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Embodying Practices

The Human Body as Matter (of Concern) in Social Thought

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Abstract: Recent developments in molecular biology and the neurosciences on body–environment interaction and interdependence have led the natural sciences to prominently challenge the social sciences to refurbish some of the central elements of their theoretical apparatus and enter into joined empirical research. In the neurosciences, and departing from older perspectives, perception, cognition and knowledge are increasingly seen as integral elements of action, dynamically situating/embedding 'cognitive agents' in their socio-cultural-natural environments. Likewise, recent research in epigenetics suggests that bodily practices, shaped by their social and material environments within which they are performed, imprint a body that becomes highly susceptible to both past 'experiences' of and to present changes in its social and material environment. In this chapter, we critically review the research (practices) that prompted this challenge and discuss how it affects, but does not consider, social theories of interaction, habituation and inheritance. In a second step, we develop a social and practice theory on the basis of a co-laborative research agenda of 'embodied practice' that stresses the somatic context, performativity, historicity and dynamic situativity of embedded bodies. Finally, we discuss the theoretical and methodological implications of such an endeavour.

Keywords: Body, Embodiment, Thick description, Praxiography, Epigenetics, Extended mind

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The Human Body as Matter (of Concern) in Social Thought

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Introduction

This article is concerned with a more thorough integration of the human body into social thinking. We argue that a practice–theoretical conceptualisation of bodies in action offers a productive boundary object for different ways of knowing the body and a resource for the social sciences to initiate co-laborations with other disciplines characterised by strong interdisciplinarity (Sutton 2010).

The article takes up the recently developing interest in 'practices' in two research areas of the natural sciences: neuroanthropology and epigenetics. Here, social, cultural and bodily practices are seen as a promising perspective to design models of the interrelations and interdependencies between environments and bodies. In the neurosciences, practices are conceptualised as integrating perception, cognition and knowledge in action sequences, dynamically situating and embedding 'cognitive agents' in their socio-cultural-natural environments (Choudhury and Slaby 2012). Likewise, recent research in epigenetics suggests that bodily practices, shaped by the social and material environments within which they are performed, imprint a body that is understood to be highly susceptible to past 'experiences' as well as changes in its social and material environments (Niewöhner 2011). These notions of practice privilege process over event and gradual development or evolution over instant change and are interested in feed-back as well as feed-forward loops between bodies and their material and social environments.

While these theoretical developments in some innovative branches of the natural sciences are captivating, it is open to question how to bring about a fruitful conversation with approaches to the study of practices in the social sciences. One of the obstacles—as will be argued by taking social anthropology as an example—is a conspicuous weakness of social science concepts, namely that they tend(ed) to black box the 'physical' body (Benton 1991; Newton 2007). Another obstacle is that conceptualisations of practice in the natural sciences, more often than not, tend to 'flatten' the social to immediate interactions or the cultural is reduced to an often ethnocentric understanding of norms and rules that are applied in decision making (Henrich 2005; Henrich et al. 2010).

Praxeological Perspectives in Anthropology

For sociocultural anthropology, practice theory affords several benefits that enable it to serve as a bridging concept and overcome these obstacles. Anthropologists as well as ethnographically minded sociologists were among the first propagators and practitioners of practice theory (Bourdieu 1979; Ortner 1984). This perspective takes the materiality of human environments systematically into account (Pickering 1995; Reckwitz 2002); through concepts such as 'embodiment', it brings the body as a resource, site and repository of experienced action (Csordas 1990; Lock 1993; Desjarlais and Throop 2011) as well as emotion into the focus of analyses (Cowan 1990; Wilce 2004); it affords observational systematics that de-privileges the individual and instead stresses the shared-ness, collectivity and potential creativity of action (Rabinow 1996; Turner 2006). Moreover, practice theory includes, at least implicitly, a theory of learning, remembering, forgetting and unlearning that is not brain-o-centric (Lave 1985; Lave and Wenger 1991; Turner 2001). It can be argued that practice theory takes 'time' seriously as a sociocultural category in a threefold sense: as a cultural construct (Elias, Evans Pritchard and Joas), as a reminder of the historicity of human action (A. Giddens and R. Bernstein) and as a biographical dimension of subjects in contexts. Generally, practice theory is refreshingly anti-mentalistic (Schmidt 2012, p. 57) and focuses on processes and performances (Barad 2003), much to the liking of sociocultural anthropologists. Especially in fields such as medical anthropology and anthropology of learning or performance, variants of practice theories are firmly established since the 1980s—a rather successful mainstreaming of praxeological approaches.

Closely examining praxeological accounts, the body in anthropology and even more so the social sciences is often treated as a black box—a black box that accomplishes a diverse set of crucial tasks. Experiences are embodied or somatised, skills are accumulated, dispositions are encultured, habits are formed and 'hysteresis effects' (Bourdieu 1979) guarantee that (re–)actions towards the social and natural environments are relatively stable and reproducible over time while providing room for variation, adaptability and creativity. However, how 'the body' manages all this or how the internal organisation of bodies in combination with its material-discursive environments affords the orderliness of practices remains mysterious. Anthropological as well as sociological analyses stop at the skin. What is beyond is left to the natural sciences; it remains by and large unexplored how the social or the cultural goes under the skin and 'into' the body (Niewöhner et al. 2008) or how bodily characteristics shape (inter)actions.

This superficiality in social scientific engagement with the world and human bios is reproduced at the level of theory and indeed epistemontology (Barad 2007). Social sciences, according to the established consensus, are concerned with people. They are decidedly dys-concerned with humans (Faßler 2014)—a field for rather speculative anthropological philosophy. Any substantial contribution to and involvement in material-semiotic practices is largely left to the human sciences (biology and neuroscience, medicine and parts of psychology, molecular and evolutionary thinking in various disciplines), as is referred to by Ian Hacking, a historian of science. There are many reasons for this

established division of labour. One of the more prominent is, as cultural anthropologist Anna Tsing rightly states, that biology is still seen by many in the social sciences as the enemy of critical thought (Tsing 2000). While there are many good reasons for sociocultural sciences to remain firmly on the side of 'the social' in this Cartesian universe, in anthropology, particularly in fields such as medical anthropology, this is not a satisfying option.

Why is this the case? There are two main reasons. First, anthropology is a comparative venture, studying humans in diverse socio-cultural-material environments, past and present. It analyses humans in their universality as well as their (local) specificity. More precisely, it has to understand what is universal to analyse the specifics of social interaction in places as diverse as metropolitan neighbourhoods and Sumatran highlands. Second, humans have diseases and feel ill. Disease (a matter of a physiological fact) and illness (a matter of a culturally impregnated concern) may be analytically disentangled, but out in the world they interact, loop and it makes little sense to study them apart from each other. 'People' suffer very differently from diseases that infect humans (Zola 1966). Similarly with theories of social interaction; social inquiry does well at describing and analysing patterns of interaction in groups of people and understanding how that helps produce quotidian life as meaningful for those involved. Yet, it is so consumed with this level of analysis that the physiological and environmental elements contributing or participating in this interaction are ignored (see Linde 1972; König 1984), as are the contributions on longer-term time scales provided by evolutionary change in the patterns of cooperation and adaptation (Durham 1991).

This is, of course, an age-old problem and we do not suggest that we will solve it here. Rather we make three brief points pertaining to the method and epistemology that might help practice theory fulfil some of its potential in becoming a post-Cartesian way of engaging with an embodied world:

- The hinterlands of practices: we should be more positive about studying matter beyond its immediately given surface. In addition to matters of fact or concern, we should analyse the matters of effect(ing)—such as infrastructures, bodies or environments.

- Practices beyond the actual: we should think more carefully about the source and nature of continuities and ruptures between the sets of practices. What connects or couples practices? When practices exhibit ordering effects, what attunes different practices to one another? Practices unfold in an extended present. Yet, recent molecular biological research demonstrates how material bodies are embedded in different time scales. What are the affordances of such embedded bodies and what does this mean for social theories of reproduction and ordering?

- Embodied minds: we ought to revisit theories of communication, interaction, cognition and learning in the light of recent findings in sociocultural neurosciences. How do we conceptualise cognition in practice theory?

Hinterlands of Practices

Praxiography, and perhaps ethnography in general, is good at observing ongoing things. It is a largely vision-based form of interaction that is particularly suited to record things interfacing with other things. Stefan Hirschauer has rightly argued the term praxio*scopic* methods (Hirschauer 2010), because eyes are the primary devices and looking is the predominant practice in standard ethnography. Much has been written about perspective and 'scopic regimes' (Jay 1988). The fact that we can only look from a particular standpoint has been discussed in its epistemic and ethical implications and nothing more needs to be said about it here.

Of lesser interest has been the fact that the human gaze (note: human gaze, not people looking) stops at hard surfaces, for example, skin or walls, or that the human gaze is rather bad at observing slow, extended, incremental processes. While this may provide a welcome reduction of complexity in fieldwork, it is also potentially a severe limitation when trying to understand practices. Take any degenerative disease and it becomes immediately obvious that much of what is implicated in changing practices happens incrementally under a person's skin. It seems to us that it would be helpful to know something about what is happening there. Praxioscopic approaches at least in a simple meaning fall short here, when 'seeing' is understood in an 'unmediated' sense. A slowly progressing, degenerative disease is a drastic example, but the principle holds for any type of human (inter)action: it unfolds on different scales, from the microscopic to the macroscopic, and the immediate, observable present is nothing more than an event in an extended, uneven process. The argument here is not about determinism. No one in their right mind would argue that human interaction or practices are generally determined by bios, let alone biology. Yet, it seems more acceptable to argue that human interaction or practices can be understood through history, culture and human agency. While this may be an enlightened position and politically important in many contexts it seems equally improbable. Therefore, it is dissatisfying to write about material-semiotic practices or sociotechnical networks or sociomaterial ontology and still rely on praxioscopic methods using only the 'natural senses'.

This argument is even more applicable to a renewed interest in multi-sensory methods. Particularly scholars in anthropology advocate a multi-sensory approach to fieldwork. Hearing, smelling, touching, tasting and seeing practices combined seem superior to just 'gazing'. As ethnography is always an embodied interaction, we might as well pay analytic attention to our other senses. Yet again, much of this work, and it is not all that much as yet, goes about using the human senses without reflecting their capabilities in any meaningful sense. Multi-sensory anthropology is often done without the anthropology of the senses. What sensory anthropology without a critical anthropology of the senses often leads to is an unreflexive engagement with the 'world' or 'field', with all senses to be more involved in different ways, closer and more engaged. Such polemic is highly unfair to a lot of good work in this area. Yet our point remains: if we understand the human senses as interfaces with a complex physiological and cognitive hinterland as well as with a media-rich deployment zone of human action, it becomes easier to understand

human interaction not simply as intersubjectivity or an interface, but as the complex interaction of two or more systems with considerable depth.

To know these physiological and cognitive hinterlands as well as the mediated nature of all senses, then becomes an important element of understanding embodied practices. Note that we are not arguing that these hinterlands can be known in any definite sense or represented in any objective fashion. Our knowledge of the hinterlands remains historically and socially contingent. Bios and logos are both necessarily and always situated.

Finally, the implicit authenticity so often carried in multi-sensory anthropology also implies a type of direct contact between people: unmediated access to the world and fellow humans. For anthropology past the 'writing-culture-debate' and more than reflexive in many ways, this is untenable. Just the opposite approach seems much more fruitful. Particularly in fields such as urban anthropology or STS, the anthropologist or ethnographer often moves in familiar terrain: western metropolitan areas, clinics or factories are not all that strange. Hence, estrangement is an important technique: make yourself strange or even 'other' to the familiar surroundings to produce difference in engagement and generate a comparative and thus epistemic moment. Using methods and technologies to do so seems only logical. Why be in the world unmediated when you can use the systematic comparison of methodically and technologically mediated ways of being in the world as a way of producing different modes of 'worlding' (e. g. Tsing 2010)?

Speaking with Don Ihde, we may discuss 'post-phenomenological' praxiography (2009). Particularly, when significantly embodied practices are concerned, using technology to mediate access to and analysis of these practices seems productive. As for medical technologies, few of us are trained to use them and perhaps 'endoscopic ethnography' is not such a clever idea. Yet engaging more systematically and more co-laboratively with medical practices seems a plausible way of engaging with the embodied hinterland of practices (Niewöhner 2015). Or one could get involved, as we have, in neuroscientific experimental work to study cerebral involvement in human interaction (Kuhlen et al. 2012). We do not mean to be naïve about this. Of course, findings from different levels and modes of analysis are not readily integrated into a coherent story. A somehow more comprehensive theory of socio-material interaction cannot and must not be the objective. Electric signals from a region of the brain when a person interacts with a video interface tell us little about how people deal with each other in meaningful ways in real life situations. Yet, we insist on the ethos of 'praxiography beyond the skin' as a methodological call to attention that ought to follow recent theoretical developments in this area and as a productive irritant against complacent socio-historical reductionism.

Practices Beyond the Actual

How do practices connect with each other? We often speak of routines, habitus, patterns and orders to point out that practices connect with each other in persistent, systematic ways. They become structurally coupled or form a set. The question we are asking is how is this connection maintained? How is continuity provided between two practices? How is this relationship between different practices ordered?

In anthropology, this is an old question that was asked for the first time with considerable force by a group of anthropologists around Max Gluckman in Manchester in the 1940s and 1950s (Burawoy 1998; Evens 2006). Structural functionalism was in full flow and this group of anthropologists became dissatisfied with the way empirical data was being used only in illustrative means to support a particular theory of social order. They argued that social situations do not occur as isolated incidences. They are always integrated into a flow of practices. They have a before and after. Extracting them as individual situations or cases to illustrate a particular theoretical understanding of social order seemed increasingly problematic. Gluckman and others carefully analysed the ethnographies of the time to find that in a significant number of cases the analysis had only been possible in the ways it had been done, because the anthropologist deliberately ignored the fact that the actors implicated in the particular case knew each other well and had interacted in significant ways many times preceding the situation at hand. Gluckman was particularly unhappy about the fact that the structural functionalist framing of such analyses emphasised social order over and against conflict.

The group responded to this dissatisfaction by developing what came to be known in anthropology and beyond as the 'extended case method'. In its core, the extended case method means analysing situations in great ethnographic detail, but not as isolated phenomena but as a series of situations over time. Crucial to this way of performing ethnography was the continuity or connectivity between the situations provided by people. Situations were analysed in series, because some of the actors appeared in several or all of them, albeit in significantly different configurations. Situations as static events acquired a temporal extension—analyses focused not yet on process but on change over time. The extended case method, as proposed by the Manchester School, considered social structure to be highly dynamic and 'the social' appeared to them not to be a matter of the normative but the result of conflicting, ongoing processes of norming (Evens 2006, p. 50).

Our interest here lies in the fact that the extended case method analyses individual social situations in context or series. The analysis of practices faces an analogous problem: how do we isolate practices from the continuous flow of quotidian life and make connections between practices? To the Manchester school, the answer was simple: the same people occur in different situations—this is a meaningful link and we must analyse them together to avoid a situational bias. The field provided continuity across practices through actors. This notion of the actor analytically foregrounds the individual as a carrier of social capacities—meaning making, social interaction and communication—and as a participant in social structure.

We argue that practice theory ought to relate to this tradition of analysing the production of continuity, yet do not follow the Manchester School into their notion of the actor. Rather we suggest that a significant element of continuity may be hiding from social analysis in the material part of material-semiotic practice. Bodies and infrastructures are but two matters of concern with a tendency towards stability and lag. Bodies are not simply surfaces, but inert hosts to subjects or storage spaces for knowledge and culture. Bodies in their multiple hinterlands and beyond the skin are embedded within multiple

spatial and temporal contexts. Recent work in molecular biology has made remarkable advances in problematising the skin-bound, cognition-led body of homo oeconomicus in favour of a body that is heavily impregnated by its experiences and multiple spatial and temporal horizons. There is no space here to delve into the details of research on epigenetics and the molecular biology of social position (see Niewöhner 2011, 2015; Landecker 2011; Landecker and Panofsky 2013; Pickersgill et al. 2013). It suffices to say that recent research is demonstrating remarkably sensitive molecular and cellular mechanisms responding to changes in an organism's social and material environments. These mechanisms produce altered patterns of gene regulation and expression and exhibit stability across cell division and possibly across generations. Thus, the question arises within molecular biology as to how an organism is situated within a community and how that situatedness conditions the body beyond the affected generation. This question is not new, for neither biology nor social science. Yet, in biology, the question now arises of mechanism and stability over time, that is, heritability and transmission, and as such, it is new in biology and social science alike. If bodies are in relevant ways embedded within evolutionary, intergenerational and biographical, interactional and real metabolic or physiological time, it seems reasonable to assume that these different time horizons (and indeed time economies) provide different affordances for the production of continuity across practices. Our bodies, and a similar argument can be made for infrastructures, afford changes in practices in various ways and on multiple scales. It seems prudent to recognise the materiality of the body, know it in different ways and theorise its contributions to the development of patterns of practice. There is no reason to believe that the processes of reproduction and ordering are not shaped to some degree by material agency not easily known through methods trained to the visual and semiotic only.

Extended/Embodied Minds in Practices

Our third point returns to the question of the beginning and end of practices, how we identify them at all and how we as observers and actors mutually understand practices in interaction—the 'we-mode' of practices (Gallotti and Frith 2013). These questions are especially relevant in the context of recent debates in the neurosciences that try to revise Cartesian or computational concepts of cognition, increasingly held to be overly psychologised, detached from the situated body as well as the environment. According to these approaches, cognition should be socialised and culturalised rather than psychologised; and these concepts of cognitive processes and mind fundamentally challenge dominant western philosophical speculations about reason and thinking (Lakoff and Johnson 1999). What is interesting is that this reconceptualisation opens up the debate about cognition from a 'genetic perspective'—genetic in the sense of Norbert Elias' 'cultural genesis', not James D. Watson's and Francis Crick's molecular genetics. We argue that these debates are not only of great interest for any social science analysis of practices, but that an evolved praxeological perspective can inform these debates in the neurosciences.

There are two lines of research in the neurosciences that complement each other and take as their problem either how a mind is embodied or extends into the socio-cultural-

material environment. While there is a great deal of diversity in conceptualising the 'embodied mind' (Wilson 2002), proponents agree in rejecting a purely computational model of cognition and instead favour a perspective where cognition is seen as an integral part of embodied, learned action in culturally shaped and shared environments (Varela et al. 1991; Hutchins 1995, 2008). This concept resonates with praxeological accounts in the social sciences in that it stresses 'knowing how', doing and intervening over 'knowing that', representing and computing. It emphasises embodied skills over abstract representations (Reckwitz 2003). However, this perspective adds to social science accounts of practices a concern about how evolutionary processes shaped human physiology into which cognition is embodied or embedded. It asks how culture and (social) practices reconfigure 'the use patterns of the brain' (Donald 1991, p. 14; Tomasello 2002), linking human biological evolution and human cultural history in a fashion that allows to reconcile the obvious biological unity of mankind with findings that show diversities in actual cognitive structures shaped by culturally diverse practices—be it speaking different languages (Vogeley and Roepstorff 2009) or learning to dance Capoeira (Downey 2012). Here, culture is thought to go 'under the skin' and 'into the brain' (Niewöhner et al. 2008), suggesting cross-cultural research methods for inquiries into neurological plasticity that might provide an antidote to essentialism, both universal and particular (Lende and Downey 2012).

This deep historical dimension is even more pronounced in the postulate of an 'extended mind'. According to this perspective, human skin does not encapsulate cognitive processes. Instead, cognitive acts are held to be distributed across a historically accumulated cognitive equipment that is intra-bodily only to a degree: be it symbols, language and metaphors, instruments, tools and media from cave walls to notebooks and computers. Accordingly, the human mind is conceptualised as 'a leaky organ, forever escaping its 'natural' confines and mingling shamelessly with body and the world' (Clark 1997, p. 53). The fruitfulness of this perspective was demonstrated in a seminal ethnographic study by Edwin Hutchins, analysing how the practice of ship navigation is distributed across many specialists and artefacts (e. g. maps and measuring devices), orchestrated by a highly sophisticated social organisation into a complex, choreographed set of practices (Hutchins 1995). According to this perspective, cognition does not have a solid base in the scull but is distributed across space and time and across a heterogeneous set of equipment (from biological to symbolic 'matter')—it is enacted by cognitive practices.

Both perspectives, the embodied mind as well as the extended mind thesis, define practices as the proper epistemic object of cognitive studies. Accordingly, the neurosciences might enter into a mode where any explanation of cognitive phenomena necessarily comprises sociocultural phenomena. This has far reaching consequences for the received theoretical furnishings of all implicated disciplines—be it the social sciences, philosophy or the natural sciences—as well as the established modes of knowledge production through unmediated observation (in the social sciences and ethnography) or laboratory experimentation in the psy- and neuro-disciplines (Beck 2013). If cognition has to be understood as an emergent phenomenon brought about by heterogeneously equipped, historically and situationally diverse practices, a praxeological account seems to be imminent to

overcome the individualistic, brain-o-centric bias in the neurosciences. What is at stake here can be illuminated taking a recent paper on 'social cognition' by neuroscientists Mattia Gallotti and Chris D. Frith as an example (Gallotti and Frith 2013).

Gallotti and Frith rightly analyse the persisting difficulties of individualistic theories of mind to plausibly explain interaction. According to the classical approach, each of the interacting individuals has to engage in 'mindreading'—that is, ascribing mental states to the other— to grasp her intentions. As a precondition for interaction, mindreading is based on observation and abstract cognition of observed 'facts' in the minds of each actor. Yet, this is hardly a plausible assumption. Obviously, 'when interacting, agents appear to have access to more information about the behaviour of their partners than they would have as mere observers in a disembodied social context' (ibid., p. 160). Yet, instead of addressing 'shared action' or 'shared practices', the authors take a different tack, still true to the psychological heritage of the neuro-sciences. They postulate a 'shared intentionality' as they formulate 'a striking feature of the psychology of collective intentional behaviour [is ...] that joint action involves shared or collective or 'we-intentions" (ibid., p. 162). They call this 'social cognition in the we-mode'. Their explanation, however, remains overly idealistic and still presupposes a 'theory of mind' (if even a type of 'we-mind') applied by all actors.

That interaction presupposes a theorising of mind from all actors is, from a praxeological perspective, at the same time too much and too little. If instead interaction is conceptualised as participation in shared practices, what is needed is not an overly sophisticated theory of mind but a proper understanding of the course of a practice (this is, less theorising), unfolding in a specific environment and situation; hence, a theory of practice that is informed by practical (tacit or explicit) first-person knowledge (this is, more knowledge than observation alone will provide). The larger part of everyday interactions is of a type that simply does not require any sophisticated mind games, which inquire into the intentions of others. Gilbert Ryle's famous example of a boy winking and the interpretive steps necessary to sort out whether he suffers from a nervous tick or tries to communicate a secret message problematises meaning making and the use of (natural) symbols in communication (Ryle 1968). This is an extreme case of interaction—and it is unfortunate that Clifford Geertz based his sociocultural hermeneutics, his 'thick description', on this example (Geertz 1973). Yet, it is even more unfortunate that Geertz succeeded in establishing his mode of 'thick description', to inquire into the hidden cultural meanings of interaction, as the dominant mode of explanation in many ethnographic studies. What is needed, instead, is an even 'thicker description', one that inquires into enacted meaning as well as enacted skills, taking into account enacted symbolic systems and enacted infrastructures and embodiment as well as means for extended cognition.

Methodological Consequences

The methodological consequences of these challenges are manifold. We sketch only four aspects here:

- Praxiographic research requires a fundamental broadening of perspective and an additional basic unit of analysis. Social sciences are primarily concerned with human action, 'handeln' in various descriptions, but almost always grounded in a cognitive agent (i. e. a thinking human individual) or a social agent (i. e. an individual interacting with other humans). We have tried to argue in favour of a focus on the infrastructural conditions of practices. The peripheral role of the material-technical con-*dicere* of practices, elementary to sociology, might be productively challenged in such a manner. This contradicts the deep-seated western-modern and largely implicit intuition that the social is primarily characterised by human interaction: 'The coincidence of the social order with the pattern of relations between human beings is taken for granted' (Luckmann 1970, p. 73).

- Historian of science Geoffrey Bowker speaks of 'infrastructural inversion' to emphasise a new type of explanatory reasoning in the history of science that performs a Gestalt switch: the genesis and development of facts is not primarily rooted in social and cognitive processes, but to various degrees also embedded in the much less visible and often boring organisational–infrastructural conditions of scientific practice (Bowker and Star 1999). A prime example is the decrease of mortality during the 19th century, which had less to do with improvements in medical diagnosis and therapy and much more with state-driven structural measures to improve general hygiene in urban environments—less heroic Hippocratic action, more infrastructural transformation. (Although to be fair, social and health policy, statistics and medicine in the 1850s were not easily separated.)

- Parsons once remarked that removing the 'hyphen' from psycho-somatic would require a fundamental revision of medical and biological core concepts established in the 19th and early 20th century (Parsons 1991, p. 290). The same applies to social science perspectives: we are still not there yet. Methodologically, the social sciences have been notorious in neglecting the infrastructural conditions of their own research. Incremental, long-term socio-material change, as is typical for many embodied practices not only in the field of health and illness, requires a detail in description that the ethnographic individual—still the hallmark of anthropological research—cannot deliver if she relies on 'natural senses' only. Carefully severing some of the ties between individual and empirical material will be necessary to develop forms of team-ethnography and data infrastructures that enable cross-individual analysis without jeopardising too much of ethnographic thickness. Anthropology can draw on a substantial but largely forgotten history of long-term field sites and longitudinal data collection (Niewöhner 2014). Developing the analytical measures to handle such data is an important task.

- Anthropologist Paul Rabinow has argued that 'thickness' is located differently today (Rabinow et al. 2008). We take this to mean that human activity is not only suspended in webs of meaning, but it unfolds in embodied practices and material environments. Thickness in inquiry can thus not simply be achieved by looking over actors' shoulders. It is not based on meaning-making strategies in

an intersubjective sense. Instead, practices draw on and enact bodies and build environments, natures and technologies. Hence, thick inquiry requires at least three steps: (a) The praxioscopic analysis of social interaction and an explication of the tacit ethnographic knowledge contained in this analysis, that is, the embodied and material contributions to this interaction (b) These contributions are commonly known by other disciplines and their respective methods. Understanding these approaches is necessary. The result is a multitude of related thin descriptions. 'Related' does not mean that these individual thin descriptions add up to some kind of comprehensive description. The complicated relationality of thin descriptions would ideally be represented in some type of new 'notational system' (Bateson 1941, 1971). (c) These multiple thin descriptions then form the basis for co-laborative 'thickening'. 'Co-laboration' here means temporary, non-teleological, shared epistemic work that does not pursue integration of findings, but the production of critical reflexivity from discussions of thin descriptions (Niewöhner 2015, 2016). 'Thickness' in Rabinow's sense then does not stem from the local webs of meaning and it is not located in the individual mind of the anthropologist. Rather thickness is located within a distributed process of epistemic work that involves multiple methods and ways of being in the world. It might take the form of a parasite (Marcus 2000) and it might try different forms of experimental entanglement (Fitzgerald and Callard 2014). In any case, joint and interdisciplinary data production, analysis and publication between social and material specialists are rare. This will in the long run also require a new understanding and practice of the relationship between theory and the empiric (Hirschauer 2008; Schmidt 2012).

Conclusion

Praxiography is exceptionally good at looking at things being done and it has made significant inroads into incorporating materiality into analyses of social life and indeed social ontologies (Schatzki et al. 2001). However, the analytical step of providing practices with an environment—that is, defining the relevant 'contexts' for the observed practices, be they social circumstances or bodily conditions—needs a bit more theoretical and methodological effort. Praxiography is exceptionally good at analysing bodies in action. Yet, it usually refrains from extending its analyses beyond the skin. We have argued that praxiography might benefit from insights and recent debates about 'social position' or 'cultural cognition' in the sciences. We think that these debates in turn might profit from praxeological explanations of everyday (inter)action. Different ways of knowing the body—sociological, anthropological, biological and neuroscientific—should enter into dialogue around bodies in action as shared objects of analysis. Human coexistence (Schatzki 2010) in this sense becomes known through multiple, co-laborative ways of knowing practices and the object of a new type of thick inquiry. To make this conversation between the social and natural sciences fruitful, a mode of 'strong interdisciplinarity'—where the modes of inquiry and modes of explanation in all participating disciplines are transformed—seems necessary. An extended theory of practices considering

insights from, for example, sociology, anthropology and the neurosciences might be a good starting point to generate preliminary hypotheses for such a co-laborative venture.

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