



Knowing, Unknowing, and Re-knowing

Introduction

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Most technologies are knowledge-intensive, and contemporary knowledge production is often technology-intensive. Hence, knowledge practices are a central theme for a handbook for the anthropology of technology. Consider the role of technology-mediated knowledge practices in some of the most pressing global issues of today, such as the COVID-19 pandemic, the climate crisis, and digitalised surveillance. In the case of COVID-19, the pandemic as such is knowable only through governments' use of models, statistics, and other monitoring technologies: an individual can experience illness, but not a pandemic. Similarly, a virus cannot be identified and characterised as an object of knowledge without mediating technology. In the case of the climate crisis, our understanding of it is an effect of technologically mediated knowledge practices (Edwards 2010). Moreover, attempts at handling the effects of climate change, whether as activists or government, also hinge on engagement with scientific knowledge making and on communication via digital media (Blok 2020). Digitalised surveillance, also an example of a knowledge practice, gets constituted by the use of algorithmic sorting and prediction based on indicators such as likes and reshares on social media platforms (Zuboff 2019).

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Digital surveillance also interacts with governmental understandings of security and reconfigures understandings of privacy, human rights, and safety (Snowden 2019; Andrejevic 2005). All these challenges are thus global phenomena constituted through knowledge practices that are mediated by technology. The same can be said about the tools for economic modelling and governance that undergird an escalating economic inequality (Murphy 2017). Knowledge and tools for knowing are intertwined. By exploring the technological mediation of knowledge practices, anthropologists can problematise them and open them up for scrutiny. There is an important task for the anthropology of technology in questioning knowledge practices.

When you hang out with policymakers and scientists, as have the authors of this section introduction, you will often hear them talk about science and technology as a cumulative process that delivers prosperity and optimisation. Sometimes the pursuit of knowledge is framed almost like a Kuhnian conquest: ‘new knowledge’ wins over and replaces ‘old mistakes’. Anthropological narratives about technoscientific knowledge practices are very different. In contrast to notions of knowledge as a successful epistemic conquest, anthropological accounts often foreground unintended or unwarranted implications of technologies and knowledge practices. Anthropologists explore socio-economic contexts, the distributed agency of technology, and political issues related to unequal power relations. They may describe how some forms of knowledge ‘work better’ for some people, and why certain types of knowledge are advantageous in reaching certain goals, but mostly they do so while also considering inequality and loss. Prosperity and optimisation are typically situated gains. Not all stakeholders gain equally, changes are not improvements for all; the labour that goes into the production of certain types of knowing always involves elements of unknowing. It is therefore an important task to recover the perspectives and experiences that have been lost. Hence, as anthropologists study knowledge as technology-mediated practices, they sometimes become agents of ‘re-knowing’. We therefore name this section ‘knowing, unknowing, and re-knowing’.

ANTHROPOLOGICAL TAKES ON KNOWLEDGE PRACTICES

Traditionally, knowledge about knowing has been considered primarily a branch of philosophy or, alternatively, of theology (Zagzebski 2012). In the late nineteenth century, William James tried to claim knowledge as a phenomenon belonging to the emerging discipline of psychology—as a human capacity (James 1950). Right from the inception of the social sciences in the course of the nineteenth century, scholars like Auguste Comte and later Émile Durkheim suggested studying how humans know the world they live in as a socially constituted phenomenon (Comte 1988; Durkheim 1973, 2008). They created a research field by looking at the *social dynamics* of knowing, in contrast to seeing knowledge as an individual achievement.

The study of knowledge practices is likewise part of the foundation of the anthropological discipline. Comte was influenced by classic philosophical

perceptions of epistemology portraying scientific progress from ‘pre-modern’ knowledge practices through ‘mere speculation’. It was what he associated with *artistic* expressions and individual *reflection*. Enlightenment was seen as finally delivering ‘modernity’ with structured *observations* and systematic *experimentation* (Lévy-Bruhl 2018). This narrative of progress and its underlying distinction between so-called primitive and civilised thought has since been challenged in multiple ways. Lévi-Strauss, in particular, challenged the distinction between primitive and civilised, and pointed out how the societies that used to be described as ‘primitive’ gave rise to ‘the great arts of civilization—of pottery, weaving, agriculture, and the domestication of animals’ (Lévi-Strauss 1966, p. 13). They did so through techniques building on ‘centuries of active and methodological observation, of bold hypotheses tested by means of endlessly repeated experiments’ (p. 14). People living in societies seen by early anthropologists as ‘primitive’ did deploy mythical thinking. This thinking, however, also exhibited a preference for ‘classification’ and ‘rational ordering’ comparable to modern forms of science (Lévi-Strauss 1966, p. 15; see also Latour 1990). Tylor, similarly, spoke of the ‘the tendency of mankind to classify out the universe’ (Tylor 1899). What is more, Lévi-Strauss pointed to the ‘bricoleur’ as a contemporary example of primitive thought. The bricoleur is ‘someone who works with his hands and uses devious means compared to those of a craftsman’ (Lévi-Strauss 1966, p. 16–17). The bricoleur ‘speaks not only *with* things ..., but also through the medium of things’ (p. 21). Knowing has, from this perspective, always been technologically mediated, and it continues to represent a human search for meaning.

After Lévi-Strauss, anthropology has continued to highlight and make visible diverse knowledge practices and treat them with the same curiosity and respect as accorded to, for example, natural scientists (Viveiros de Castro 2003; de la Cadena 2015; Escobar 1998; de la Cadena and Blaser 2018). Prominently among the authors referenced here is a political project of ensuring ‘conceptual self-determination’ for the people with whom anthropologists work. Viveiros de Castro reflects on relations between early structuralism and contemporary Brazilian anthropologists stating, ‘[F]or us the expression “la pensée sauvage” did not signify “the savage mind”. To us it meant untamed thought, unsubdued thought, wild thought’ (Viveiros de Castro 2003). To study knowledge practices is to both know and unknow. To know from another position can involve learning to ignore particular knowledge regimes and uncover what they have silenced.

Another way anthropologists have challenged hierarchies of thought has been by placing emphasis on socially engrained bodily forms of knowing (Martin 2013; Ingold 2011). As one of the early founding fathers of Marxism, Engels argued for the need to acknowledge the labour of the hand, not just of the mind, in relation to knowledge production (Engels 2007). Anthropologists have built a strong tradition for articulating tacit, bodily aspects of human experience that scientific data does not elucidate (Hastrup 1994). De la Cadena, in her work on Andean Indigenous knowledge practices, describes the

collective labour of hand and thought as co-labouring and her interlocutors as co-labourers (de la Cadena 2015).

Classic fieldwork facilitated the study of material knowledge practices. These forms are, however, rarely adequate for studying contemporary, technology-intensive knowledge practices. As a consequence, anthropologists have often had to invent new ways of studying knowledge. Ethnography was reinvented to explore the material practices of knowledge making in laboratory settings (Latour and Woolgar 1979; Knorr-Cetina 1981, 1983). Drawing on the ethnographic tradition, Science and Technology Studies (STS) has sought to bring forth the hidden labour of knowledge production, such as in laboratory work (Fujimura 1996). Presence, being there, opens up the opportunity to notice the tacit dimensions of knowledge practices (Korsby and Stavrianakis 2018), aspects, and sensations that scientists or knowledge workers would not themselves articulate (Polanyi 1966; Law and Ruppert 2016).

Anthropology has also traced master narratives across contexts and sought to give voice to the lives lived in their shadow as a way to re-know truths that matter to some of these people (Last 1981; de la Cadena 2010). Yet another anthropological take on knowledge practices describes how the establishment of clinical trials in medical research in Kenya and Ghana depends on active neglect of particular facts, such as the role of economic incentives in enrolling participants in research, that do not align with ethical demands and protocols (Geissler 2013). This neglect is an effect of social processes and ‘neither false consciousness nor conscious falseness’ (p. 28). Rather, it is a form of productive ‘unknowing’: ‘Unknowing is, then, not the opposite of knowing; the pair of terms helps, instead, to describe the work invested in, and the effects engendered by, maintaining this politically salient division’ (Geissler 2013, p. 15).

Indeed, within healthcare, unknowing comes in many forms, as when health professionals game bureaucratic reporting systems (Sullivan 2017; Hunt et al. 2017; Erikson 2012), patients ‘filter’ their experiences before reporting to doctors (Torenholt et al. 2020), or research assistants ‘clean up’ data before handing it over to scientists (Biruk 2018; Kingori 2013). Unknowing is integral to how systems work when organisations use global indicators to hide local diversity (Storeng and Behage 2017; Merry 2016) or produce reports and other documents to deflect criticism (Strathern 2006); it is also integral to technological systems when citizens need to hack their payment systems to gain access to infrastructures (von Schnitzler 2013). Unknowing is vital for the political expediency of any knowledge project, not as a strategic impetus to ignore, but rather as a way of being in the world that allows it to be messy, incoherent, and imperfect. Today, technology mediates each of these dynamics.

To those scientific disciplines that anthropologists have turned into objects of study, the ethnographic approach to questions of knowledge may seem overly relativist. As Poirier points out in her contribution to this section, however, plain relativism—where no claim to truth stands above any other—no longer seems feasible. Climate science, and science more generally, is under attack by powerful groups, who are spreading misinformation to undermine

the authority of scientific research. When former US President Trump dismissed scientific evidence as fake news, even anthropologists took to the streets and demonstrated *for* science. Few anthropologists were *against* science in the first place; they just worked to expand what is seen as worth knowing. Donna Haraway coined the term ‘strong objectivity’ to account for knowledge practices that ignore contextual—social and political—factors in processes of scientific knowledge production (Haraway 1991). The type of relativism that informs the anthropological study of technologically mediated knowledge practices is rarely anti-realist. Rather, it is attuned to the ways in which scientific practices can create more or less robust products that work well for some purposes and less well for others. Many anthropologists want to avoid totalising narratives about Truth. They insist on retaining room for different modes of knowing (Geertz 1984), which themselves are a concrete experience for many ethnographers. In the course of fieldwork, ethnographers often learn how the practices they study look very different from different perspectives. They continuously revise their own understanding, or as Hirsch (2008) notes in a manner that resonates well with this chapter’s title, ‘Knowing, not knowing, and knowing anew might be how best to describe this kind of anthropological inevitability’ (p. 34).

In sum, anthropology does not replace knowledge forms through conquest, but highlights the multiplicity of a world that evades singular forms of knowing (Mol 2002; Gad et al. 2015). To study knowing is always also to explore forms of unknowing or ‘ignorance’ (Mair et al. 2012). As the contributions to this section of the handbook show, attention to the processes through which knowledge is made, unmade, and re-made involves engaging with the technologies that mediate the practices through which we know, unknow, and re-know contemporary social problems. This handbook section continues a long tradition of studying the production of knowledge as socially embedded and materially entrenched, and it expands the focus from human labour to include attention to the agency of technology. Anthropological studies stay open to multiple modes of knowing the world. Observation and experimentation did not replace human reflection and artistic sensation, as the Comteian tradition suggested; rather, different modes of knowing co-exist and have come to mingle in a multitude of ways with various technological instruments including survey methodologies, registries, and tools of accounting.

THE CHAPTERS IN THIS SECTION

Conceptually, the seven chapters in this section all deal with the intertwined processes of technologically mediated knowing and unknowing, and each in its own way illustrates the anthropological capacity for re-knowing. The first four chapters can be read as contemporary takes on the four forms of human engagement with the world outlined above as part of the Comteian conceptualisation: *artistic expression*, *reflection*, *observation*, and *experimentation*. The subsequent three chapters explore particular instantiations of three canonical

technologies of knowing: the *survey*, the *registry*, and *accounting*. They illustrate very different ways in which people get enrolled into knowledge production. None of the seven chapters are written to illustrate one particular mode of knowing; on the contrary, modes of knowing overlap and co-exist, as do the technologies that mediate knowing and unknowing. Several chapters share key elements (e.g. attention to the construction of measurements) and technologies (e.g. digital processing), but they foreground different experiences and uncover different forms of lost knowledge: bodily, Indigenous, or otherwise. Thus, all chapters illustrate the co-existence of multiple forms of knowing and show how these forms interact with each other and with the socio-economic and political context where knowledge production unfolds.

Hannah Knox explores *artistic expression* as a way into studying the destabilisation of the interface between technology and knowledge. Reflecting on the technological phenomena of hyper-complex climate models, global data gathering, the environmental impacts of systems like bitcoin, and the complexity of digital algorithms, Knox suggests that contemporary technology appears to have brought us to what she terms ‘the end of knowledge’. This poses a challenge for the anthropology of technology—a challenge which Knox suggests is being effectively and creatively addressed by artists who have sought to deconstruct the opposition between technology as a tool of knowing and environment as the context for knowledge production. To explore these issues Knox’s chapter describes an art exhibition that worked to collapse the distinction between technology, media, and environment. In doing so, Knox shows how art can serve as a method for what we call ‘re-knowing’ in relation to those aspects that scientific knowledge practices cannot enact.

Anthropologists have long studied artistic modes of knowing. For example, studies have explored how stage art can involve particular forms of bodily knowledge (Royce 1977; Hastrup 1998) and how poetry can embody politics (Abu-Lughod 1986). Knox, in contrast, foregrounds the role of digital technology in producing art and, furthermore, points to the agency of the artwork: it works on/with the observer. Recall Gell’s classic work on the agency of technology as a form of enchantment exerting agency through material presence (Gell 1992). Similar to Gell’s point, in Knox’ case, knowledge is not a purely epistemic product, but a way of being in the world—as a technologically mediated form of consciousness (see also Hasse, this volume). With art, knowledge returns to a bodily experience of being situated in a larger milieu or environment. The anthropologist can engage with art by unpacking—through infrastructural designs—the ways in which bodily modes of knowing operate (Winthereik et al. 2019).

Minna Ruckenstein’s chapter focuses on self-tracking. The knowledge practice that Ruckenstein observes is a contemporary, technologically mediated way of knowing the self, a form of socially embedded and technologically mediated *reflection*. Based on fieldwork in Finland among people who use tracking devices to know (and intervene in) their bodies and everyday lives, Ruckenstein explores what it means for people to act on one’s body and self

through technology. Self-tracking can be seen as an intervention that allows particular forms of technologically mediated work on one's body to emerge, and Ruckenstein provides insights into the experiences it entails. Moreover, she brings in sociality as she emphasises the enduring hermeneutic element of making sense of data in the company of others: data does not speak for itself.

Knowledge practices of the self have a long history and have taken many other forms: religious, psychological, and philosophical. Although often framed as speculative and inner-worldly, such knowledge practices have often been technologically mediated in one way or another. They depend on books, for example, which is a technological mediation of sorts, or they depend on rituals using material artefacts, as shown in the anthropology of religion (Evans-Pritchard 1976). Foucault famously framed such work as technologies of the self (Foucault 1986, 1997). With Ruckenstein, we see how interpretations of the body are both socially and technologically mediated. Other scholars studying datafication have argued that the act of interpretation is often silenced to enhance the power of data (Merry 2016, 2019). Such uses—and abuses—of data by those in power have engaged many anthropologists (Adams and Biehl 2016; Adams 2016; Erikson 2012; Murphy 2017; Hunt et al. 2017). Ruckenstein adds to this work by tuning in on the people making the interpretations for themselves. How others, companies for example, might use this data, as in the types of surveillance mentioned above, is not the focus in this chapter. Still, it helps us reflect upon the differences between using data to enact change in your own life and to monitor objects of governance.

With Lindsay Poirier's chapter on monitoring environmental change, we turn to practices of *observation* as they can unfold in a governmental setting. Poirier explores the knowledge practices through which pollution and air quality emerge as phenomena in need of political action in the US; these revolve around intricate socio-technological infrastructures for observation (Daston 1992). Poirier describes the many ways in which observation both knows and unknows the phenomena of air quality, thereby reflecting Ruckenstein's interest in the hermeneutics of translating data, with increased emphasis on the political choices involved in the selection of data points. Anthropology and STS have tended to criticise the natural and physical sciences for concealing these choices (Downey and Dumit 1997; Haraway 1989), and Poirier carefully balances critique with support of science that seeks to understand the challenges of pollution and the climate crisis. By uncovering the choices, she reopens the politics involved and adds to an important tradition of studying those technologically mediated forms of knowing through which states exert authority.

Historically, the urge to map the world through observation interacted with colonial and economic forms of power. In the process, a particular mode of disentangling aspects of the world as assets to be bartered and controlled was created (Parry 2004). Observation came to serve as the cornerstone of what Comte's contemporaries saw as 'modern' scientific practices, with botanist Carl von Linné's taxonomies, Friederich von Humboldt's biogeographies, and

medical bedside observations such as those of William Osler. As Foucault insisted, knowledge and power are interconnected in discursive formations that have real-world effects (Foucault 1973, 1991, 2002). The anthropological work of opening the politics of knowledge making for ethnographic scrutiny involves attending to, for example, the standards used for observation (Busch 2011; Hogle 1995) and the infrastructures through which data points circulate (Star and Bowker 2002; Star and Ruhleder 1996; Bowker and Star 1999; see also the section on infrastructures). By moving closer to the establishment of measurements and infrastructures for data collection, new types of politics and governance are enacted (Essén and Sauder 2017; Douglas-Jones 2017; Winthereik, van der Ploeg, and Berg 2007; Hoeyer and Bødker 2020).

Joseph Dumit and Emilia Sanabria's chapter addresses knowledge practices revolving around a prototypical *experiment*, the randomised clinical trial (RCT). Dumit and Sanabria explore recent instantiations of this method, enacted to qualify the effects of *ayahuasca* as they are becoming financialised. They compare this with urban ritual healing and Indigenous practices that engage with, and fight the commercialisation. Dumit and Sanabria unfold an argument around the contrast between imagining healing as the identification of magic bullets or as producing container technologies. They analyse the RCT as a technologically mediated epistemic attempt to disentangle substances from their context in order to produce and market them as magic bullets. This epistemic move is interwoven with economic and political interests and embodies the ongoing practices of colonial extraction, decontextualisation, and control. Borrowing the metaphor of container technology, they invite readers to recognise substance, context, political economy, and environment as inherently entangled.

Anthropology has a long tradition of studying bricoleurs experimenting with the world around them. Healing rituals have attracted ethnographic attention as sites of knowledge production, where ritual objects, artefacts, and performances play a significant role in the making of insight (Schieffelin 1985; Port 2005; Sjørsvlev 2013). There is also a strong tradition for questioning the universal and decontextualised claims of biomedicine (Lambert 2006; Kleinman and Kleinman 2007). Other approaches have involved recontextualising biomedicine to show how ostensibly universal epistemic claims take on local forms (Lock 2002; Taussig 2009; Hogle 1999) or, rather, are reinvented locally (Lakoff 2005; Wahlberg 2018; Rabinow 1999). Some strains of anthropology have focused on the political economy of medical experiments (Petryna 2002, 2009) and the interaction between experimental biomedical knowledge and clinical practice (Kaufman 2015), while others focus on the role of patient activism (Epstein 1996). Some have made their own anthropological experiments, where the purpose has been to construct collaborative sites for anthropological knowledge making (Rabinow 1996, 1999). These strains articulate context, in contrast to the classic laboratory studies by Latour and colleagues, mentioned above, where context was seen as a mythical magical meta-actor (Asdal and Moser 2012). As Strathern has pointed out, context is never given; it is an analytical construct (Strathern 2004). The chapter by Dumit and

Sanabria thus invites readers to engage with a flourishing field of anthropological inquiry and it should inspire us to contemplate the political, economic, and even spiritual implications of the choices we make when construing context.

The last three chapters in this section exemplify particular technologies of knowing. Cal Biruk provides a fascinating insight into the work involved when researchers use *survey* methodology to quantify disease burden in Malawi. The survey methodology features in several of the other chapters too, but in contrast to, for example, Poirier's chapter, Biruk studies a setting where authorities do not have the means to collect the data they desire. It is also a setting where lead researchers do not always visit the sites of data production; they are placed in high-income countries, and the research promotes careers far from the suffering and social realities that the scientific methodology, which they use, aims to document. Global inequalities run through all knowledge practices. Biruk carefully describes the practices through which local research assistants on the ground create data and follow those who are collecting it, thereby providing insights into the actual work that goes into the construction of a population as a knowledge product. Biruk also invites readers to contemplate the colonial traces that 'haunt' contemporary knowledge practices (Karkazis and Jordan-Young 2020). Rather than negating the value of the survey, however, she makes these values thinkable so that others can ponder the political forces at play.

A number of studies of data collection and the representation of populations have demonstrated that the data work involved in surveys is performative: it shapes the phenomena it is said to describe by selecting and deselecting what is seen as part of a population (Grommé and Ruppert 2020; Ruppert 2012). The survey thereby constitutes a particular way of 'seeing' a population (Law 2009; Scott 1998). Other governance instruments such as evaluations, for example, share a family resemblance to surveys. As Helen Verran has demonstrated, there is a particular anthropological task in describing the calculative technologies through which social worlds are made. This includes describing the epistemic logics through which numbers, aggregate and otherwise, emerge and come to matter (Verran 2001).

The next chapter in the section, by Alison Cool, dives into knowledge practices that build on *registries*. Cool's research focuses on the use of registries in Sweden to conduct twin research to determine patterns of heredity, building on fieldwork in a country where every member of the population can be tracked via their identity numbers throughout their life course and across all governmental sectors; similar systems are in place in the other Nordic countries (Sætnan, Lommel, and Hammer 2011; Bauer 2014; Hoeyer 2019; Pálsson and Rabinow 1999; Winthereik 2003). The Nordic countries are valued for their registry data because the registries contain what is today often termed 'real-world-data' that is curated and stored by authorities—validated and certified by professionals (unlike responses to a survey). Cool explores what researchers think they can do with registries as they use statistics to tell stories about who people are (Marks 2001). Cool's chapter explores the scientists' reasoning on

heredity, which she posits as akin to what Fleck termed a particular ‘thought style’ (Fleck 1979). In the course of fieldwork, Cool encounters an interesting phenomenon: her interlocutors are eager to act as anthropologists. They give explanations of why people accept pervasive tracking by referencing ‘Swedish culture’. Cool thereby illustrates how the people that anthropologists study also reflect on, and seek to influence, the anthropological project of studying culture.

Cool’s analysis of registry-mediated knowledge practices about heredity reaches back into a classical realm of anthropology, namely studies of kinship and relatedness (Franklin 2007; Franklin and McKinnon 2001; Carsten 2000). Furthermore, the chapter reminds us that the registry is as much an archetypical ‘memory practice’ (Bowker 2005) as a tool for knowledge making (Desrosières 1998). Like surveys, archives have performative effects (Derrida 1995), not least as a key element in establishing bureaucratic authority through documentation (Weber 1947). Often registry data is a by-product of governance, which is used for research at later stages. Cool thereby adds to an anthropological tradition of studying the technologically mediated power dynamics of research participation and knowledge making (Kingori 2013; Svendsen and Koch 2008; Sheikh and Jensen 2019; Lappé 2014). She also adds to studies of how to understand registrations. Despite professional validation, there are many sources of error in registry data, studies of which show that there is a continued role for anthropology in explicating the hermeneutics of data analysis (Biruk 2018; Erikson 2016, 2018), bringing to light the choices that have become silenced in other modes of knowledge production—as is also pointed out in this section’s chapters by Ruckenstein and Biruk.

In the final chapter of this section, Anne Beaulieu analyses the dynamics of *accounting*, which here involves maintenance, expansion, and innovation in the infrastructures created to monitor degrees of achievement of the Sustainable Development Goals (SDGs). Beaulieu problematises the processes through which data-intensive practices create novel (un)certainities. With the SDGs, Beaulieu describes how infrastructures are being developed to ensure that different actors can contribute with the ‘right’ kind of data. Data is imagined to create the knowledge of ‘how things are’ that is deemed necessary for the SDGs to become a matter of political concern. Accounting is needed to make the SDGs actionable, but as Beaulieu shows, doing so on a global scale involves a shift from a focus on population and the kind of accountability that dominated at the end of the twentieth century, based on system-level relations and access to data on public service delivery, to a different kind that is more distributed.

Accounting is knowledge produced within organisations, small or of global range, to monitor and control the achievement of goals (Jensen and Winthereik 2013). Accounting is knowledge as governance. It has also been studied anthropologically in relation to phenomena as diverse as finance (Riles 2011), agriculture (Silverstein 2018), and ethics regulation (Jacob and Riles 2007; Douglas-Jones 2012; Hoeyer 2005). While the New Public Management era

of accounting in public institutions was characterised by a firm belief that documentation, monitoring, and evaluation would lead to actionable insights that could be accounted for, the era of big data suggests more distributed forms of governance characterised by links between public and private actors (Fishenden and Thompson 2012). Hope, speculation, and the strategic formation of networks seem to have replaced the controlled feedback loops of former modes of accounting (Miyazaki 2006; Hockenhull and Cohn 2021). Co-design, co-creation, and governance networks are the social and organisational technologies of today. As anthropological research shows, quantitative digital data has become ubiquitous in governance today.

CONCLUSION

Anthropological studies of technologically mediated knowledge practices have shown that as something comes to be known, something else becomes unknown. There is always a task for anthropology in recovering lost knowledge and in articulating the types of knowledge that science cannot measure, or measures in ways that leave out important insights for those who are affected by the measurement. There is likewise a long tradition of questioning anthropological forms of knowing. The discipline has, again and again throughout its history, challenged and reinvented its own knowledge practices and presumptions. The aim has been to build more inclusive ways of knowing and move beyond, for example, colonial thinking, injustice, or prejudice. Anthropology has also learned to know, unknow, and re-know in its own disciplinary development and, indeed, will continue to do so. Unknowing and re-knowing in anthropology is typically associated with the discipline's multiple 'turns'. They exemplify how it has been necessary to unknow earlier anthropological insights (Clifford 1986) and then later re-know them from new analytical vantage points, with new forms of technological mediation. Marisol de la Cadena, for example, describes how, in her study of peasant politics in the Andes, her scholarly knowledge was insufficient. To understand peasants' struggle for political influence, she had to be able to not know, or ignore, all that her training had taught her about 'culture' and 'belief systems' (de la Cadena 2015, 2021). With her, some anthropologists have turned to ontology as yet another way of figuring out knowledge practices—other people's as well as anthropologists' own (Holbraad, Pedersen, and Viveiros de Castro 2014; Holbraad and Pedersen 2017).

When acknowledging the similarities between the anthropological history of knowing, unknowing, and re-knowing, and the work described above on the knowledge practices anthropologists study, we believe the potential antagonism between anthropology and technoscience can dissolve—or, at least, take productive forms. No knowledge form can claim superiority for all purposes. A genuine engagement with complementary knowledge forms that exemplify different blind spots and shifting moral and political orientations should stimulate the reflective capacity that has long been the hallmark of anthropological

knowledge practices. It does not mean working towards the same goals as the scientists, engineers, or doctors that we study, nor does it imply accepting a role as servant to (or slave of) more mighty disciplines (Linder 2004). Rather, it means understanding the differences and using them productively. We hope the seven chapters that follow will inspire readers to find their own ways towards that goal.

If technoscience typically works from the data scientists compile using authoritative methods, anthropologists must often invent methods as they go along. They must reflect on, and work with, empirical material on any type of experience that matters to people. Those anthropologies of technology that work with knowledge practices often find themselves doing what they study: making knowledge about knowledge making, using technology to understand technology. It involves an enduring potential for making one's own practices into a source of experience that can inform what we see in the field. We therefore wish to end on a note of invitation, asking readers to find methodological inspiration in these great chapters and also to reflect on their own intimate knowledge practices. Anthropology is a discipline that works from human experience in all its diversity, and it refuses to reduce knowledge to the data that a given disciplinarily sanctioned method may grant. Anthropologists can never simply ignore an experience just because established methods do not capture it (Favret-Saada 1980). Anthropological methods are flexible; they rarely follow strict protocols (although sometimes they can experience through protocols and even experiment with them [Ballestero and Winthereik 2021]). As anthropological technologies of knowing evolve in dialogue with the fields under study, quantitative, qualitative, survey, digital data mining, or auto-experimentation methodologies are never just dull instruments, but exciting experimental possibilities. Ethnography is the hallmark of anthropology and strongly represented in the chapters that follow, yet we see in them something else as well which is equally important: playfulness. There is no certain path to follow, and often routes go through unknowing one's own assumptions in creative ways.

This is the point with playfulness: to dare to leave the path you know—as well as to dare to return to 'old' insights, those that are no longer in fashion, when they can help us approach a problem from a new, or a forgotten, angle. Anthropology's technologies of knowing can support curiosity. They can provide the courage to know forms of life that are unaccounted for, difficult to access, or subjugated. As anthropologists also develop ways of accounting for algorithmic governance (Besteman and Gusterson 2019; Peeters and Schuilenburg 2021) and digital data work (Walford 2017; Munk and Winthereik, this volume), and as they begin to explore Artificial Intelligence (AI) as emerging 'post-human' forms of knowledge and creativity (Amoore 2019; Wilf 2013), once again they will challenge methodological dogma and disciplinary assumptions. Sometimes, the surprising angle will come from recovering lost knowledge rather than an announcement of disruption. AI involves new forms of knowing, but perhaps knowledge never rested in the

human mind alone. Lévi-Strauss pointed to the materially engrained ways of knowing already established in Neolithic times, and the heralded cyborg figure suggested by Haraway (2004) should invite reflections on continuity as much as change. Still, each new technologically mediated knowledge practice poses new concrete and situated challenges to the societies in which it emerges. In societies permeated by science and technology, there is always more to be done.

Acknowledgements We would like to thank our contributors, reviewers, and the rest of the editorial board for comments and suggestions to previous drafts. Klaus Hoeyer would also like to acknowledge funding from the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation programme (grant agreement number 682110). Brit Ross Winthereik would like to acknowledge funding from the Velux Foundations (funding ID 12823).

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