Germany. *Medical Anthropology* 31(4): 367-384.
- Engel N, Van Hoyweghen I and Krumeich A (2014) *Making global health care innovation work: Standardization and localization*. New York: Palgrave Macmillan.
- Fan E and Uretsky E (2017) In search of results: anthropological interrogations of evidence-based global health. *Critical Public Health* 27(2): 157-162.
- Fuller S (2017) Is STS all talk and no Walk? *EASST Review* 36(1): 21-22.
- Galtung J (1990) Cultural Violence. *Journal of Peace Research* 27(3): 291–305.
- Harding S (2015) *Objectivity and diversity: Another logic of scientific research*. University of Chicago Press.
- Harding S (1994) Is science multicultural?: Challenges, resources, opportunities, uncertainties. *Configurations* 2(2): 301–330.
- Hayden C (2003) *When nature goes public: The making and unmaking of bioprospecting in Mexico*. Princeton, NJ: Princeton University Press.

- Hyysalo S, Elgaard Jensen T and Oudshoorn N (2016) *The New Production of Users*. Oxon, New York: Routledge.
- Jasanoff S (1996). Beyond Epistemology: Relativism and Engagement in the Politics of Science. *Social Studies of Science* 26(2): 393–418.
- Joly P-B (2015) Governing emerging technologies? The need to think outside the (black) box. In: Hilgartner S, Miller CM and Hagendijk R (eds) *Science and Democracy: Making Knowledge and Making Power in the Biosciences and Beyond*. New York, Oxon: Routledge, pp. 133-155.
- Kingori P (2015) When the science fails and the ethics works: ‘Fail-safe’ ethics in the FEM-PrEP study. *Anthropology & Medicine* 22(3): 309-325.
- Keim W, Çelik E and Wöhrer V (2016) *Global knowledge production in the social sciences: made in circulation*. Oxon, New York: Routledge.
- Labonté R, Schrecker T, Packer C et al. (2009) *Globalization and Health: Pathways, Evidence and Policy*. Oxon, New York: Routledge.
- Law J (2017) ‘The little tools of difference’. *EASST Review* 36(1): 17-18.
- Lin W-Y and Law J (2014) A correlative STS: Lessons from a Chinese medical practice. *Social Studies of Science* 44(6): 801-824.
- Lynch M (2000) Against Reflexivity as an Academic Virtue and Source of Privileged Knowledge. *Theory, Culture & Society* 17(3): 26–54.
- Martin E (1998) Anthropology and the Cultural Study of Science. *Science, Technology, & Human Values* 23(1): 24–44.
- Mavhunga CC (2017) *What Do Science, Technology, and Innovation Mean from Africa?* Cambridge, MA: MIT Press.
- McGoey L (2015) *No Such Thing as a Free Gift: The Gates Foundation and the Price of Philanthropy*. London and New York: Verso.
- McGoey L, Reiss J and Wahlberg A (2011) The global health complex. *BioSocieties* 6: 1-9.
- Montgomery C (2012) Protocols and participatory democracy in a “North-South” product development partnership. *Sociology of Health & Illness* 34(7): 1053–1069.
- Pels D (1996) The politics of symmetry. *Social Studies of Science* 26(2): 277-304.
- Prasad A (2006) Beyond Modern versus Alternative Science Debate: Analysis of Magnetic Resonance Imaging Research. *The Economic and Political Weekly* 41(3): 219–227.
- Rajão R, Duque RB and De R (2014) Introduction. Voices from within and Outside the South—Defying STS Epistemologies, Boundaries, and Theories *Science, Technology, & Human Values* 39(6): 767–772.
- Redfield P (2016) Fluid technologies: The Bush Pump, the LifeStraw® and microworlds of humanitarian design. *Social Studies of Science* 46(2): 159-183.
- Sariola S and Reynolds L (2018) Ethics and Politics of Community Engagement. *Critical Public Health* (forthcoming June 2018).
- Savransky M (2016) In praise of hesitation: ‘Global’ knowledge as a cosmopolitical adventure. In Keim W et al. (eds) *Global Knowledge Production in the Social Sciences: Made in Circulation*. Abingdon, Oxon: Routledge, pp. 237-250.
- Strathern M (1991/2005) *Partial connections*. Walnut Creek: Altamira Press.
- Suchman L (2002) Located accountabilities in technology production. *Scandinavian Journal of Information Systems* 14(2): 91-105.
- Woolgar S, Coopmans C and Neyland D (2009) Does STS Mean Business? *Organization* 16(1): 5-30.

Wynne B (2006) Public engagement as a means of restoring public trust in science—hitting the notes, but missing the music? *Public Health Genomics* 9(3): 211-220.

Zuiderent-Jerak T (2015) *Situated Intervention; Sociological Experiments in Health Care*. Cambridge, MA: MIT Press.

Notes

- 1 While using the terms Global North and Global South as shorthand, we nonetheless find these terms problematic. The Global North is commonly used to refer to the 57 countries with so-called 'high human development'. Most, but not all, of these countries are located in the Northern Hemisphere. The Global South is said to refer to the countries of the rest of the world, most of which are located in the Southern Hemisphere. It includes both countries with 'medium human development' and 'low human development'. As analytical categories, 'North' and 'South' are problematic, since they are commonly used as coherent and unified cultural categories when it is impossible to delineate who, what or when North and South, or Northern and Southern, refers to. For example, not all nations comprising the 'North' are in fact located in the Northern Hemisphere (e.g. Australia and New Zealand) – so the divide is not wholly defined by geography. Nor is the demarcation static; as nations become economically developed, they may become part of the 'North', regardless of geographical location.
- 2 For an example of smooth and rough accounts, see Woolgar et al. 2009.
- 3 "To destabilize dominant stories, as science studies often does, is a political enterprise, whether or not the new account is designed explicitly to advance a well-defined political agenda or set of interests" (Jasanoff, 1996: 412).