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Matières à dé/connexion
naturel, synthétique, digital
Getrennt/verbunden
natürlich, synthetisch, digital

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DIS/CONNECTION MATTERS: NATURAL, SYNTHETIC, AND DIGITAL

Filipe Calvão, Matthieu Bolay, Lindsay Bell

Abstract

The world is experiencing new relations and transformations between natural, synthetic, and digital substances. Rather than considering these as materially distinct or ontologically separate, this Special Issue of TSANTSA interrogates how they are interlocked in socio-material processes of mediation, transmutation, and valuation. By conceptualizing the specificity of their separateness, the special issue makes possible the comparison and commensuration of their relationship, and to move beyond their essential qualities. What are the boundaries, leakages, or dis/connections between human and digital, natural and artificial, the organic and synthetic matters? Based on ethnographic research in laboratories, gold refineries, bio-tech microbial seeds and digitally-produced natural sounds, human-machine apps and cellular agriculture, each contribution theorizes the mediation, transmutation, and valuation of natural synthetics, the humanness of artificial intelligence, or the materiality of digital elements.

Keywords: *materiality, natural, ontology, digital, synthetic, mediation, valuation*

Introduction

Synthetic fibers, plastics, and fabrics have long been a mainstay of modern mass consumerism, but recent attempts to engineer life, or the growing prospects of digitally-mediated, algorithm-powered, and AI-driven futures, have led to the emergence of new relations between and transmutations across synthetic, digital, and natural materialities. These new substances and the dis/connections between them raise a series of questions. Can the synthetic or digital be biologic, and what is natural about artificial materials and processes? What are the boundaries, leakages, and contaminations between human and digital, natural and artificial, the organic, and synthetic matters? And in what ways have their imbrication led to new forms of social mediation, bio-economic transmutation, or economic valuation?

Social scientists are now taking stock of the emergence of, and transgressions between, natural, synthetic and digital products in a wide range of socio-cultural, political, and economic contexts. Scholarly research on synthetic worlds, for example, has taken an interest in theorizing the biological (Roosth 2017), the duality of inside and outside spaces of virtual reality (Castronova 2005), or the history of synthetic developments in chemistry and art (Leslie 2005). In spite of their overlap across various industries and economic processes,

anthropological approaches have commonly privileged the material specificity and separateness of the synthetic and the digital in their relation towards what is framed as “human” or “natural.” We push these analyses further by advancing the conceptualization of modes of interaction and mediation between humans and synthetic properties or automated and digital processes through the prism of socio-material processes of mediation, transmutation, and valuation.

Rather than considering natural, synthetic, and digital worlds as politically antagonistic, materially distinct, or ontologically separate, this Special Issue of *TSANTSA* interrogates how digital, synthetic, and natural materialities are interlocked in socio-material processes of mediation, transmutation, and valuation. Our approach to mediation privileges the conceptual and actual entanglements between materialities; transmutation takes into account the transformations of forms and substance across material orders; valuation, finally, implicates the commensuration, evaluation, and marketization of biosocial and economic processes within and across natural, synthetic and digital orders. The articles in this issue theorize these processes across natural synthetics, the humanness of artificial intelligence, and the materiality of digital elements by drawing on a range of ethnographic contexts, from laboratories, gold refineries, bio-tech apps, sound systems, cellular agriculture to machine-human simulations. By conceptualizing the specificity of their separateness, while moving beyond essential qualities, the special issue makes possible the comparison and commensuration of their relationship.

Mediation: machine-human biologies

We define the enmeshment of human and non-human matters as one concrete node of mediation. For Mazzarella (2004, 352), “nodes of mediation” can be defined as “sites at which the compulsions of institutional determination and the rich, volatile play of sense come into always provisional alignment in the service of... a vast range of social projects, from the grass roots to corporate boardrooms.” In the unstable relationships of social practice, representation, and work, this approach to mediation can be used to commensurate and render visible how natural, synthetic, and digital properties are produced and replicated across different material realities. In this issue, the cases of synthetically produced meat (Abrell), diamonds (Calvão and Bell), bio-tech microbial seeds (Silva Garzón), natural sound (Vinck, Waeber, and Tanferri) or gold replicas (Bolay) share an experiential connection by artificially producing and extending naturally-occurring substances.

We approach the mediation of humans, machines and synthetic products in the potential for making people and “nature,” and thus creating value in the (re)production of social relations, practices, and meaning. At least since Marx (1973, 692), an “automatic system of machinery” has been seen as absorbing the living labour capacities of human workers, transformed into an accessory element of the labour process and rendered “merely as its conscious linkages.” More recently, the ways in which humans and machines interact in a computer-mediated economy have been the object of heightened attention. Extending Marx’s analysis of machinery to automated robots, Collins (2018) suggests that robotic work is misrecognized as

animate inasmuch as it would seemingly replicate a Taylorist version of the alienated human worker. In this reading, the extent to which humans are shaped, disciplined, and controlled by computerized algorithms would announce the coming age of a “robocracy.” Where Ekbia and Nardi (2017) designate the new capitalist accumulation logics emerging out of the division of labor between machines and humans as “heteromation,” Besteman and Gusterson (2019, 6) describe the interactions between humans and computerized processes as “roboprocesses,” with their own cognitive models and rationality “used aggressively to discipline and objectify citizens, employees, and consumers and to mine them for profit.” Anthropologists and other social scientists have also examined the social and political effects of digital and algorithmic processes from a variety of perspectives, including human-computer interfaces (Suchman 2007; Downey 1998; Kockelman 2017), the role of algorithms in trading sites, surveillance, and education (Zaloom 2006; Masco 2019; Lutz Fernandez and Lutz 2019), or new forms of sociality in technology-mediated work (Hakken 2000) and computer-mediated interactions (Wilf 2013a, 2013b). In her ethnography of coders and software developers, Coleman (2013) also puts forward an element of individuality and creativity in the work of computer machines, extending the self into the (digital) objects of their creation.

Such perspectives place strong emphasis on the agency of mediations once stabilized into intermediaries, to borrow from the Actor-Network Theory (ANT) vocabulary (Latour 2005). Considering that matters are eminently social, too, in that they are uncertain associations of hybrid elements, their stabilization requires a process of purification, which creates meaningful distinctions that can then be acted upon and interpreted. The contributions to this volume take seriously the networked composition of assemblages deemed synthetic, digital, or “natural.” They also pay attention to the social work at play in connecting or disconnecting different entities, which inevitably implicate processes of selection, or “cutting in the network” in Strathern’s phrasing (1996). This analytical focus helps us to account not only for the processes of subjugation or valuation that results from technological assemblages, but for the practical, and largely experimental, work of mediation that occurs beforehand. Due to the great load of uncertainty that surrounds the direction that socio-material associations will take before they are stabilized (or once their network is cut) and gets inscribed into repertoires of naturalness, synthetic or digital, social actors work to channel competing interpretations, such as whether laboratory-grown diamonds are “natural” or not (Calvão and Bell, this issue), or whether cell cultivated meat is meat or just resembles it (Abrell, this issue). They also have to deal with the “novel and previously unthinkable options” (Callon 1991, 132) – and not necessary wanted – inherent to technological experimentation, such as the increased speculative affordance of artisanal gold once digitized (Bolay, this issue).

This question is central to Diego Silva’s analysis of microbial seeds’ own redefinition of geography. Silva’s article builds upon the case of an Argentinian biotech company seeking to develop region-specific climate resilient crops in the context of climate change. Focusing on the experiments to engineer microbial seed treatments, this ethnography highlights the mediations between computational technologies, plants, and microorganisms in the shaping of scientific and corporate meanings of place. Following an ANT framework, the article makes visible the selective biogenetic collection, digital documentation, and valuation of bacterial strains, and the subsequent efforts to stabilize new plant-microbial associations

expressing region-specific qualities for plant growth and health against crops' genetic uniformity. Silva shows that, while derived from engineers' imaginary replication of plant-microbia-soil relations, new associations concretely have their own agency in the production of plant qualities, which informs on a relational definition of "region-specificity" based on "microbes' taste of place."

By tracking these modes of interaction and mediation between synthetic or automated processes and humans, the contributions to this special issue do more than describe hybrid networks (cf. Callon 1991, 139). Advancing beyond the network metaphor, we seek to identify and qualify the links between the discrete entities, or nodes of mediation, that empirically constitute them; for instance as "contamination" of industrially refined gold bars by so called blood minerals (Bolay, this issue), or as risks of "alteration" of audiowaves across analogic and digital devices (Vinck, Waeber, and Tanferri, this issue). Such connections manifest what could be termed, after Douglas (1966), the anxieties of social pollution that ultimately trouble attempts to control the presumed boundaries of naturalness.

Johannes Bruder's article takes up this challenge by discussing the contamination between human and artificial intelligence in computational neuroscience and machine learning research, or the leaking of settler colonialist thinking in machine-human computer simulations. The article narrates the experiment of computational neuroscientists with a 1980 arcade microprocessor used as a model organism to simulate human cognition. To legitimize the analogy between brains and computers, researchers selectively build upon laboratory experiments in biology – on nematode worms and genetically modified lab mice – and, in so doing, propose to use the digital as a transmuted and more easily manipulable version of the biological. While acknowledging that video games do not resemble the "real world," tested behavioural models are reduced to selected parameters deemed sufficient to run simulations, compare synthetic data with human's brain activity, and develop machine learning algorithm. Importantly, the synthetic and digital mediations at play in the elaboration of behavioural and cognitive models question the determining role of test beds in shaping our understanding of, and mediation between, human and artificial intelligence.

The lens of mediation also sheds light on the liberating potential of connections actively produced to challenge natural and artificial boundaries, potentially emancipating humans from the self-generated environmental destruction of extractivist forms of industrial production in livestock industry, mining, and agribusiness. If productive processes will move toward the complementarity between machines and humans (Brynjolfsson and McAfee 2014), we put forward the idea that new relations between machines and humans constitute novel and potentially emancipatory social relationships. In this, we follow Heidegger's (1977) conception of the essence of technology as revealing the world, or poesis. Unlike the *Enframing* of modern technology, or "das Gestell," that renders the natural world, and to a certain extent humanity itself, into a regulated and secured standing-reserve of raw materials and profit, alternative orientations towards technology can give rise to modes of revealing that escape this determinism.

Transmutation: Nature's synthetics

The special issue takes into account the transformations of forms and substance across material orders to theorize the relationship between synthetic and natural substances. The entanglements of animate and inanimate beings, knowledge, materials, and techniques resemble conceptualizations of “hybrid” collectives of human and non-humans (Latour 2005), the cyborg blurring of natural and artificial boundaries, bits and atoms (Haraway 1991; Mitchell 2003), the frictions of global interconnections of movement, forms, and agency (Tsing 2005), or the ontological relationality of Amazonian multinaturalism (Viveiros de Castro 2004). We build upon but depart from these conceptualizations in two fundamental ways: first, the process of qualification-singularization in “marketization,” Callon (1998) suggests, is only possible through their temporary framing and disentanglement. These would ultimately deny the historical, sociopolitical, and ethnographic relations in which they are embedded (cf. Appel 2012). Although “to disentangle one has to entangle” (Callon 2005, 7), we suggest that the processes of disentanglement and re-entanglement should not obfuscate the transmutations in the meaning and materiality of value occurring between synthetic and natural substances. If through the work of purification (Latour 1993) and semiotic ideologies (Keane 2018) the separation between nature and culture or subject and object is radically reaffirmed, the work of disentanglement is an ideological and programmatic artifact subsequent to that of entanglement. Second, we do not deny an essential quality to synthetic and natural objects. Importantly, we question the post-plural predicament for refusing the assumption of discrete entities. Indeed, each contribution restates the borders between social and natural to interrogate the original referents and the work put into reinforcing these categories.

It is the making and interrogation of these categories that Dominique Vinck, Sarah Waerber, and Mylène Tanferri propose in “Produire un son ‘naturel’.” In their detailed ethnography of the sound system of a large-scale live performance, Vinck and colleagues investigate the mediations at work in the production of a “natural sound” across digital and analogic technologies. By describing the sociotechnical assemblages experimented by a team of twenty sound engineers, the article questions the ontology of what makes up sound, and reveals how its naturalness is produced in the enmeshment of different materialities. Original soundwaves are continuously transmuted into separated series of disassembled data and reassembled across analogic and digital signals towards a sound perceived as “pure.” The capture and mediation of choirs, instruments, and ambient sounds across digital and analogic infrastructures is never fully stabilized. A sound valued as “good”, they show, requires continuous work to monitor the agency of sonic assemblages to produce a sound which is paradoxically perceived as unmediated.

Drawing inspiration from the new materiality studies and the posthuman literature, this special issue critically moves beyond a subject-object dichotomy in an effort to rethink the ecology of materials in a landscape of mixed and hybrid materials (Whatmore 2002) and radical recomposition of nature-societal assemblages (McFarlane and Anderson 2011). We understand the materiality of nature's synthetics as social and not merely physical, encompassing the value of material objects and immaterial signs (Mintz 1985; Pietz 1985; Graeber

2005; Masuzawa 2000). For instance, the synthetic production of meat (Abrell, this issue) or diamonds (Calvão and Bell, this issue) builds upon essential elements such as tissues' cells or graphite and carbon contents, and bank upon their assumed naturalness. Digital replicas of the physical and ethical properties of gold (Bolay, this issue), of smart-phone based sleep patterns (Sikka, this issue), or the modeling of humans/microprocessors/mice's behavior (Bruder, this issue) is the outcome of a process of re-presentation, or a "second order description" (Strathern 2000, 313). In these cases, techniques of visibility through hashes, graphs, or models become essential to make replicas tangible and valuable.

What appears to be crucial in both digital and synthetic replicas is the sensorial or affective resemblance between the original and its transmuted form (be it materially for diamonds, gustatory in meat, behavioral in seeds or brain research, or auditive for sound), as well as the additional affordances they enable, and which add new layers of valuation. In the example of synthetic qua-natural diamonds, Calvão and Bell explore the making and makers of lab-grown "memorial diamonds" out of carbon sourced from genetic material of the deceased such as hairs or cremation ashes. These diamonds, which are identical to those found in nature, can be deemed at once synthetic and organic, living objects but also representations of inert substances. These memorial diamond companies do not seek to compete in the market of mined diamonds or that of mass-produced lab-grown diamond industry, but offer a paradigmatic case to question established ontological categories. The "realness" of these diamonds, Calvão and Bell explain, is mediated through references to the specifics of their physical composition, through reduction of "nature" to original carbon elements, and through its figurative and literal connection to the deceased. This, in turn, creates new forms of unstable value through precarious transmutations between the emotional absence of the deceased and the real presence of the memorial diamond. Their ethnography suggests that the qualities of natural and synthetic are not always distinct, but are negotiated inside labs and outside them by bridging between the emotional (though natural) absence of the dead body and the real (though artificial) presence of the diamond.

As such, the special issue expands research on the agency of animate and inanimate things and object biographies (Appadurai 1986; Bennett 2010), proposing a return to unstable forms of "matter" (Ingold 2012), such as when rigid classifications of the size and color of diamond stones are contested and differently appraised by machines and traders in Angola (Calvão 2015). Adding to this scholarship, we take interest in recent theorizations of processes of materialization as critical to subject formation and the entanglements between objects and subjects. Examining the moral panics and the politics of matter associated with plastics in Kenya, for example, Meiu (2020) suggests that this polluting and mutable substance is deeply and inextricably tied to belonging, and thus constitutive of relations of inclusion and exclusion, identity, and politics. Along a similar line, Sikka (this issue) questions how the informational body is categorized in ways that further gender, racialize, and stigmatize; Bolay's work on the speculation over divisible digitized gold bars (this issue) describes how artisanal miners get excluded from the new fields of value that gold opens once transmuted into a digital form.

Moreover, contributors render especially salient the role of what Abrell (this issue) calls the "politics of resemblance" in processes of transmutation. Abrell's contribution examines

the emerging industry of cell-cultured animal tissue whose efforts to produce synthetic meat might render industrial agricultural animals obsolete. By adapting techniques from the biomedical industry, cell cultivation start-ups claim to potentially mitigate the environmental ills of conventional animal agriculture, which also raises ethical and ontological questions regarding the reduction of animals to their most minimal viable productive capacities: replicated cells severed from the animal body. Rendering the perspective of cultured meat companies, Abrell describes how these “politics of resemblance” are central to the fabrication of products that not only resemble but replicate conventional meat. These politics highlight sensory and affective challenges related to perceptions of naturalness and artificiality, and, subsequently, market struggles in the definition and conceptualization of the boundaries between what counts as natural or synthetic. By examining the replication of all or certain features of a thing into another material form, this and other contributions are attentive to the continuities and discontinuities across material orders, and their role in making transmuted replicas tangible.

Valuation: digital materialities

Finally, contributors to this special issue examine the commensuration, evaluation, and marketization of biosocial and economic processes as one form of valuation. The approach espoused in this collection privileges the conceptual and actual entanglements between materialities, raising the problem of how digital materialities are differently embodied and dis/connected. As we have seen earlier, authors deploying the Actor-Network-Theory framework have long imagined relational collectives where humans are entangled with non-humans, displacing the human-nature divide by examining the way scientific knowledge is produced and retrospectively constructs that divide. Importantly, if the networks in ANT are more than metaphors, they necessarily implicate separate nodes with distinguishable and commensurable properties – as in any representation of a network matrix – and consequently connections of varying value depending on their strengths and directions. We expand the ANT scholarship in connection to materiality and multiple ontologies, in both social and material non-human agencies and subjectivities (Coole and Frost 2010; Holbraad, Pedersen, and Castro 2014; Law and Mol 1995). We suggest privileging relations over bounded objects, in particular as they manifest in moments of conflict and dispute borne out of ontological multiplicities, coupling provisional and shifting assemblages of humans and non-humans with a relational and processual understanding of value. In examining artificial intelligence or computer apps, contributions to this issue move away from the specific object of technological innovation toward the broader cultural, social, and political matrix in which such objects become meaningful and whereby they create value. As Hornborg (2015) aptly demonstrates, the agential capacity of technological objects is not an intrinsic quality of the objects themselves. Drawing attention to the alliances, connections, and disputes translating and constituting different forms of power, these authors overcome the difficulty of theorizing the isolated object by focusing on the concrete social and political operation of human, digital, and automated technologies and materialities.

Matthieu Bolay's article illustrates this problem by tracking how the industry of gold refining seeks to expand its understanding of "product integrity" from physically true to ethically responsible. It depicts the legal and technical practices put to work in the selective compartmentalization and (in)visibility of the social life of refined gold, and the hybrid imbrication of mineral and digital materialities used in this process. Focusing on refiners' role of mediating authority, the article questions the industry's attempts to reconcile operational erasure in the purification process with normative disclosure against standards of "responsibility" assumed to certify qualities of honesty and fairness regarding the environmental and social harms of extraction. In this endeavour, processes of transmuting gold into the digital (blockchain and ICO) are used to render visible the human and non-human networks constitutive of gold products. At the same time, once digitized, gold paradoxically becomes both integral and divisible. These digital fetishes, Bolay argues, are essentially more liquid, more rapidly tradable, and potentially more speculative than their original source. Thus, they open new fields of value, not out of the substance but out of its traces, from which ground producers selling physical gold remain excluded so far.

The last decade of digital technological developments has pivoted the conversation in different directions, from the concealment of the human contribution to data-processing and digitally-enabled work (Irani 2015) to enhanced monitoring and invisible control, particularly acute in the context of the "invisible" structures governing the deployment of algorithms (Musiani 2013). Contributors to this special issue bring ethnographic relief to these inscrutable processes as well as the contested valorization of digital materialities by examining, as Tina Sikka proposes, value extraction from digital records of sleep patterns. Sikka's article offers a critical discourse and materialist analysis of sleep apps as an attempt to colonize and make sleep profitable, or what she frames as one of the last vestiges of the human lifeworld outside neoliberal biopower. By connecting through sensors the sleeping human body with an externalized and datafied version of itself, these apps are used to correct pathologized behaviours – modeled sleep patterns – and to instil a form of subjectivity aligned with objectives of efficiency and normative health. Through the reduction of sleep to scores and parameters, these apps thus mediate an economic service with the promise of a more connected self, but which ironically introduces an imperative of labour in the act of sleep. Paying attention to the configuration of these apps down to their algorithms, Sikka argues that they enable the tracker to exert agency on the physical body transmuted into a readable and passive object to be controlled and a set of informational categories that further gender, racialize, and stigmatize.

Transposed to the discussion of natural, synthetic, and digital materialities, this issue enables a number of key innovations, namely pushing back against the notion of disintermediation in that humans are not entirely disentangled from these processes. Critically, the articles in this collection shed new light on these domains of research by considering automated and human work in tandem with the production of natural and synthetic substances, effectively dismantling them to then interrogate the boundaries between culture and nature, human and machine domains, digital and material production.

We return to our opening questions: Can the synthetic or digital be biologic, and what is natural about artificial materials and processes? How is value created and defined across

these different social, epistemological, and material orders? What are the political, epistemological, ecological, and social conditions underpinning a future that promises to be increasingly enmeshed in synthetic and digital properties?

By providing answers to these questions, this Special Issue meets two main objectives. Theoretically, it brings back the social and material transformations in processes of mediation, transmutation, and valuation of natural synthetics, the humanness of artificial intelligence, or the materiality of digital elements. From economic spaces to intimate spheres of life, this newfound focus challenges assumptions about the conditions of natural life, the future of digitalization, or what it means to be human and posthuman. Ethnographically, contributors to this special issue detail the relationship between digital and material properties, organic and synthetic substances, to move beyond their inherent qualities. In so doing, this special issue opens up a new space for reflection on the *naturalness* of digital and synthetic properties; the *phenomenological experience* of embodying synthetic substances and inhabiting digital spaces; as well as the meaning of new *social and working practices* enabled by the entanglement of natural, digital and synthetic materialities.

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FROM STANDARD TO REGION-SPECIFIC MONOCROPS

Localizing Industrial Agriculture through Microbes' Taste of Place

Diego Silva Garzón

Abstract

Industrial agriculture has promoted the expansion of monocrops around the world, aided by the circulation of highly standardized plant varieties. However, given the adverse environmental effects of this agricultural approach (such as genetic erosion) and the challenges posed by climate change, some biotech companies are trying to complexify industrial agriculture's relationship to "place". They are beginning to consider local particularities in the design of seed products. Focusing on the experience of an Argentinian biotech company, this article explores the creation of microbial seed treatments that claim to be "region-specific" and whose production is mediated by novel meta-genomic techniques. Through the notions of association and mediation, the article reflects on the diverse meanings of region-specificity (geographical, environmental, relational) that are mobilized in the creation of these products. In this way, the article highlights the role of computational technologies, plants, and microorganisms in the shaping of scientific and corporate meanings of place.

Keywords: *climate change, climate resilient crops, locally adapted crops, microbial seed treatments, plant-microbial interspecies associations, postfordist agriculture*

Introduction

Industrial agriculture has promoted the expansion of monocrops around the world, aided by the circulation of highly standardized plant varieties. Today, some biotech companies are trying to complexify industrial agriculture's relation to "place" by taking into account local particularities in the design of microbial seed treatments. A crucial promise of these treatments is their claim to "region-specificity". For example, the US company Indigo AG takes microbial samples from farmers' crops to produce a diagnosis of underground microbial diversity. This diagnosis serves as guidance to prescribe bacterial strains that could improve plant health and growth in specific places. The Argentinian biotech company Bioceres follows a different approach. Guided by metagenomic analyses, the company has isolated multiple bacterial strains from Argentinian soils with the potential of contributing to crops' productivity in different regions of the country. These companies measure microbial products'

region-specificity by their capacity to increase yield in particular locations. However, it is not evident how these companies define what constitutes a region when designing these products: are they targeting particular geographies, ecosystems, techno-natures or socially produced “places”? In this paper I analyse how region-specificity is defined in the microbial treatments produced by Bioceres. By following this company’s microbial seed treatments from their conception to their materialization, I explore Bioceres’ efforts and challenges to create and stabilize this type of plant-microbial associations.

The relevance of this question is linked to the history of the seed industry and its challenges in the age of climate change. Throughout much of the 20th century, the search for plant traits in industrial agriculture was largely guided by Fordist ideals such as plant uniformity, genetic stability, and yield. These plant qualities facilitated the mechanization of agricultural activities and the emergence of a seed industry that could guarantee plant quality from one generation to the other (Kloppenborg 2004, 117–18). In the pursuit of this objective, commercial plant varieties were turned into standard commodities to be planted across different environments. The cultivation of standard plant varieties in different environments was mediated by the expansion of monocrop technonatures. Forests were cleared, undesired plants and insects (weeds and pests) targeted, poor soils chemically fertilized, plant sizes and genetics manipulated, etc. This approach allowed plant breeders, agronomist, and farmers to replace local difference with monocrop uniformity, organizing agricultural fields as Fordist factories (Fitzgerald 2003). In this way, industrial agriculture has encouraged “a one-size-fits-all approach instead of context specific schemes” (Parmentier 2014, 14).

Despite the increasing levels of productivity per-worker that have accompanied this homogenizing approach (Douillet and Girard 2013, 3–4; Mazoyer and Roudart 2009, 12), industrial agriculture has been associated with increasing levels of plant genetic erosion. Plant breeders have prioritized the selection of high-yielding varieties over plants with other qualities (such as disease resistance and tolerance to environmental stress). This process has not only increased the genetic uniformity of crops but it has also made them less resilient in wild environments and more vulnerable to the rapid spread of diseases. Industrial agriculture has therefore been accompanied by a trade-off between crops’ productivity and resilience. Novel plant varieties yield more but are generally more dependent on their human caretakers (Warman 2003, 27; Pollan 2016, 19; Hartigan 2017, xx). Moreover, industrial agriculture has been criticized for having a bulldozing effect over local environments and communities (Shiva 1991). As the agricultural frontier becomes smaller, farmers encroach upon highly diverse ecosystems simplifying agricultural landscapes with the tools of industrial monocropping (Schaller 2013, 1).

The increasing frequency and intensity of extreme climate events is changing the underlying conditions that make it acceptable for industrial plant breeders to replace local particularities with monocrop agriculture and to trade plant resilience for productivity. This trade-off is acceptable for industrial farmers insofar as they can compensate for ecosystemic care and protect plants from environmental threat. However, trading plants’ resilience for high yields is less desirable when environmental conditions become extreme and industrial strategies to care for crops (such as the use of fossil fuel based agrichemical products) only exacerbate the climate crisis (Schaller 2013, 1). As a result, the seed industry is increasingly ques-

tioning the sustainability of the plant productivity/resilience trade-off. Some biotech companies are focusing on finding ways to enhance crops' resilience to extreme climates by paying attention to local particularities.

Aware of the limitations posed by generic techniques of plant breeding, companies such as Indigo AG and Bioceres Crop Solutions have decided to expand their focus beyond seeds and genes. New techniques in microbial research have motivated these companies to turn their efforts to the development of novel agricultural treatments. While plant scientists had been aware of useful plant-microbial interactions for a long time, these interactions were not sufficiently understood. Moreover, microbial research was slow due to the need to culture microorganisms before they could be analysed. The result was that the utility of plant-microbial synergies remained largely limited to the scale of the plot and field, but for the most part could not be scaled up for market commercialization.¹ Metagenomic methods – “a series of experimental and computational approaches that allow a microbial community's composition to be defined by DNA sequencing” (Benezra, DeStefano, and Gordon 2012, 6378) – significantly broke with these limitations. These methods have allowed agricultural scientists to analyse the variation of microbial communities in relation to plant and soil diversity without having to culture its members. These methods have also allowed biotech companies to produce microbial metagenomic libraries and microbial collections that could be potentially useful for the production of “region-specific” agricultural treatments.

Microbial libraries and collections have acquired a new sense of value as computational technologies have opened the door for the development of novel agricultural commodities (Fullilove 2018). Not only do these technologies mediate the transformation of innumerable bacterial strains into novel seed treatments, they also allow exploring interspecies synergies between bacteria, plants, transgenes, and chemical products. For example, the composition of soil microbial diversity can be associated to the cultivation of particular crops or to particular agricultural practices. The power of computational technologies to help humans visualize interspecies synergies is a central variable in the production of new imaginaries of region-specific crops. These technologies highlight the fact that “place” is never an empty space but a web of relations that is co-constructed by organic, inorganic, cultural, and technological relations alike. In so doing, they give agricultural scientists a new tool for imagining useful combinations between these elements, and to establish symbiotic relations between them in particular localities. Thus, while the objective of this article is to unpack what region-specificity means in the production of novel microbial seed treatments, this analysis is based on the observation that novel seed technologies re-create “nature” itself. As novel seed systems combine transgenic, microbial, and computational technologies, they establish dialogues with, and transform entanglements between, local interspecies relations.

The article is organized as follows. I first discuss the emergence of novel microbial treatments in agriculture vis-à-vis the problems of generic plant breeding. I then concentrate on Bioceres' development of new plant-microbial assemblages in Argentina. To do this I use the notions of association and mediation as defined in Actor-Network-Theory. After a short pre-

¹ The production of microbial inoculants for leguminous plants was an exception that will be discussed later in the article.

sentation of these concepts, the article focuses on three detours faced by Bioceres in its efforts to stabilize plant-microbial associations. These detours were not merely obstacles in a linear process of product development; they had an effect on the way the notion of region-specificity was mobilized in the creation of microbial seed systems.

In the absence of academic studies on the topic, Bioceres had to first produce knowledge about the connection between soil microbial communities and plant growth and health in commercial plant varieties. Then, Bioceres needed to translate this knowledge into commercial products. Non-human mediators (plants, bacteria, soil, chemicals) informed this process, sometimes inspiring human imaginations of plant-bacterial associations and sometimes forcing humans to change their plans. In particular, ideals of replicating plant-microbial relations found in soils and plant roots were quickly abandoned because these relations were considered too complex for humans to replicate. Scientists then concentrated on isolating bacteria that could improve crop performance in bacteria's "native" locations. When these bacteria proved to be useful outside of these areas too, Bioceres' scientists re-defined region-specificity not as a geographical, but as an environmental variable.

The notion of region-specificity can be further problematized when considering the future plans of the company, which are in line with the progress of microbial treatments in the biotech industry. The ideas of preventive medicine are now considered for the development of agricultural products. Soils can be diagnosed and microbial treatments can be customized to "improve" soil microbial compositions in ways that lead to higher yield. In this last strategy, region-specificity becomes increasingly linked to a relational notion of place, where place is not defined by geography or environmental qualities, but by human-plant-microbial-soil relations. I end the article asking if the region-specific logic of novel microbial treatments could be put into dialogue with agroecological principles that promote ecosystemic synergies in agriculture. This dialogue is relevant as the corporate actors of industrial agriculture face significant pressure to diversify their products, while agroecological experts discuss how to scale up their productive systems.

From generic genes to plant-microbial relations

According to the World Food Program: "Climate change is making climate disasters, such as floods and droughts, more frequent and intense, land and water more scarce and difficult to access, and increases in agricultural productivity even harder to achieve" (World Food Program 2015). In fact, as I have shown elsewhere (Silva 2020), Argentinian farmers are beginning to experience the increasing frequency and intensity of droughts. In the past decade, the Argentine agricultural sector suffered three of the most extreme droughts in fifty years (Agrovoz 2018). The last of them took place in the 2017-2018 soy season and led to a decline in soy production of 33 percent with respect to the previous year (Errea and Tassone 2018). Considering that Argentina is the third-largest soy producer in the world, the drought had a significant impact on the national economy. The national Gross Domestic Product (GDP) experienced a decline of around 0.75 percent, without taking into account the indi-

rect effects that the production decline would have on complementary sectors such as transport, commerce, and industry (Errea and Tassone 2018).

One of the strategies that has been pursued around the world to face the agricultural challenges of climate change is the development of so-called climate-ready crops—seeds that are tolerant to abiotic stress, such as droughts, soil salinity, frost, and cold. Given the commercial success of first-generation transgenic crops,² plant scientists and biotech companies have tried to produce climate-resilient crop varieties through genetic engineering since the early 2000s. However, plant scientists quickly noticed that the creation of transgenic climate-resilient plants responded to a different type of problem than the creation of first generation transgenic crops, such as insecticidal or herbicide tolerant crops. As the CEO of Bioceres explained to me, the capacity of GE plants to kill insects or to tolerate herbicides is a qualitative problem – it happens or it does not happen, the plant kills the insect or it does not.³ Instead, plants’ resilience to climate events such as droughts or floods is a quantitative problem – it can happen in different degrees depending on many variables, such as the intensity of the climate event.

As argued by Passioura (2012, 851), in early experiments, plants modified with climate-resilient traits were able to express tolerance to varied adverse climate conditions under controlled environments. However, these benefits disappeared in field conditions or were accompanied by production decline. This result was largely due to the complexity and variability that is introduced when scaling up a trait of interest from individual plants grown in pots to communal plants grown in fields (Passioura 2012), and also due to poor knowledge of the effects that the variability of climate events (such as the extent, intensity, and frequency of droughts) can have over commercial crops (Chapman et al. 2000, 197). Thus, whereas it was possible to create generic insecticidal or herbicide tolerant crops, Passioura (2012, 851) concluded that “the search for generic drought tolerance using single-gene transformations has been disappointing.”

While plant scientists struggled to make use of genetic engineering for the production of generic climate resilient crops, important developments were underway at the intersection of microbial research and epigenetics. This research revealed the potential of plant-microbial associations for the creation of region-specific climate-resilient crops. A landmark study carried out by Turnbaugh et. al. (2006) asked if the microbial communities that live in our gut could make some individuals more prone to obesity than others. Their research was based on the idea that the human metagenome is composed not only by *Homo sapiens* genes but also by the genome of the microorganisms that colonize our bodies, and that these microorganisms “encode metabolic capacities that we have not had to evolve wholly on our own” (2006, 1027). The boundaries of the human body were blurred; as suggested by Helmreich (2014), we could rename *homo sapiens* as *homo microbis*.

The importance of Turnbaugh’s et. al. (2006) study went beyond this conclusion. Using mice as model animals, the study revealed that colonization of germ-free mice⁴ (mice with-

² Around 192 million hectares of land were planted with this type of crops in 2017 with an estimated value of 17 billion dollars (International Service for the Acquisition of Agri-biotech Applications 2018).

³ Interview with Federico Trucco held on 7 March 2019.

⁴ Germ-free mice are bred in isolators which fully block exposure to microorganisms, with the intent of

out a microbiome) with an “obese microbiota” (harvested from genetically obese mice) results in a significantly greater increase in total body fat than colonization with a “lean microbiota” (harvested from lean mice). In other words, obesity is not fully determined by genes. Instead, the microorganisms that mice and humans host in their gut have epigenetic effects on their bodies that could be linked to obesity. The epigenetic effects of gut microorganisms on mice have been further evidenced by Krautkramer et. al. (2016), who showed that shifts in the availability of dietary fiber in mice can lead to changes in gene expression with specific physiological outcomes.⁵

This conclusion was important for agriculture. It allowed imagining new strategies of crop design for conditions of abiotic stress that did not rely on genetic engineering. Iansiti, Toffel, and Snively (2006, 6) describe how Flagship Ventures, a life sciences venture capital firm, became interested in the human microbiome in 2007. Flagship later launched an exploration project in 2012 that was focused on plants and microorganisms and that ultimately led to the development of the agricultural company Indigo AG. The authors also show that in 2013, Monsanto and Novozymes formed a joint venture “focused on developing and commercializing microbial-based biological products” (Iansiti, Toffel, and Snively 2016, 6). The logic behind these investments was straightforward. According to Von Maltzahn, cofounder of Indigo AG:

by helping humans, they (microbes) improve their own evolutionary success... If the same is true for plants, which are also full of microbial communities, these microbes might have spent millions of years helping plants survive drought, heat, cold, salt, nutrient stress, and beyond... We concluded that the biology was so special that it might spawn an industry the size of biotech today, potentially \$ 50 billion to \$ 100 billion of innovative new therapeutics, based on the microbiome. (Von Maltzahn in Iansiti, Toffel, and Snively 2016, 6)

In other words, microbial research revealed bacteria as an actant that could be related to plants in ways that would allow imagining promising agricultural effects. In particular, soil bacteria could be central in the process of crops’ climate resilience. Diverse microbial combinations could be crucial to unlocking plants’ productivity in diverse locations under conditions of climate stress. If these plant-microbial connections could be proven and if useful bacterial communities or bacterial strains could be identified, selected, and added to crops, agricultural companies would have the capacity to create microbial treatments for agricultural climate-resilience. In short, where generic plants had failed, plant-microbial associations could potentially prevail. This was a business opportunity that corporate capital could not ignore.

keeping them free of detectable bacteria, viruses, and eukaryotic microbes (Kennedy, King, and Baldrige 2018).

⁵ See Landecker and Kelty (2019) for a simple explanation of the underlying mechanism.

Region-specific microbes

For more than a decade the Argentinian biotech company Bioceres has been working on the development of a multi-technology and multi-species seed system known as the ECOSeed, where ECO stands for environmentally customized organism. This seed system promises to increase crops' climate resilience by improving their adaptation to different agricultural soils and by helping crops respond differentially to drought variability. The ECOSeed system is composed of carefully selected germplasm, a drought-tolerant transgenic trait, region-specific microbial seed treatments and various digital technologies (such as climate information systems, scout applications to help farmers monitor their fields, and virtual market platforms, among others). Central to the seed systems' differential and region-specific response to droughts are its transgenic and microbial layers. I have explored the mechanism of the ECOSeed's transgenic technology elsewhere (Silva 2020). In this paper I focus on the analysis of the seed systems' region-specific microbial technologies.

Let us travel to the headquarters of Bioceres, where scientists and managers discuss plant-bacterial associations. Bioceres is located in the scientific and technological park of CONICET in the city of Rosario. Inaugurated in 2010, the multimillion-dollar building hosts a number of start-up companies, as well as laboratories of genetics, plant improvement, genomics and bioinformatics. In 2019, I negotiated access to the facilities of Bioceres explaining my interest on the company's ECOSeed system. I was given a cubicle on the second floor of the building surrounded by administrative personnel. The cubicle was just a step away from the seed division of the company and one floor above the company's laboratories.

On a particularly sunny day of late September 2019, I had scheduled an interview with Dr. Martín Vazquez. It was an important interview to understand the microbial layer of the ECOSeed system. Dr. Vazquez had led the scientific consortium that discovered useful associations between microbial communities and plant health and growth, which later motivated Bioceres to invest in the development of microbial seed treatments. In preparation for the interview, I had watched a TEDx talk that Vazquez had given in Rosario (Vazquez 2012). In the presentation, he reflected on the wonders of predictive medicine. He explained how, given the appropriate genome sequencing equipment, we can now predict the probability of an unborn baby to develop a disease in the future. Vazquez recognized the ethical issues that predictive medicine raised as humanity increases its power to decide what type of nature should live or not. Despite the fact that Vazquez did not mention plant organisms in his presentation, it was easy to draw parallels between his conclusions for medical innovations and the future of agriculture. Not only has plant diversity been greatly influenced by plant breeders' decisions about what type of nature is desirable, their power to choose what type of organisms live or die has dramatically increased with the emergence of metagenomic methods.

With the TEDx talk in my mind, I left my cubicle and walked towards Vazquez's office in Bioceres. Sitting behind the glass door of his office he signaled to me to come inside and we were quickly immersed in a discussion about microorganisms and technical devices. Vazquez explained to me that in the early 2000s Bioceres was investing in plant genetic traits with high agricultural potential but that the company lacked the equipment to sequence

plant genomes in-house. Despite this, Vazquez knew that the same type of equipment that had given scientists the power to predict genetic diseases could be used to filter plants for useful traits. As a strategic move to increase its bio-prospecting capacity for plant traits, Bioceres decided to lead the creation of a metagenomic and bioinformatics platform, which would become the first one of its kind in Latin America. However, as Vazquez told me, Bioceres could not afford this initiative on its own so it actively sought state funds through research grant proposals. The main project that resulted from these efforts and that allowed Bioceres to create its metagenomic and bioinformatics platform was called “SoilGene.” The results of SoilGene motivated Bioceres to create a joint venture with Rizobacter, a local company of microbial inoculants, for the production of region specific seed treatments. The joint venture was called “Semya”.

In this section I trace the efforts of SoilGene and Semya to produce knowledge about plant microbial associations and to translate this knowledge into commercial microbial seed treatments. To do this, I use the notions of association and mediation as defined in Actor-Network-Theory (ANT). In ANT, an association is an assemblage of new relations between heterogeneous things and beings that are not necessarily “social” and that were not connected before in the same way (Latour 2005, 5). In the mapping of these associations the analysis of mediation takes precedence over the study of stabilized products. A great deal of mediation or “work-net” (Latour 2005, 132) is necessary to stabilize plant-microbial associations into immutable mobiles (Latour and Woolgar 1986) that behave in predictable ways and that can be therefore traded in the market. Thus, I follow how actors (human or not) mediate the multiple connections created by Bioceres between plants and bacteria. That is, I study how these actors help to define, redefine, stabilize or destabilize microbial seed treatments in uncertain ways. ANT’s focus on mediation, serves to highlight the uncertainty that exists on the direction that associations will take before they are stabilized, the agency of mediators in the shaping of results, and the latent prevalence of instability over stability. In ANT, when associations become stable and mediation becomes less uncertain, mediators become intermediaries and the analysis of associations in the making becomes difficult to trace. The ECOSeed’s microbial seed treatments, as a product in the making that is still not commercially available, offers a great case for the analysis of human-led plant-microbial mediations.

SoilGene – imagining ideal microbial communities

In 2010, eleven research groups from Bioceres⁶, the Universidad de Buenos Aires, the Universidad de Quilmes, and the Universidad de la Plata created the SoilGene consortium. The

⁶ Bioceres was able to finance the creation of its metagenomics and bioinformatics platform mainly through public funds that were channeled to its research branch, the *Instituto de Agrobiotecnología de Rosario* (IN-DEAR). INDEAR was created by Bioceres in 2004-2005 in alliance with the pharmaceutical company Bio-Sidus and the state’s National Scientific and Research Council (CONICET). In 2009, Bioceres acquired all the shares of INDEAR (Gras and Hernandez 2016, 207), just one year before the creation of the SoilGene consortium. For the sake of clarity, I do not make the distinction between Bioceres and INDEAR in the main

objective of this consortium was to study the soil microbial diversity of the humid areas of the central Argentinian region known as the *Pampas*. The consortium created the largest soil microbial dataset for this region (Rascovan et al. 2013) composed of 19 million DNA sequences, or the equivalent to 3 thousand complete bacterial genomes. Based on the collection of 130 soil samples from five different agricultural and non-agricultural locations in the *Pampas*, the project found DNA sequences that correspond to hundreds of different metabolic routes, many of which could be of agricultural interest (Vazquez, Rascovan, and Carbonetto 2013). Further studies using this dataset showed that there was indeed a relation between microbial communities, plant health, and crop productivity (Rascovan et al. 2016).

Knowledge about the utility of plant-microbial associations in agriculture is not new. Microbial products based on this type of associations have been used for decades, in particular, soil bacteria that can help leguminous plants to transform atmospheric nitrogen into ammonia, which has a fertilizing effect on plants. Despite this, the novelty of the SoilGene project should not be underestimated. While a few bacterial strains had been used in agriculture for many years, efforts to map the genomic sequence of bacterial genomes were very recent, as were initiatives to find correlations between microbial communities and plant health and growth. For Vazquez, there was no question about the novelty of SoilGene: “We are talking about the years 2008–2009, there was no knowledge of this, around the world this was still in the realm of science fiction.”⁷

Vazquez explained to me that SoilGene aimed at better understanding Argentinian soils and their microbial diversity under different uses and environmental conditions: agricultural fields vs non-agricultural fields, soils with good agricultural practices and soils with bad agricultural practices, soils that produce high yielding crops with rain and in the absence of rain, among other comparisons. Therefore, a crucial aspect of SoilGene was that it allowed the linking of microbial communities extracted from particular localities to agricultural productivity under conditions of environmental stress. This opened up the prospect of creating region-specific microbial treatments designed from, or that targeted, specific agricultural locations.

This prospect was directly related to Bioceres’ plant breeding goals. At the time, Bioceres was investing in a transgenic trait known as HB4 that could improve the tolerance to droughts of commercial crops such as soy and wheat. This second-generation transgenic trait overcomes some of the difficulties of plant breeders’ first attempts at producing climate-resilient crops through genetic engineering. It allows plants to respond differentially, not generically, to droughts (Silva 2020). The prospect of adding region-specific microbial treatments to HB4 seeds gave Bioceres the chance of compounding the differential response of HB4 crops to environmental stress. A larger seed system could be created using HB4 and region-specific microbial treatments for the production climate-resilient seeds. Therefore, the pursuit of a genomics and bioinformatics platform for the bioprospection of plant traits led Bioceres

text of the paper.

⁷ Interview with Martín Vazquez held on the 24 September 2019.

to turn its attention to the bioprospection of soil microbes for the production of region-specific microbial treatments.

The idea of turning plant-microbial relations into region-specific microbial treatments is not simple or obvious. What did Bioceres scientists mean when they talked about region-specificity and how did they go about achieving this objective? One floor below Vazquez's office I had the chance to talk to Dr. Mauricio Grisolia, the then head of the genomics and bioinformatics platform of Bioceres.⁸ After listening to an incredibly detailed explanation about how the platform was used in the SoilGene project, Dr. Grisolia and I imagined the "ideal" microbial treatment to promote crops' climate resilience. This imaginary product would help plants to replicate in low performing soils the specific plant-microbial associations that are present in high-performing crops. Low performing soils would then acquire the living characteristics of high performing soils through the mediation of bacterial communities and plant roots. The role of bacteria in this imaginary product would be to transfer the characteristics of a good agricultural "place" to the seed, so that plants could grow healthy and yield more in the diverse soils where they would be cultivated.

Grisolia explained to me that devising a product based on microbial communities is nowadays practically impossible. It is already difficult to isolate and prepare a single bacterial strain for agricultural use; it would be much more complex to create products based on the multiple synergic relations of microbial communities. Moreover, the difficulties of such approach are not limited to replicating microbial relations. Soil and plants play a central role in the type of microbial communities that emerge in a given agricultural plot. SoilGene scientists have shown that soils can be widely diverse (acid/basic, humid/dry, compact/porous among other qualities) and their PH can influence soil microbial diversity (Rascovan et al. 2016, 8–9). Moreover different crops (such as soy and wheat) attract different microbial communities to the soil that is closely around and inside their roots (Rascovan et al. 2016, 8). Therefore, the way in which soils, plants and microbes relate would also need to be taken into account for the design of this ideal type of microbial treatment. The difficulty of replicating such interspecies relations made this imaginary product too complex for human manufacturing. Rascovan labelled it "a fiction" in a conversation that I had with him in September 2018.

The alternative to this imaginary product, which was ultimately followed by Bioceres, was to isolate single bacterial strains from local soils. In this alternative, scientists would characterise microbial samples collected from particular regions of the country and then select the bacterial strains that expressed useful qualities for plant growth and health. The selected bacterial strains would become candidates for the production of region-specific microbial treatments for plants. In this case, however, region-specificity had a different meaning. The imaginary product that Grisolia and I discussed in his office used a notion of region-specificity based on a complex set of interspecies relations that were found in certain places and that could not be replicated elsewhere. Instead, as we will see in the next section, the alternative that was followed by Bioceres relied on a hypothesis that linked region-specificity to geography.

⁸ Interview with Mauricio Grisolia held on the 27 September 2019.

Semya – “native” microorganism and their connection to place

Motivated by the findings of SoilGene, Bioceres initiated a joint venture with the neighbouring company Rizobacter, which had positioned itself as one of the most important producers of microbial inoculants in the world.⁹ The joint venture was called Semya and it was motivated by the possibility of selecting and culturing bacterial strains that could improve plants' health and growth in particular places. To trace the way in which Semya carried out this task, I had to leave the headquarters of Bioceres in Rosario and travel one hour South to the city of Pergamino, where Rizobacter is located.

Rascovan et. al. (2016) present some of the most important scientific results of Semya. The authors of this publication were, and some continue to be, affiliated to either Rizobacter or Bioceres. From this publication we can infer that the bacterial strains sought by Semya needed to fulfil at least three conditions. First, they needed to offer useful agricultural qualities (fertilizing, fungicidal, or inoculating effects). This explains Semya's focus on bioprospecting for plant growth-promoting microorganisms (PGPM) for wheat and soy. Second, they needed to interact with soils and microorganisms that are closely around and inside roots in ways that allow bacterial strains to successfully colonize plant roots (Rascovan et. al. 2016, 2). In this respect, Semya worked to better understand the microbial composition of Argentinian soils and the ways in which soil properties and crop diversity contribute to soil microbial assemblages. Finally, microbial products needed to survive in local environments, where they are at high risk of being replaced by “indigenous” species. To achieve this purpose Semya worked under the hypothesis that “strains that are naturally adapted to a certain environmental condition would have a better fitness and higher survival rate in that environment” (Rascovan et. al. 2016, 9).

With regards to this last condition, Semya scientists initially went further in this hypothesis, highlighting the importance of microbial “indigeness”. According to Dr. Gustavo Gonzalez Anta, one of the leaders of Semya, “the initial hypothesis was that we were going to find a relation between the microorganisms extracted from a particular region and the performance of plants in that region. We believed that if we moved that microorganism elsewhere its correlation to plant performance was going to be lower than in its region of origin.”¹⁰ Thus, the region-specific products that Semya expected to create initially followed a notion of plant-microbial relations that was linked to geography. Microbial seed treatments were expected to contribute to crops' performance the most, in their “native” locations.

Having defined the desired conditions for the production of microbial products for wheat and soy, Semya's scientists needed to collect and culture bacterial samples. Rizobacter's chief PGPM researcher, Marisa Diaz, explained this process to me in a conference room in Rizobacter.¹¹ Soy and wheat plants were grown in parcels across 11 locations in the country. Microbial samples were collected from soil closely attached to roots and inside roots. The samples were taken to the laboratories of Rizobacter and bacterial communities were iso-

⁹ In 2018, Bioceres became the majority shareholder of Rizobacter.

¹⁰ Interview with Gustavo Gonzalez Anta held on the 5 December 2019.

¹¹ Interview with Marisa Diaz held on the 15 October 2019.

lated, cultivated in petri dishes and grown into single-species colonies. In total 2533 and 2070 bacterial samples were isolated for wheat and soy respectively. Some strains were lost through manipulation or could not be identified during the process of genomic identification. Others were found to contain the same bacterial strains and repetitions were discarded. In the end, 543 strains from wheat and 683 from soy went through the next phase of biochemical tests, where bacterial strains were filtered for desirable qualities.

A long process of selection was then carried out with the help of growth media. The bacterial strains were put in special substances that allowed to select strains with particular qualities and to discard others without such qualities. For example, when selecting for bacteria that can help plants capture nitrogen, bacteria were grown in a medium without nitrogen. If cultivated bacteria survived and grew in this medium, it was deduced that this bacteria had the capacity to capture nitrogen from the atmosphere and potentially pass it on to plants. Another example is given by an adverse medium where only bacteria expressing the ACC-deaminase enzyme could develop.¹² Roughly speaking, the expression of this enzyme can be used to improve plants' resilience to climate stress (Esquivel-Cote et al. 2013). In a similar way, all the selected samples were filtered in different media for growth promoting, inoculant, and fungicidal characteristics, and only bacteria showing multiple favourable responses were selected. In this way, cultivating media also served as a way of defining certain bacteria according to these traits, which in turn was used to attribute roles to bacteria (as an inoculant, fertilizing, or fungicidal agent).

As mentioned above, the collection of samples in multiple regions of the country followed the hypothesis that native bacteria would have a better fitness and survival rate than alien bacteria. Moreover, it was expected that bacteria would be more useful to plants in the bacteria's region of origin. However, as scientists filtered bacterial strains according to their PGPM qualities and tested their capacity to increase crops' performance in the fields, this last hypothesis was challenged. Dr. Gonzalez Anta told me that among their bacterial candidates for microbial seed treatments, Semya found that some bacterial strains were capable of contributing to plants' performance in many geographical locations with similar environmental conditions. A distinction was therefore drawn between microbial agricultural contributions in particular geographies and their contribution in different environments. In other words, the initial notion of region-specificity guiding Semya's development of microbial seed treatments was transformed. In this new notion, a region is not a geographical location but a set of environmental qualities linked to humidity, heat, rain, soil pH, etc. The transformation in the notion of region-specificity led to the production of a few wide spectrum PGPM bacterial strains for soy and wheat for regions with similar environmental conditions.

From imaginary microbial treatments – based on the idea of replicating plant-microbia-soil relations, we turned to region-specific microbial products – based on the idea that “native” bacteria could help crops adapt better in particular geographical locations. Following Semya's results, we are now forced to take an additional detour linking region-specificity to environmental variables. A crucial aspect behind these detours is the agency of non-hu-

¹² Interview with Marisa Diaz held on the 15 October 2019.

man mediators. We were forced to give up the relational notion of region-specificity created by plants, microorganisms, and soils, because these relations were too complex for humans to replicate. Now we have to give up the geographical understanding of region-specificity because bacteria, in this particular context, have proven to care little about geographical dislocations.

Microbial diagnostics – a way back to relational thinking

Despite the power of non-humans in our story, there is a large degree of human responsibility in these detours. Semya's geographical hypothesis, linking "native" bacteria to crops' local adaptation, follows what John Hartigan (2017, 58) has referred to as plant racial thinking: a type of thinking that connects geographical places to plant qualities. This type of thinking is so powerful that it has informed projects of ex-situ conservation around the world, which take samples of "native" plants to conserve their qualities in seed banks.

In his book "Care of the Species", Hartigan differentiates racial thinking to what some of his interlocutors in Mexico refer to as *razas* (local plant varieties used for specific purposes given their specific qualities). In a conversation held by Hartigan with a plant scientist called Alfonso, this scientist expresses his frustration with plant conservation initiatives that "only focused on the seed, the seed alone" (Hartigan 2017, 58). Instead, plant *razas* are an aspect of culture because "they are associated with a particular use they're given" (Alfonso in Hartigan 2017, 61). In other words, while racial thinking highlights plant qualities produced by place, without explaining how place and plant qualities are created, *razas* thinking connects plant qualities to human use in particular locations. Through racial thinking plant collectors detach the seed (or the bacteria) from its "native" place and store it in a seed bank (or a microbial library). Instead, in *razas* thinking plant qualities are co-created in particular places by plant-human relations.

In *razas* thinking there is no such thing as plant diversity conservation. "Native" plant qualities cannot be collected and stored because plant qualities will change when plant-human relations are modified. Instead, plants are in a constant process of "improvement" linked to human selection and use in particular places. For example, Virginia Nazarea and Robert Rhoades (2013, 4) argue that plant material stored in genebanks (ex-situ) can deteriorate "due to imperfect conditions and human error" and freeze its evolutionary potential "due to long-term storage, resulting in the inability of germplasm to respond to environmental changes." Similarly, Nazarea and Rhoades argue that in-situ and in-vivo conservation programs rarely yield to any programmatic design. In in-situ and in-vivo conservation plant biodiversity is not conserved. Instead, it flourishes thanks to the messiness and on-going creativity of plants outside the disciplinary infrastructures of seed banks and monocrops.

In the case of microbial treatments, *razas* thinking could be expanded beyond plant-human relations to include plant-microbial relations. While for Alfonso humans select and improve plants for particular uses, Semya scientists have proven that plants can themselves be selectors of microorganisms. They have shown that crops such as wheat and soy attract different type of useful microbial communities to their roots (Rascovan et al. 2016). In fact,

recognizing plants as selectors of bacterial qualities is one of the reasons why some agricultural innovators think that some plants have already found the solution to climate change, by attracting microorganisms that “have spent millions of years helping plants survive drought, heat, cold, salt, nutrient stress, and beyond” (Iansiti, Toffel, and Snively 2016, 6). *Razas* thinking, that very localized Mexican concept, can be renamed as relational thinking. In relational thinking, plant, microbial, soil, and even human qualities are the result of relations. Plant or microbial qualities are therefore not the result of being “native” to a place, but the result of the countless human and non-human relations that take place in particular locations. Anthropologists have for a long time been arguing that place is not a geography built on an empty space (Casey 1996) but rather a series of relations (Gupta and Ferguson 1997) that can only be non-exhaustively mapped. Agricultural places are imbued by cultural and biological memory (Nazarea and Rhoades 2013) in ways that cannot be completely de-territorialized, redefined as a resource, and re-territorialized in seed banks or in markets (Fullilove 2018, 298).

The conservation of plant qualities linked to particular places is probably best-exemplified through the production of specialized crops that are protected by *appellation d'origine contrôlée*, such as different types of Bordeaux wine or Sicilian Olive oil. Not only are these crops produced through the disciplinary tools of industrial agriculture, producers also have incentives to keep plant qualities as stable as possible from one generation to the next. In this case, specific plant qualities are what constitute the identity of the product. But even in this type of “conservation”, place is linked to a series of human and non-human relations that link “geology and climate with culture and craft in the making of food” and that are often referred to as *terroir* or taste of place (Beriss 2019, 62).

Relational thinking helps us to understand why Semya’s geographical notion of region-specificity had to be replaced for an environmental notion. It is highly probable that similar types of plant-microbial-soil relations can be found in places with similar environmental conditions to a given bacteria’s place of origin. Relational thinking opens up the notion of *terroir* to include a microbial taste of place. Despite this, Semya’s turn to environmental explanatory forces behind microbial qualities still hides the relational work that is responsible for the on-going becoming of those environments. From that perspective, bacterial products are thought of as discrete entities able to express useful agricultural qualities in similar environments, as opposed to connected entities capable of modifying the relations that constitute host environments themselves. This explanation might be enough to characterize Bioceres’ current microbial products (made of isolated single bacterial strains with PGPM qualities) but is not enough to explain the trajectory of microbial product development in agriculture.

Recall Vazquez explanations in his TEDx talk about predictive medicine. By sequencing the genome of a particular individual, doctors can predict the probability of future illness and target specific changes to prevent undesired outcomes. This approach does not seek to identify and replicate the ideal genetic sequence (yet). Instead, it aims at finding specific harmful mutations that can be corrected through targeted interventions or that can provide information to patients for decision-making. Importing this diagnostic logic into the production of microbial products offers an interesting possibility for agriculture. After examining the microbial diversity of a particular agricultural plot, companies could diagnose the

absence of beneficial strains and recommend a targeted microbial treatment (as done by Indigo AG in the US).

Microbial seed treatments of this type do not try to replicate microbial communities in all their complexity, as I had discussed with Grisolia. Also, this type of product is not based on “native” bacteria with particular qualities capable of enhancing plants’ performance in native places. Nor is it made of discrete bacteria with agricultural qualities capable of surviving in particular environments. Instead, bacterial products of this type are designed to change the composition of microbial communities by triggering useful relations between plants, microorganisms, and soils. By 2016, this type of relational thinking was already voiced by Semya scientists. Having overcome geographic and environmental hypothesis their objective became to “modulate the composition of root microbiomes to improve crop health and growth” (Rascovan et. al. 2016). This type of approach is already carried out in the US by Indigo AG and Bioceres plans to offer this type of product for Argentina in the future. A first step to achieve this objective is to create a collection of isolated microbial treatments that could be prescribed to farmers to improve the microbial composition of their particular soils. This is where Bioceres efforts are being deployed today.

Conclusion: opening a dialogue between industrial agriculture and agroecology

Focusing on the experience of the Argentinian company Bioceres, this article explored what region-specificity means in the production of microbial seed treatments. It followed scientific imaginations where “ideal” microbial compositions are replicated outside of their places of origin. Since the capacity of plants, soils, and microorganisms to create synergies is too complex to recreate, these imaginations were quickly abandoned by plant scientists, or deemed fictional. Thus, the article traced Bioceres’ decision to identify and isolate useful bacterial strains from multiple locations that could be used for the production of microbial seed treatments. This strategy followed a geographical hypothesis: native bacterial strains would have a higher chance of surviving and creating synergic interactions with plants in their places of origin. When selected bacterial strains proved to be useful outside of these areas, the geographical notion of region-specificity was replaced by a new notion linking microbial performance to environmental characteristics.

I argued that geographical region-specificity can be linked to what Hartigan (2017) calls racial thinking, a type of thinking that relates plant qualities to particular places without explaining how plant qualities are created in the first place. I confronted racial thinking to the notion of *razas*, which links plant qualities to particular human uses and to the way in which humans select plant varieties based on cultural preferences. When considering microbial treatments, I suggested that *razas* can be expanded to include more-than-human relations. Bioceres scientists have shown that plants can be selectors of microbial life as they co-organize microbial communities in ways that can be useful for plant growth and health. A relational explanation of plant qualities would therefore pay attention to the agency of plants, microorganisms, and other non-humans relations in the production of plant qualities.

The notion of *terroir*, often translated as “taste of place”, can therefore be expanded to include the taste of plants and microorganisms.

The environmental understanding of region-specificity that was ultimately adopted by Bioceres is more relational than the previous geographical notion. It points to the particular relations that can emerge under similar environmental conditions. However, I argued that this notion of region-specificity still hides the power of non-human relations in making crops thrive in certain locations. Accrediting and “external environment” for plants and bacterial performance is not the same as arguing that plants and bacteria are enmeshed in an uncountable web of localized relations that help to create those environments. In other words, inter-species relations make plants into highly porous and localized entities (Silva 2020b, 187). Relational thinking is better expressed by current agricultural trends to import the diagnostic logic of preventive medicine into agriculture. This logic seeks to identify existing relations between plants, soils, and microorganisms and to potentiate desired relations through targeted microbial interventions.

An important question emerges from these considerations. Can we see microbial treatments as a move towards agroecological relational principles? From its inception, agroecology has combined ecology and agronomy to analyse the different components of an agroecosystem¹³ and the way in which these components interact and are affected by human agricultural management (Wezel et al. 2009, 2). The goal of agroecological knowledge is to produce more sustainable agricultures, giving rise to a wide range of agricultural recommendations that usually focus on the plot or field scale. However, Wezel (2009, 7) argues that while this scalar focus persists up to the present, some researchers have devised a series of productive principles that could help extend agroecological practices to the level of the farm and beyond. Some of these principles prioritize the promotion of multispecies synergies above and below ground “that can sponsor system services like regenerating soil fertility and providing pest management” (Rosset et al. 2011, 163).

While agroecological experts discuss how to scale up agroecological practices by making multispecies alliances above and below ground, this article suggests that agricultural companies are moving in the opposite direction. In this case, the objective is not to scale up practices but to complexify industrial agriculture’s homogenizing approach by paying attention to local particularities. It is therefore important to analyse whether or not these oppositional movements are creating trajectories towards each other, and the role of plants, microorganisms and metagenomic technologies in the process.

¹³ Communities of plants and animals interacting with their physical and chemical environments.

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FROM LIVESTOCK TO CELL-STOCK

Farmed Animal Obsolescence and the Politics of Resemblance

Elan Abrell

Abstract

The nascent cellular agriculture industry seeks to produce cell-cultured animal tissue for human consumption. Effectively rendering farmed animals obsolete in food production could mitigate an array of harms inflicted by industrial animal farming on the environment, public health, and human and animal wellbeing, but achieving this outcome is contingent on cellular agriculture entrepreneurs successfully creating a product that closely resembles conventional meat enough to appeal to consumers despite its synthetic origins. This article examines how these politics of resemblance may shape and limit the realization of the industry's potential benefits. Specifically, it argues that, while cellular agriculture can only realize such benefits through the facilitation of agricultural animal obsolescence, its potential for positive transformations in food production may ultimately be blunted by the degree to which a failure to extend the politics of resemblance from the consumer market to the labor market renders agricultural human laborers obsolete as well.

Keywords: *cellular agriculture, animals, meat, food politics, synthetic*

Introduction

Large sectors of global capitalist production are arguably in the midst of a “synthetic revolution” characterized by the rise of artificial intelligence and the displacement of laboring bodies entirely from the production process. While automation has been accelerating in many sectors for decades, there is one kind of laboring body that has so far remained irreplaceable: the farmed animal. Recent innovations in food production have led to plant-based products – such as the Beyond Burger (see Sexton 2016) and the Impossible Burger – that closely mimic the taste and texture of specific animal-derived food products¹, but producing real cuts of meat composed of actual animal flesh still necessitates the farming and slaughtering of animals. However, if the rapidly developing cellular agriculture industry is successful, within the next decade that may no longer be true. This nascent industry is made up of dozens of new food startups developing technology for producing cell-cultured animal tissue for human consumption.

Effectively rendering farmed animals obsolete in the food production chain could simultaneously reduce an array of harms inflicted by industrial animal farming on the environ-

¹ On the history of plant-based meat analogs see Adams 2018.

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ment, public health, and human and animal wellbeing, but achieving this outcome is contingent on cellular agriculture entrepreneurs successfully creating a product that closely resembles conventional meat enough to appeal to consumers despite its synthetic origins. Cellular agriculture is an inchoate industry still in the early stages of becoming, so the initial social scientific explorations of it have been necessarily speculative, focusing on its ethical, environmental, and social promissory potential (Hocquette 2015; Sebo 2018; Sexton, Garnett, and Lorimer 2019; Stephens 2013; Stephens and Ruivenkamp 2016; Sun, Yu, and Han 2015; Wurgaft 2019), the processes of market formation in which the industry is engaging (Mouat and Prince 2018), how ideology (Chiles 2013) and metaphor (Broad 2020) could shape that market, and potential consumer responses (Hocquette et al. 2015; Macdonald and Vivalt 2017; Verbeke et al. 2015; Verbeke, Sans, and Van Loo 2015; Wilks and Phillips 2017). This article contributes to the body of speculative social scientific work on the still unclear future of cultured meat by examining how the politics of resemblance may shape and limit the realization of the industry's potential beneficial affordances.

As the outgrowth of an assemblage of scientists, environmental and animal welfare activists, venture capital investors, and start-up tech firms all seeking to create biotechnological processes for affordably producing animal products without animals, cellular agriculture has the potential to almost entirely remove nonhuman animals from the agricultural production chain, although this will depend both on consumer acceptance of cultured meat products and sufficient technological advancement in cell culture techniques.² Adapting techniques from the biomedical industry, these startups use bioreactors – cell cultivation tanks filled with a liquid growth medium – to culture tissue from animal cells. By the end of 2019, there were fifty-five companies in Argentina, Australia, Brazil, Canada, Chile, China, India, Israel, France, Germany, Hong Kong, Japan, the Netherlands, Russia, Singapore, Spain, Switzerland, Turkey, the United Kingdom, and the United States (Crosser et al. 2019, 6-10) that are working to bring a variety of cultured animal meats to market, including those of pigs, chickens, ducks, cows, shrimp, tuna, and yellowtail. None of these products are commercially available yet, but they have already accrued a variety of names through media coverage and industry hype, including cultured meat, cultivated meat, cell-based meat, clean meat, in vitro meat, and lab-grown meat. Researchers at other companies have also already developed techniques for producing egg whites, gelatin, and cow milk protein with the use of genetically modified microbes.³

Informed by insights garnered from four years of experience conducting ethnographic fieldwork on cellular agriculture – including attendance at conventions and government regulatory hearings, interviews with industry stakeholders and advocates, and visits to production facilities – as well as nine months work experience as a regulatory specialist for a cellu-

² For example, companies currently rely on the use of fetal bovine serum – a byproduct of cattle slaughter – as a cell culture medium. They will also need to take regular cell biopsies from a small number of donor animals until they are able to develop immortalized cell strains for each species.

³ This technique is sometimes referred to as acellular agriculture because the final product does not contain the cells used to make it. For example, the California-based company Perfect Day recently partnered with an ice cream company to release a line of ice creams that are the first commercially available dairy products to contain whey made through this process (Watson 2020).

lar agriculture advocacy organization, I argue that the politics of resemblance upon which the commercial success of cultured meat products hinge can only deliver cellular agriculture's beneficial affordances through their facilitation of agricultural animal obsolescence. But at the same time, cellular agriculture's potential for positive transformation of the food industry may ultimately be blunted by the degree to which its failure to extend its engagement with the politics of resemblance from the consumer market to the labor market renders agricultural human laborers obsolete as well.

In the following section, I further describe the potential affordances cellular agriculture has to offer for redressing the dangers posed by industrial animal agriculture to the environment, public health, and animal wellbeing. I then examine what it would mean for cellular agriculture to render farmed animals obsolete. In the second section, I examine the centrality of the politics of resemblance – especially regarding the gustatory qualities and ontological status of cultured meat products – to the potential future success of these products, highlighting specific potential outcomes that could either facilitate or limit farmed animal obsolescence. Finally, I conclude with a consideration of the potential socio-economic costs of farmed animal obsolescence, explaining how the aspirational benefits of this novel industry could be undermined by a lack of attention to the politics of resemblance in the labor market even if cellular agriculture companies do manage to successfully navigate the politics of resemblance in the consumer market.

Affordances of cellular agriculture and animal obsolescence

With its potential to disrupt and even replace food-production markets, cellular agriculture could herald a radical transformation of animal-based industries with especially far reaching consequences for human-animal interactions in agricultural contexts. By removing animals from the production process, cellular agriculture technology could also help to mitigate multiple crises caused or aggravated by industrialized animal agriculture. Foremost, animal agriculture is a ceaseless calamity of death and incalculable suffering for over a trillion of animals per year. Approximately seventy-two billion land animals – including cows, pigs, goats, sheep, rabbits, horses, chickens, ducks, turkeys, and geese – and 1.2 trillion aquatic animals are killed annually for human consumption around the world (Zampa 2018). Due to the staggering number of animals that are continuously forced to reproduce in order to meet these slaughter rates, animal agriculture is also a major source of green house gas emissions, with the livestock sector alone contributing to “about 18 percent of the global warming effect” (Steinfeld et al. 2006). It likewise contributes to ground and water pollution through waste runoff, while it is also responsible for a significant amount of fresh water consumption. About one-third of global water consumption is used to produce animal products (Nagappan 2016). Put simply, factory farming has an immense impact on the natural world. In the words of Carolyn Mattick and Brad Allenby, “factory meat is perhaps best understood as a planetary engineering technology, and to pretend otherwise can become just a subtle way of avoiding ethical responsibility for the consequences of our own creation” (2013).

Posing a significant and potentially even existential threat to global human health, animal agriculture is also a significant driver of the spread of zoonotic viruses like SARS-CoV-2 (the virus that causes Covid-19) and novel flu strains as well as the rapid evolution and proliferation of antibiotic resistant bacteria. As we have seen throughout the Covid-19 pandemic, animal slaughtering conditions have compounded this public health threat as thousands of workers contracted the virus due to unsafe working conditions at meat processing facilities that have become hotspots of infection. Further, the temporary closing of these facilities in the early months of the pandemic compounded the suffering of animals, who were killed by the millions in mass culling by farmers who could not afford to keep feeding them, using such inhumane methods as “ventilation shutdown,” a process in which pigs are killed “by sealing off all airways to their barns and inserting steam into them, intensifying the heat and humidity inside and leaving them to die overnight. Most pigs – though not all – die after hours of suffering from a combination of being suffocated and roasted to death” (Greenwald 2020).

Finally, current industrial agricultural practices are worsening global food inequality. Neo-Malthusian anxiety in food policy debates has centered on the year 2050 as a potential breaking point. The world population is predicted to increase by 2 billion people over the next 30 years, which – combined with increasing demands for animal products around the world, particularly in large, population-dense countries like China and India – will require an approximate doubling of current global crop production, with much of that going to feed animals. Not only would the production levels required to satisfy this vast increase in demand for animal products drastically exacerbate the other problems outlined above, but it would likely be impossible to achieve with current production methods. In response to these anxieties, the faith in the potential for techno-scientific innovation to solve the worlds’ food-related ills by eliminating the negative impacts of current animal-based industries on the environment, public health, and animal welfare reflects an optimism shared by many in the new cellular agriculture movement (Wurgaft 2019, 88-91; see also Belasco 2006).

Along with the potential to ameliorate the ills of conventional animal agriculture, however, cellular agriculture also raises important questions about the cultural, ethical, and ontological implications of rendering agricultural animals obsolete. The idea of animal obsolescence necessarily assumes animals’ objectified status as mechanisms serving human ends in the process of value production, means of production in what anthropologist Barbara Noske describes as the animal industrial complex (1989; see also Twine 2012; Sorenson 2014; Wadiwel 2015) – otherwise in what context would they be rendered obsolete? In what sense would they be replaced? Contemporary industrialized animal agriculture “is an extractive industry that treats animal bodies as self-replicating living resources,” and that uses death as a means of resource extraction; “agricultural animals are killed as part of the process of value production” (Abrell 2021, 150; see also Dutkiewicz 2013, 303). Moreover, “[p]roductive death is literally instilled into animal bodies before their birth” (Dutkiewicz 2013, 302). Of course, agricultural animals are more than objects to themselves. The surplus value they generate – derived from the flesh and secretions of their bodies and the bodies of their progeny – comes from productive animal labor (Abrell 2021, 150), if we can understand the metabolic transformation of nutrients into animal-flavored fats and proteins as a form of labor, and the reproductive animal labor invested in producing new animal bodies (Wadiwel 2015, 162; see

also Beldo 2017; Cooper 2008). While animals' role within the process of food production may be an objectified means of production, for the animal subjects caught in this machine it can also be understood as a process of alienation. Animals are "alienated from their own products which consist of either their own offspring or (parts of) their own body" (Noske 1989, 18).

So what would it mean to make animals obsolete in this context? One possible way of seeing this obsolescence is as a form of liberation, not just for the animals themselves, but – as far as the environmental impacts of animal agriculture can be mitigated – for broader ecological webs as well. Indeed, the ultimate promise of cellular agriculture is the realization, through techno-scientific innovation and capital investment, of a new liberatory human-animal political ecology in which animals are no longer raised for human sustenance, and industrial animal agriculture's intensive spatial concentration of animals bodies, voracious consumption of natural resources, and constant overwhelming waste production is no longer destroying the environment, accelerating climate change,⁴ creating deadly new pandemics, and destroying innumerable animal lives (see Stephens 2013).

While cellular agriculture's project of making agricultural animals obsolete has the potential to achieve these liberatory aspirations, its status as a project of the same capitalist system of production that gave us industrial animal agriculture raises questions about how capitalism might fundamentally limit that potential. Analyzing synthetic biologists' efforts to create organisms with the least genetic material necessary to sustain life, anthropologist Sophia Roosth observes that such organisms are "an ontological receding horizon: ... the most genetically minimal viable organism that synthetic biologists can build" (2017, 3). The reduction of animals used in agriculture to their most minimal viable productive capacities – their most basic living components, replicating cells – constitutes a similar ontological recession. If cellular agriculture, through this recession, succeeds in severing the reproductive labor power of animal bodies from animals themselves, how should we conceptualize the products it produces – as meat, milk, and eggs, or something new? For the fruits of cellular labor to have their intended transformative effects, they will need to be treated (if not totally understood) by consumers as exactly the same as the older forms they supplant.

Turning science-fiction fantasy into edible reality

The cellular agriculture movement is motivated by the assumption that animal welfare and environmental concerns about the impacts of industrial agriculture are unlikely to significantly change large-scale food consumption practices on their own and that consumers will require alternative products of equal quality and affordability to shift away from buying products produced through the farming of animals. This point is summed up in the words of Bruce Friedrich, co-founder and director of The Good Food Institute, a non-profit organization that promotes the development of plant-based and cellular agricultural alternatives to

⁴ The degree to which cellular agriculture could help to reduce agricultural green house gas emissions will ultimately be dependent on whether and how much it is able to use low-emission, renewable energy sources.

conventional animal products: “For the vast majority of people, ethics don’t figure in [to food choices]. So we want to create products that take ethics off the table” (Yale Center for Business and the Environment 2016). If companies are eventually successful in their quest to bring cultured meat products to market on a broad scale, this would also raise questions about the cultural status of the category of food called meat, especially what is included and what is excluded from that category.

In an essay entitled “50 Years Hence” – often cited in literature on the cellular agriculture industry – Winston Churchill predicted that in the future:

We shall escape the absurdity of growing a whole chicken in order to eat the breast or wing, by growing these parts separately under a suitable medium. ... Nor need the pleasures of the table be banished. That gloomy Utopia of tabloid meals need never be invaded. The new foods will from the outset be practically indistinguishable from the natural products, and any changes will be so gradual as to escape observation. (1932, 397)

On August 5, 2013, only 31 years off from Churchill’s prediction, Dutch biologist and cultured meat pioneer Mark Post debuted the world’s first cultured meat hamburger in a televised tasting demonstration (see Stephens and Ruivenkamp 2016; Wurgaft 2019, 1-19). Virgin Group-founder and billionaire Richard Branson, an early investor in cultured meat development, later revised his British compatriot’s prediction for the mass marketability of laboratory grown meat, stating in 2017, “I believe that in 30 years or so we will no longer need to kill any animals, and that all meat will either be clean or plant-based, taste the same and also be much healthier for everyone” (2017). In the succeeding seven years since Post’s burger demonstration, there has been rapid progress in turning what still seems to many as a science-fiction fantasy into an edible reality. In fact, although most (if not all) cellular agriculture companies are likely still years away from producing marketable products at commercial scale, on November 26, 2020, cultured meat producers achieved an important milestone on the road to this possible future: Singapore became the first country in history to grant regulatory approval to a company to sell a cultured meat product to the public. The San Francisco-based startup Eat Just plans to start making chicken nuggets made from cultured chicken cells available at a Singapore-based restaurant before branching out to additional restaurants and eventually retail. But along with abundant optimism for continued rapid progress throughout the industry, there is also significant indeterminacy suffusing the prognostication game surrounding this particular techno-scientific future.

Worth noting in both Churchill’s and Branson’s quotes is the significance of gustatory resemblance between cultured meat products and their traditional forebears. Churchill says that they will be “practically indistinguishable from the natural products, and any changes will be so gradual as to escape observation;” and Branson says they will “taste the same.” A chart created by journalist Alexis C. Madrigal compiles in parallel timelines every prediction made regarding the development of meat culturing technology after Churchill up to 2013 (Madrigal 2013). Madrigal’s chart groups predictions into two specific product categories based explicitly on texture, “hamburger” meat and “steaky” meat (Madrigal 2013). These terms refer to two different stages in the development of cultured meat: the current

one, which is a product made of small pieces of soft cultured tissue with the texture of ground meat, and the one researchers are currently aspiring to, cultured meat made of developed muscle tissue that would resemble an actual steak or filet. Current output falls into the former category, cultured meat with the form and texture of ground meat. While possible to create in theory, the latter category still requires more refinement of techniques and equipment to achieve. The primary technological hurdle is developing efficient ways to coax cells to grow in three-dimensional structures that resemble whole cuts of meat. Technology such as scaffolds for cell growth and three-dimensional printing exist but researchers are still working to adapt them to cultured meat production (see Specht 2018). The company Finless Foods, for example, is working to create cultured Bluefin tuna that can be used in sushi, though as of April 2020, the texture of the cultured meat was closer to that of hummus according to co-founder and CEO Michael Selden (Allen 2020).

The concern about gustatory resemblance of cultured meat products to conventional ones comes from the fact that the gustatory experience – including flavor, texture, and “the mouth feel” – of eating cultured meat products is seen by cultured meat proponents as essential to their commercial success, at least if that success includes supplanting conventional meat products, which is itself a prerequisite for achieving the liberatory effects outlined above. To achieve this goal, cultured meat producers need to create products that not only resemble but precisely *replicate* conventional products. This challenge has two main components: a sensory one and an affective one. The sensory one is a strictly technical issue that is relatively easy to overcome. Take for example Mark Post’s cultured burger prototype, which had already succeeded in replicating much of the experience of eating a conventional burger. In addition to cultured muscle cells from a cow, the burger had salt, breadcrumbs, and egg powder added to compensate for the lack of fat and bone cells that impart flavor in conventional meat and red beet juice and saffron added for a more meat-like pinkish color. Although the cultured burger needed these added ingredients to more closely approximate the flavor of a conventional beef patty, Austrian food trend researcher Hanni Rützle, who tasted the burger, described it as having “an intense taste, close to meat but not as juicy” with a “perfect consistency” (Coghlan 2013). In the seven years since that first taste test, companies have made significant strides in improving the gustatory experience of cultured meat. In 2017 Memphis Meats, a California-based cultured meat company, conducted its first tasting demonstrations of chicken and duck meat, and Eat Just, offered taste tests of their cultured *foie gras*. A vegan writer who participated gave the following description of the experience:

I cut a piece of the foie gras with my fork, raised it to my mouth, took a breath, and slowly pressed the foie gras with my tongue against the roof of my mouth. The flavor was impressive. The pâté was rich, buttery, savory, and very decadent, just as one would expect. I’m certainly not the best judge in this case, but as I closed my eyes and let the fatty liver melt on my tongue, the Hampton Creek foie gras brought me an amount of pleasure I’ll confess I was a little embarrassed to admit. (Shapiro 2018)

If cultured meat companies are able to improve their culturing processes to the point that they can produce cultured meat at a marketable scale, it is reasonable to expect that the products will be indistinguishable from conventional meat from slaughtered animals.

The bigger hurdle for companies hoping to replicate the experience of eating conventional meat is what is often referred to in the industry as the “ick factor” – an affective repulsion at the idea of eating synthetically grown meat. Just speaking anecdotally, when I have described cultured meat products to meat-eaters over the last four years, they often responded with disgust at the idea of eating meat that is “artificial” or “unnatural,” echoing the responses of many participants in one early study on consumer attitudes toward the hypothetical products conducted in Europe (Verbeke et al. 2015; see also Verbeke, Sans, and Van Loo 2015; Wilks and Phillips 2017).⁵ Describing this as the “naturalistic heuristic” – a consumer bias toward favoring “products that are congruent with their notion of what is ‘natural’ for humans to consume and what kinds of organisms/chemicals occur in the natural environment” – Bobbie Macdonald and Eva Vivalt conducted research that suggested consumers may be more easily primed by negative messaging toward embracing a naturalistic heuristic toward cultured meat than they are to expand their understanding of natural to include cultured meat (2017, 2). However, they also found some indication that creating a positive association with cultured meat’s “unnaturalness” rather than trying to disprove it could provide a basis for increased acceptance (op. cit.). This suggests that consumers’ attitudes are flexible, although counter-messaging by conventional meat companies will likely require creative marketing to overcome.

Based on positive or curious reactions from undergraduate students I have lectured about cultured meat in several classes over the last few years, I suspect generational attitudes toward technology may be a fertile area to focus marketing efforts, especially given Macdonald and Vivalt’s findings. Younger consumers, for example, may be more open to eating such products, or even attracted to a techno chic aspect that could be exploited in marketing, but that hypothesis requires more research. The story of pink slime – a meat by-product also known as lean finely textured beef or boneless lean beef trimmings – also suggests that the ick factor may not be as significant a hurdle for cultured meat products as some fear. The product is used as a filler in meat products, such as ground beef, and consists of a blended pink slurry made of beef scraps that have been sterilized with ammonia gas or citric acid. Although use of the ingredient in processed beef products plummeted following consumer outcry resulting from a 2012 exposé about its use by US-based ABC News, pink slime usage has since risen above its previous high, and most beef-consumers seem to have forgotten or no longer care about its presence in their ground beef.

Ultimately, it is probable that cultured meat companies will be able to overcome the technical challenges to replicating the gustatory experience of eating conventional meat, and with savvy marketing they have a chance of overcoming the ick factor too. However, even if consumers do embrace cultured meat, it is not at all clear that they will embrace it as a replacement for conventional meat. One possible outcome, of course, is that cultured meat

⁵ Whereas these studies focus more specifically on consumer attitudes, see Chiles 2013 and Mouat and Prince 2018 for analyses of the more complex ideological, social, and material factors that are shaping the future cellular agriculture market.

products are simply not embraced at all, and consumers reject them based on a repulsion to perceived artificiality. Conventional meat producers are actively working to leverage the naturalistic heuristic to secure this outcome (see Sebo 2018, 172–173; see Calvão and Bell, this issue, for an analysis of similar dynamics in the synthetic diamond market). The beef industry lobbying group U. S. Cattlemen’s Beef Association filed a petition with the United States Department of Agriculture requesting that the agency restrict meat-related nomenclature to conventionally slaughtered animal products (2018). A little over a year later, legislators in dozens of states had introduced bills backed by various beef industry groups seeking to limit the use of meat related terms on labels. A 2018 editorial in the meat industry-focused blog *Meatingplace* highlighted the perceived stakes in the battle over consumer attitudes and cautioned conventional meat producers to change their marketing and consumer education strategies, arguing that “the only ‘label’ that fake meat companies are concerned by is the one in consumers’ minds. As explained by Josh Tetrick, CEO of [Eat Just], fake meat won’t become ‘real’ to consumers simply because it’s found a space on the menu. ‘Real is when it’s the only thing on the menu’” (Berman 2018).

Another possible outcome, though, is that consumers never see these products as “real” but embrace them nonetheless precisely because of their synthetic status, treating them as a brand new animal-based food commodity that supplements rather than replaces conventional products (see Stephens et al. 2018; Rowe 2019, 28). Some cultured meat advocates use the analogy of the replacement of whale oil by petroleum products to illustrate how cultured meat could replace its conventional counterpart, arguing that culture meat is “the kerosene to factory farming’s whale oil” (Anzilotti 2018). But as sociologist Richard York explains, the development of petroleum-based technology actually intensified global whaling practices, and capitalist markets adapted to the ongoing production of raw materials from whales with new commodity forms and new applications for whale oil (2017). It was not until the late 1980s that whaling mostly came to an end with an international moratorium in response to the critically endangered status of most hunted species. If the whaling analogy did in fact prove accurate, cultured meat could safely coexist with an even bigger conventional animal agricultural industry than currently exists. As an industry expert commented at a 2018 joint meeting between the United States Department of Agriculture and Food and Drug Administration on the future regulatory status of cultured meat products, “We need to produce 50 % more protein by 2050, and if 100 % of that was [cultured], it would not impact a single livestock producer on the planet.” Perhaps finally succeeding in completely removing the animal laborer from agriculture by reducing her to her constituent cells can lead to the hoped for benefits of cellular agriculture, but like previous capitalist revolutions, the synthetic revolution could also lead to the intensification of production and expansion of markets in ways that could look far less liberatory than imagined. And to some extent, that outcome will depend on how synthetic consumers perceive these new products to be.

Conclusion: potential socio-economic costs of farmed animal obsolescence

It is also important to note that animals used for agriculture are not the only laborers that would be displaced should cellular agriculture render those animals obsolete. Even if these companies do prove successful in replicating the experience of eating meat, they risk also succeeding at another form of replication that would undercut their efforts to counter the dire threats of the current industrial global food chain: the replication or – worse – intensification of its socio-economic conditions. According to Hsin Huang, secretary general of the global livestock industry organization the International Meat Secretariat, “livestock are currently essential to the livelihoods of an estimated one billion poor people globally” (Carrington 2020). Cellular agriculture presents a challenging paradox in that it currently appears to be the best possible option for abolishing animal agriculture while it also has the potential to buttress other forms of inequality through its impact on the livelihoods of so many people who earn their wages working in industrial animal agriculture and related industries around the world. Slaughterhouse work, for example, is extremely dangerous and highly exploitative (see Eisnitz 2007; Fitzgerald 2010; Pachirat 2013; Striffler 2005), a fact only underscored by the eagerness of large meat companies to force workers back to the processing line in the middle of a deadly viral pandemic. But for the economically and socially vulnerable laborers who work in this industry, many of whom (in the US context at least) are undocumented migrants at risk of state violence and oppression, having no job is even worse. If we take seriously the radical potential for cellular agriculture to transform global food systems, then should we not also take seriously the possibility of unintended socio-economic consequences? Or put another way, if these companies have the opportunity to improve animal agriculture’s deleterious impact on animal wellbeing, human health, and the environment, should they not also endeavor to improve its effects on social and economic inequality? If the answer to these questions is yes, the cellular agriculture industry will have to contend with how cellular agriculture’s status as a capitalist project may challenge or limit its desired positive impacts.

At least some cellular agriculture entrepreneurs seem aware of the potentially negative impacts of possibly making an entire employment sector obsolete, but detailed strategies for creating alternate labor opportunities must be developed alongside this technology if they are to avoid significant unintended economic impacts. In other words, companies will need to consider the politics of resemblance in the job market as well as the consumer market. To be clear, I am not suggesting that they should try to replicate animal industry jobs in kind, just that they might attempt to avoid eradicating job opportunities without replacing them with new ones. There is already a growing “just transitions” movement focused on helping animal farmers transition to plant-based agriculture (Bookis 2020). Companies could, for example, build on this trend by formulating strategies to incorporate conventional meat industry workers into their production systems to ameliorate the negative labor impacts on those who would lose jobs if cellular agriculture were ever successful in supplanting conventional agriculture. Relatedly, and more broadly, they could adopt a strategy geared toward what Garrett Broad calls “food tech justice,” an affirmative agenda that would:

actively engage with the history and present of food system marginalization and inequity, forge a just transition for animal agricultural farmers and workers, explore how new food technology could co-exist with traditional livelihoods in developing nations, and support food entrepreneurs from historically marginalized communities to emerge as cooperative business leaders and engines of culinary creativity. (2019, 225)

Or, even more radically, cellular agriculture technology could be socialized through government-funded research and production, as political scientist Jan Dutkiewicz proposes (2019). “If it can be wrested from corporate control, lab meat production could be publicly financed, with intellectual property held in the public trust, and tied to the social and ecological goals of a just economic transition” away from conventional methods (Dutkiewicz 2019). Regardless of the specific strategies, however, if it is going to effectively address the multiple crises of global industrial animal agriculture by rendering farmed animals obsolete, this burgeoning industry will need to carefully navigate both the complex politics of resemblance and the potential negative consequences of extending the synthetic revolution to industrial animal agriculture.

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PRODUIRE UN SON « NATUREL »

Imbrication et différenciation de l'analogique et du numérique pour créer l'univers sonore d'un grand spectacle

Dominique Vinck, Sarah Waeber, Mylène Tanferri

Résumé

Partant d'une enquête ethnographique portant sur la sonorisation d'un spectacle de grande ampleur, l'article cherche à comprendre ce qu'il advient du son traité numériquement dans une situation où les ingénieurs impliqués cherchent à produire un « son naturel ». L'enquête prête attention à l'ontologie de ce qui compose le son pour répondre à la question de sa naturalité et la façon dont ses différentes matérialités y contribuent. Le terrain d'enquête est une célébration qui n'a lieu qu'une fois par génération, depuis trois siècles, et mobilise plusieurs milliers de personnes dont une vingtaine d'ingénieur-e-s du son. L'article rend compte du son comme un accomplissement pratique, fruit de multiples conversions et opérations de nettoyage.

Mots-clés : *son, univers sonore, régime de sensibilité sonore, numérique, spectacle, ingénieur du son*

PRODUCING A "NATURAL" SOUND: INTERWEAVING AND DIFFERENTIATING ANALOG AND DIGITAL AUDIO TO CREATE THE SOUNDSCAPE OF A GREAT SHOW

Abstract

Based on ethnographic investigation into the sound system of a large-scale performance, the article seeks to understand what happens to digitally processed sound in a situation where the professionals involved are trying to produce a "natural sound". The investigation pays attention to the ontology of what makes up sound in order to answer the question of its naturalness and how its different materialities contribute to it. The field of investigation is a celebration that has taken place only once a generation, for three centuries, and mobilises several thousand people, including about twenty sound engineers. This article gives an account of sound as a practical achievement, the fruit of multiple conversions, and cleaning operations.

Keywords: *sound, sound space, sound sensitivity regime, digital, show, sound engineer*

Introduction

Partant d'une enquête ethnographique portant sur la sonorisation d'un grand spectacle, la question se pose de comprendre ce qu'il advient du son désormais traité numériquement dans une situation où les personnes impliquées cherchent à produire un « son naturel ». L'enquête prête attention à l'ontologie de ce qui compose le son pour répondre à la question de ce qui fait sa naturalité et la façon dont ses différentes matérialités y contribuent. Le terrain d'enquête, une célébration qui mobilise plusieurs milliers d'acteur·trice·s, choristes et musicien·ne·s, ainsi qu'une vingtaine d'ingénieur·e·s du son (sondier·ère·s), permet de rendre compte du son en tant qu'accomplissement pratique, fruit de multiples traitements – conversion, purification, etc. – enchevêtrées. La célébration, n'ayant lieu qu' « une fois par génération » depuis trois siècles, la Fête des Vignerons à Vevey (Suisse), offre en outre une perspective temporelle quant aux évolutions du son.

Alors que le son est une réalité difficile à saisir anthropologiquement, sa « naturalité » l'est encore moins, bien qu'elle intéresse bon nombre de personnes engagées dans sa (re)production. Si « nature » se réfère à ce qui ne serait pas culturel¹, les sons dans lesquels nous baignons n'ont plus rien de « naturel » puisqu'ils émanent d'activités humaines (bruit de circulation automobile, murmure de foules ou sonneries de téléphones portables) quand il ne s'agit pas de *sons humainement organisés* comme la musique (Blacking 1976). Les paysages sonores (*soundscape* – Schafer 1977) ou *milieux sonores* (Guillebaud 2017) sont ainsi devenus objets d'études en anthropologie. Les modes d'existence du son dépendent par ailleurs de ses médiations, notamment par les instruments de mesure (Gribenski 2019) et la codification musicale (Ribac 2007a).

La notion de « son naturel », qu'évoquent nos interlocuteur·trice·s sur le terrain, se réfère à autre chose : parfois, il s'agit de ne pas déformer le son originel (la voix d'un chanteur, le bruit d'une motocyclette) et de le reproduire de manière fidèle à l'original ou, plus exactement, à l'idée que s'en font les publics et les sondier·ère·s. L'enquête, en fait, rend compte du son comme résultat de multiples opérations dont la dynamique produit, paradoxalement, un son qualifié de « pur » ou de « naturel », ce que l'enquête nous conduit à comprendre finalement comme un son dont les médiations sociotechniques sont rendues imperceptibles. L'article montre alors comment la « naturalité » du son est le fruit d'innombrables transformations, explorations, compromis et ajustements sans lesquels il ne serait qu'un son dégradé tandis que non amplifié, il n'arriverait pas aux oreilles d'une partie du public. Sa naturalité n'a donc rien à voir avec l'absence de traitement ; elle est plutôt le produit émergeant du souci des sondier·ère·s de produire un bon son, pur, juste et naturel et des assemblages qu'ils/elles réalisent.

Généralement traité comme phénomène physique, physiologique, psycho-acoustique et culturel, le son apparaît d'abord comme réalité analogique, c'est-à-dire un rapport proportionnel et continu entre une perturbation initiale et un effet. Les technologies de production, captation et diffusion du son ayant beaucoup évolué, se pose la question de la façon dans ces différentes matérialités contribuent à sa naturalité. Les technologies numériques le transformant désormais en série de données discontinues qui se prêtent au calcul et à des

¹ Dualité nature/culture remise en cause en anthropologie, sans compter le fait que même les chants d'oiseaux évoluent en fonction des bruits issus de l'activité humaine.

traitements très différents des transformations analogiques, se pose alors la question de sa naturalité numérique.

Dans un premier temps, l'article présente les principales approches du son et qualifie l'approche sociomatérielle privilégiée dans l'enquête. Il introduit ensuite le terrain qui nourrit cette étude, ainsi que nos méthodes et matériaux. S'ensuivent trois parties qui déclinent les résultats portant sur les façonnages du son comme faisceau d'attentes, comme milieu sonore et comme ajustements. En conclusion, il revient sur les relations entre sociomatérialités et la production d'une naturalité comme effet émergeant des choses assemblées.

Approcher le son

Le défi est de trouver le moyen de saisir le son en tant que production humaine, sans le réduire ni à des théories (la physique du son ou les théories musicales) ni aux déterminismes sociaux du goût et des choix de production ou de réception.

Les théories musicales ont souvent mobilisé des connaissances issues des sciences pour décrire la musique (Clark et Rehding 2001) ou la présenter comme un reflet de la nature. Les sciences cognitives étudient sa perception (Sloboda 1985) ou ses effets sur le cerveau (Bigand 2013). La musicologie quant à elle s'est constituée comme science analytique de la musique (Rehding 2003) s'appuyant sur la partition, liée à l'histoire de l'imprimerie (Ribac 2007a), laissant de côté ce qui n'est pas ainsi codifié. De même, la muséification classe et désigne des instruments de musique pour leur caractère exceptionnel ou fonctionnel, mais les rend silencieux, objets inertes désormais loin de leurs usages situés (Cohen et al. 2015, Le Guern 2015, Dehail 2019).

Du côté des sciences sociales (voir la présentation qu'en fait Ravet 2010), les travaux se répartissent entre l'étude des conditions de production de la musique (sociologie des producteur-trice-s – Bennett 1980, Hennion 1981, Menger 1979), des processus de rationalisation de la musique occidentale (Weber 1998), d'institutionnalisation de sa transmission et de sa patrimonialisation (Curtet 2020, Le Gargasson 2020), des déterminations extra-esthétiques (Adorno 1994) ou des conventions qui coordonnent les mondes sociaux de la musique (Becker 1988) et l'étude de la réception et des publics (Bourdieu 1984, Menger 1986).

Les sons recouvrant bien d'autres réalités que la musique, les *sound studies* (Pinch et Bijsterveld 2013), depuis Schafer (1977), étudient les *soundscape*s (ambiances sonores), les bruits du monde industriel (Bijsterveld 2008, 2013) ou de la nature (Krause 2016, Rothenberg 2013). Ces études invitent à prendre au sérieux la dimension sonore des sociétés et pas seulement ses aspects visuels ; les *sound studies* rappellent que l'expérience du monde se fait non seulement par la vision, mais aussi par l'écoute (Le Marec et Ribac 2019). Ces travaux mettent en évidence un mode spécifique de connaissance et d'être au monde qui passe par le son, une *acoustémologie* (Feld 2015). Là où la musicologie prêtait attention à des œuvres savantes, les *sound studies* s'intéressent la place de la radio dans la vie quotidienne (Douglas 2004) ou à l'écoute ordinaire de la musique (Bull et Back 2003, DeNora 2000). Quant aux *popular studies*, elles scrutent les technologies de la reproduction sonore (baladeurs, studios d'enregistrement, logiciels et Web). Ces approches s'intéressent aux écologies sonores et aux pratiques associées, à la *music in action*

(DeNora 2011) ou *musicking* (Small 2011). Par ailleurs, l'anthropologie du sonore (Guillebaud 2017) étudie les processus de subjectivation et la constitution de collectifs en prêtant attention à la façon dont nous nous rendons sensibles à certains sons, en apprenant à les distinguer et à les localiser. Cette anthropologie analyse la formation de *régimes de sensibilité sonore* ainsi que les savoirs et techniques déployés pour les façonner (Guillebaud et Lavandier 2020).

Toutefois, peu de travaux se penchent sur les pratiques de production, de traitement et de diffusion sonore – une exception est l'article de Gwenaële Rot (2020) –, pourtant objets de préoccupation pour les luthier·ère·s, musicien·ne·s, conceptrice·teur·s d'ambiances sonores ou de bruits signes de luxe (fermeture de la portière d'une voiture) et les sondier·ère·s chargé·e·s de sonoriser des concerts. Quelques travaux, dans les *science and technology studies* (STS), ont scruté les savoirs mobilisés, les pratiques d'assemblage et les controverses qui interviennent dans la production; Ribac (2007b) étudie l'enregistrement, Maisonneuve (2009) l'invention du disque, Sterne (2012) le format mp3, Zimmermann (2015) les dispositifs de la musique électronique, Camus et Vinck (2019) le traitement d'archives numériques de concerts, Harkins (2019) le *digital sampling* et Magaouda (2019) les promesses de la *blockchain* comme infrastructure pour la musique.

Pour étudier ces pratiques, en suivant Latour (1984) qui suggère d'éviter toute réduction, au lieu d'expliquer le son par des causes physiques, psycho-acoustiques ou de structures sociales, nous décrirons plutôt ce à quoi tient le son. L'hypothèse est de le penser comme émergeant d'un ensemble de liens progressivement construits et ajustés et de traiter le son et sa naturalité comme consubstantiels à un réseau évolutif de connexions sociomatérielles, résultat de transformations et d'ajustements plutôt que réalité qu'il faudrait retrouver par épuration de tout ajout ou manipulation. Le problème pour les sondier·ère·s est de trouver la « bonne manière » (Latour 2010, 600) de produire, capter, transporter et diffuser le son. Aussi, plutôt que de chercher à saisir le son en soi, détaché de ses (re)productions, il s'agit d'étudier le mouvement de récréation permanente auquel il donne lieu, en prêtant attention aux enchevêtrements d'entités et leurs influences mutuelles, formant des assemblages sociomatériels évolutifs (Latour 2006), plus ou moins stabilisés et dont émerge le son.

Pour penser le son comme fluidité et assemblage, plusieurs concepts orientent l'enquête. Le concept de *traduction* (Callon 1986) suggère passages et déplacements, ce qui suppose un travail et des opérations descriptibles, ainsi que l'idée d'une transformation. La *médiation* (Hennion 1993) insiste sur ce qui déborde la relation, irréductible à ses causes et imprévisible. Le concept d'*attachement* (Gomart et Hennion 1999; Hennion, 2013) renvoie au double processus d'un travail (agir) et d'une passion (être agi) vue comme une passivité active, c'est-à-dire la préparation et l'engagement dans un processus pour explorer, éprouver et subir, les effets surprenants de ce qu'on fait, et pour que quelque chose arrive et se maintienne. Le son surgit de ces apprivoisements progressifs de choses éprouvées. Il en résulte un assemblage doté d'une agentivité, productrice d'un « bon » son, celui qui prend les sondier·ère·s et les artistes autant que le public. Cette approche rejoint la saisie, dans un même mouvement, de la matérialité et du sens engagée dans les *sound studies* avec la notion de transduction (Sterne 2003), héritée de Simondon (1964)², qu'utilise Helmreich (2007) pour révéler les conditions de l'immersion sonore et d'une

² Chez Simondon, la notion désigne le processus ontogénétique par lequel une activité se propage en compo-

sensation de présence sans intermédiaire. Dans la présente enquête, les personnes observées agissent ainsi sur une diversité d'éléments pour qu'advienne la sensation d'un « son naturel ».

Terrain et méthode

La recherche porte sur la Fête des Vignerons qui, depuis le XVII^e siècle, honore le travail de la vigne et se reconduit tous les 20 à 25 ans. Le spectacle est composé de troupes costumées, qui défilent ou jouent des scénettes, et de fanfares, de chœurs et d'orateurs qui déclament des textes poétiques. Depuis 1797, elle prend la forme d'un spectacle dans une arène à ciel ouvert, accueillant des foules chaque fois plus nombreuses (de 2000 en 1797 à 20000 places assises en 2019). Les données traitées dans cet article sont issues d'une enquête ethnographique et ethnovidéographique portant sur sa préparation (Vinck 2019) ainsi que sur les régies qui assuraient sa sonorisation durant l'été 2019. Ces données permettent de rendre compte de la fabrique du son, depuis sa captation auprès de 470 choristes, 185 choristes-percussionnistes, 150 enfants choristes, onze solistes et 200 musicien-ne-s répartis en plusieurs groupes (big band, harmonie, cors des Alpes, fifres et tambours) jusqu'à sa restitution.

Pour approcher cette fabrique, l'enquête suit les personnes au travail, ce qu'elles disent et ce qu'elles font pour produire les assemblages dont le son est une résultante. L'enquête rend compte de ses évolutions à mesure qu'il s'attache à de nouvelles entités, connaît différents modes d'existence et gagne en consistance. L'étude porte ainsi sur les processus de stabilisation sociomatérielle de propositions sonores, éprouvées, ajustées et consolidées. Le son et sa naturalité sont abordées comme des réalités qui surgissent de l'apprivoisement de multiples entités, déplacées, transformées et réagencées.

Le son comme faisceau d'attentes

La mise en son de la Fête est intimement liée à un processus historique de formation de ce que l'anthropologie sonore appelle un « régime de sensibilité sonore » et ses agencements sociotechniques. Jusqu'à la Fête de 1927, le volume sonore est assuré par le nombre d'interprètes, par la technique vocale des solistes et par la forme d'amphithéâtre que prend l'arène. Paroles et musiques sont composées en tenant compte de la propagation du son dont les propriétés sont connues depuis le théâtre antique. En 1955, le son du spectacle, de type peplum hollywoodien, est, pour la première fois, capté par trente microphones et amplifié par des dispositifs électroacoustiques (amplificateurs et haut-parleurs). Depuis, ces dispositifs ont évolué et transformé les qualités sonores du spectacle. En 1977, une régie avec pupitres et écrans TV permet au régisseur de suivre et de sonoriser le spectacle tandis que la captation est assurée par une maison d'édition musicale qui procède au mixage de 40 canaux pour répondre aux nouvelles exigences du public « qui ne veut plus tendre l'oreille mais recevoir le spectacle à pleine puissance », comme

sant et en structurant un domaine de proche en proche, conduisant à l'individuation du réel. Il évite tout réductionnisme, comme le prône Latour (1984).

le dit le régisseur d'alors³. Habitué à la sonorisation des spectacles vivants, les publics peinent à imaginer ce que leurs ancêtres, loin de la scène, pouvaient entendre du spectacle. Puis, avec l'expérience des festivals, dont la sonorisation contrôle désormais la directivité et la cohérence du son, les publics aspirent à des sons plus « naturels ».

La malheureuse sonorisation de 1999

Ainsi, pour la Fête de 1999, les organisateurs souhaitent une parfaite audibilité pour le public et font étudier les solutions techniques pour une longue scène de 150 mètres, bordée de gradins de part et d'autre. La prise de son des 1200 choristes, solistes et musicien-ne-s est un défi car les sources sont multiples, dispersées et souvent mobiles (dont sept chanteuses à vélo). Trente perchistes se fondent aux troupes en mouvement, tandis que 120 micros sont adaptés par leur fabricant et 200 longueurs d'onde sont réservées auprès de l'Office fédéral de la communication (OFCOM) pour éviter les interférences avec les téléphones portables dont le public commence à être équipé. Pour la sonorisation, un mât fixe, qui diffuse à 360°, est implanté sur la scène, doté d'enceintes haut placées.

Cette sonorisation va toutefois déplaire au public, à cause de la difficulté à repérer la source sonore – notamment, le personnage qui prend la parole – et à propager l'émotion – lorsque le public chante ou applaudit – d'un gradin à l'autre⁴. Par ailleurs, les cent mètres qui séparent l'orchestre et le chœur créent un décalage sonore – malgré l'équipement des chefs de chœur d'écrans LCD portables leur permettant de suivre visuellement le chef d'orchestre et la diffusion du son, à chaque choriste, équipé d'un récepteur-écouteur – qui perturbe le public. Cette sonorisation de 1999 laisse de mauvais souvenirs, malgré le fait qu'elle ait impressionné les son-dier-ère-s de l'époque avec un son « puissant sans être envahissant »⁵.

Le nouveau régime de sensibilité sonore en 2019

Échaudés par cette malheureuse sonorisation, les organisateur-trice-s de la Fête de 2019 expriment le souhait d'éviter un tel inconfort sonore et de privilégier l'émotion. Le metteur en scène, recruté en 2015, et son scénographe imaginent alors une arène ayant la forme d'un nid géant, enveloppant le public et l'immergeant dans le spectacle en créant une intimité visuelle et acoustique avec l'histoire qui s'y racontera. Le défi est de façonner une écoute idéale en maîtrisant la directionnalité du son et en créant une sensation de proximité malgré le gigantisme de l'arène. L'espace scénique est complexe, composé d'une scène centrale et de quatre scènes latérales, à mi-hauteur des gradins, reliées par une coursive et des escaliers monumentaux, où les interprètes déploient leur jeu. Loin de l'opposition frontale entre une scène et un public, configura-

³ Cf. reportage sur les coulisses de la Fête, à 43'20" : <http://www.rts.ch/archives/tv/divers/fete-des-vignerons/3446584-les-coulisses-de-la-fete.html>, Première diffusion le 5 septembre 1977, consulté le 18 mai 2020.

⁴ Synthèse des rapports finaux, 30 mai 2000, p. 3.

⁵ La Fête des Vignerons teste une première mondiale pour trouver le son idéal, *Le Temps*, 21 juillet 1999.

tion pour laquelle les technologies de sonorisation de concerts existent et donnent satisfaction, il implique d'adopter une approche acoustique nouvelle.

Le nouveau régime de sensibilité sonore se caractérise alors par deux critères : l'intelligibilité et l'émotion induite par le son. Musique et textes doivent être clairement perçus, audibles et compréhensibles, ce qui doit être assuré par la qualité de la composition et du texte, et le travail des interprètes, mais aussi par la sonorisation. La faisabilité acoustique du spectacle est alors évaluée en priorité ; la conception du spectacle en dépend. Par ailleurs, l'écoute a pris de l'importance ; le public voyant désormais avec les oreilles⁶, le son doit pouvoir attirer son attention sur ce qui se passe et là où ça se passe, sans quoi l'émotion serait perdue⁷. La Fête est une affaire de son, pas seulement de musique.

Figure 1 : l'espace scénique de l'arène 2019



Source : D. Vinck

La fabrique d'un milieu sonore

Comme le suggère l'anthropologie sonore, nous rendons compte des pratiques et des savoirs déployés pour façonner l'écologie sonore du spectacle, en l'occurrence le réseau sociotechnique assemblé au gré d'exigences tant matérielles et financières qu'artistiques.

Des études acoustiques aux solutions d'équipement ...

Après une première étude acoustique qui propose un design sonore jugé trop complexe et onéreux, une seconde étude est confiée à un acousticien réputé être un des meilleurs sonoriseurs en Europe. Le dispositif scénique étant inhabituel, il mobilise la physique du son pour poser le problème et engager la discussion avec l'équipe artistique. Il modélise l'arène et, avec son programmeur, crée un logiciel de simulation de la qualité du son pour chaque point des gradins, ce qui permet de définir l'équipement de sonorisation à utiliser. En juin 2017, il présente les résultats et rappelle quelques lois d'acoustique : pour localiser une source, le premier front d'onde doit frapper le public depuis la direction de la source ; les retards de plus de 30 millisecondes sont perçus comme de l'écho ce qui détruit l'intelligibilité de la parole ; le son s'atténue

⁶ Rencontre des créateurs, le 3 octobre 2016.

⁷ *Idem.*

de trois à six décibels quand double la distance. Le défi est de pouvoir diriger les ondes afin que les scènes soient entendues et localisées par le public. Or, les technologies de spatialisation qui le permettent, issues de centres de recherche ou de *start-up*, sont encore trop expérimentales.

L'arène n'ayant pas de toiture à laquelle suspendre des enceintes acoustiques, trois configurations sont proposées pour la diffusion, définies par un nombre de mâts et leur emplacement. Un tableau compare leurs performances (qualité acoustique, occultation visuelle, impact financier, etc.) tandis que des rendus graphiques visualisent le son pour chaque spectateur·trice. L'une des configurations pose des problèmes de localisation des sources en mouvement ; l'impact structurel de la seconde est important (avec des mâts au milieu des gradins) ; l'impact financier de la troisième est conséquent. Bien que la qualité acoustique s'améliore en passant de la première à la troisième solution, la discussion collective privilégie la première. Le metteur en scène en conclut qu'il faut éviter les déplacements musicaux sur la coursive ; la sonorisation oriente les décisions artistiques.

La configuration retenue est soumise au bureau d'études en génie civil qui en confirme la faisabilité technique. Elle consiste en huit mâts de 29 mètres de hauteur pouvant accepter des charges asymétriques de 3500 kg chacun et sur lesquels seraient installées 504 enceintes acoustiques pour la diffusion frontale, latérale et de proximité. Un système de diffusion complémentaire de 48 enceintes tubulaires, réparties autour de la scène centrale et sur la coursive, devrait garantir l'homogénéité du son. Le son serait ainsi dirigé numériquement vers chaque spectateur·trice. L'émission depuis ces enceintes est retardée afin que le son amplifié concorde avec l'arrivée du son original non amplifié et que ces deux sons ne paraissent en faire qu'un seul. Pour cela, l'acousticien programme une matrice de traitement du son pour envoyer des sons différenciés vers chacune des enceintes. À cela s'ajoutent des sources sonores placées sous les gradins et au-dessus des sièges supérieurs. Cette configuration, après négociation budgétaire, passe finalement d'environ 600 à 400 enceintes acoustiques, bien plus que pour un grand festival musical.

Directeur technique et acousticien rédigent un appel d'offres destinés aux équipementiers et précisent les marques de matériel autorisé (pour leur qualité) et les conditions pratiques (position des mâts, gréement et alimentation électrique). Six entreprises y répondent. Le directeur technique compare les offres, vérifie la capacité des entreprises à assurer le service annoncé et écarte les offres en sous-traitance trop dépendantes de groupes étrangers. Assurer le son est une priorité de l'organisation, y compris lorsque le budget est revu ou que la configuration choisie pose problème au responsable de la billetterie devant différencier le prix des places en fonction de la gêne visuelle créée par les mâts.

... et aux décisions artistiques

Pour rendre tangible les problèmes acoustiques et nourrir le dialogue avec l'équipe artistique, l'acousticien, avec son logiciel de simulation du son et des écouteurs, organise des balades virtuelles dans la future arène pour évaluer « comment ça vibre », selon la source sonores (fanfare, bandonéon, flûte de pan, etc.) ou la pièce musicale. L'outil alimente la discussion et la prise de décisions artistiques parfois contraignantes – comme limiter le jeu simultané sur plusieurs

scènes ou concentrer la rythmique sur la scène centrale. L'équipe se rend alors compte de la nécessité de comprendre la problématique acoustique et les technologies de sonorisation pour l'écriture musicale et le texte. Le geste créatif se confronte à la physique du son, à la psycho-acoustique et aux technologies adoptées ; les contraintes servant d'appui à la création, les décalages dans la propagation acoustique sont apprivoisés pour concevoir des formes sonores (répons, fondus enchaînés, chants en écho) créatives. Grâce au studio virtuel, aux maquettes musicales que l'acousticien récupère auprès des compositeur·trice·s et à ses rencontres avec les percussionnistes et les chœurs, il simule la sonorisation, anticipe les problèmes tandis que ses visualisations créent un langage commun entre les univers de la musique et du son. Plus tard, il capte les répétitions dans l'arène, retravaille virtuellement leur sonorisation et propose des améliorations au metteur en scène. Il capte aussi des sons qui rendent compte de leur espace sonore (par exemple, les cloches de l'église) afin de surprendre et envelopper le public, et rompre la mise en distance qu'induit la vue ou l'association du son à une source localisable. Ces sons captés en 3D avec différents micros deviennent un matériau pour l'équipe de création. Il s'attaque aussi au défi de créer une sensation de vide sonore conduisant le public à se pencher vers la scène centrale.

L'équipement des sources sonores

Pour la captation, l'acousticien détermine les types de micro qui équiperont les chœurs et groupes de musique (fixe ou mobile, sur pied, fixé au visage de solistes ou aux instruments des musiciens ou micro d'ambiance tenu par quarante perchistes qui accompagnent les chœurs). Pour ce faire, il tient compte de leur sensibilité (y compris aux bruits parasites), de leur connectivité (avec ou sans fil, câbles à tirer et à fixer) et de leurs contraintes (éloignement possible, dissimulation dans le costume des acteurs).

En fonction du nombre de personnes concernées et des besoins propres à chaque scène du spectacle, une liste de matériel à louer est établie. Quant à leur mise en place et leur activation, un travail de localisation et de réglage est réalisé pour chaque microphone en fonction des dispositions scéniques (dispersion ou concentration des musiciens, composition du chœur) et des mouvements, voire aussi du comportement des instruments en cas de pluie ou de grand soleil. La captation du son conduit aussi l'acousticien à négocier avec la costumière la manière de dissimuler micros, câbles et émetteurs et les sondier·ère·s à expliquer aux choristes la façon de les installer en tenant compte du costume, de la barbe et des cheveux dont il faut éviter le contact.

Transporter le signal « sans le modifier »

L'acousticien dit vouloir transporter le signal fidèlement, sans le modifier, seulement l'amplifier. Avec les sondier·ère·s dont il s'entoure, il essaye différentes combinaisons technologiques (antennes, fibres optiques, récepteurs et interconnexions) pour acheminer de nombreux signaux audio simultanément, puis, avec les fournisseurs d'équipement, teste l'assemblage. L'utilisation de récepteurs numériques leur permet de réduire les problèmes d'intermodulation

mais aussi d'accéder à plus de paramètres, ce qui soulève de nouveaux problèmes (de réseau, de temps de latence) qui n'existaient pas en analogique.

Toutefois, ce transport « fidèle » du son implique de le transformer à plusieurs reprises. La configuration scénique et les mouvements chorégraphiques conduisent à utiliser des micros sans fil, qui convertissent l'audio analogique en un signal numérique, lequel module l'onde électromagnétique porteuse HF. À chaque micro est attribué un canal afin que les ondes ne se mélangent pas. Pour cela, les sondiers *frequence manager* obtiennent, de l'OFCOM, un nombre hors norme de fréquences radiophoniques (320) dont ils surveillent l'usage – en 1977, la fréquence attribuée au seul micro HF utilisé avait été piratée. Ils analysent aussi l'environnement électromagnétique (télé numérique et arrivée de la 5G) et lancent de lourds calculs (produit des intermodulations) pour vérifier l'absence d'interférence entre canaux. Ensuite, le signal sonore émis par les micros est repris par des antennes dont l'emplacement en bord de scène est optimisé. Un appareil de *routing* re-choisit en permanence la meilleure antenne pour chaque microphone. À partir des antennes, le signal est converti pour circuler dans des fibres optiques – évitant ainsi qu'il ne s'atténue et se perde dans les câbles –, ce qui impose d'en changer le format au risque que les connecteurs créent des intermodulations, cause d'interférences entre signaux. Arrivés en régie, les signaux sont intégrés, puis redistribués sur 320 récepteurs. Au final, il y a tant de manipulations et conversions pour transporter le son que le défi est d'éviter qu'il ne soit trop altéré. Pour les sondier-ères-s s'engage alors un long travail d'exploration collective pour définir, discuter et tester les enchevêtrements de technologies et d'opérations et l'organisation du travail, avec ses procédures et systèmes d'alertes.

À cela s'ajoute le travail d'un ingénieur réseau audio qui conçoit et met en place une combinaison de matériels informatiques et de logiciels pour gérer le transport du son devenu numérique, formaté pour circuler via un réseau IP, dont des commutateurs réseau assurant la redondance – pour éviter une perte de son en cas de coupure d'un câble – et un système de surveillance du réseau (écrans de visualisations et générateurs d'alertes par SMS). Il construit ainsi une vision globale de tout ce qui est branché et gère la couche physique des ports, des câbles et des appareils branchés et plusieurs couches virtualisées correspondant à la production audio, à l'enregistrement, au wifi, au contrôle des haut-parleurs, etc. Le son se retrouve ainsi lourdement équipé (Vinck 2011) ce qui permet aux sondier-ères-s de le contrôler.

La fidélité du son résulte ainsi d'un travail d'assemblage, de réglage, de vigilance, mais aussi de maintenance et de réparation, autant qu'un travail d'organisation et de coordination lors de réunions quotidiennes de *briefing* contribuant à construire une vision partagée du système sonore, discuter problèmes et solutions, et convenir des réajustements.

Produire un son naturel

La naturalité du son ne se réduit pas au transport fidèle du signal capté ; un impressionnant assemblage sociotechnique est conçu pour la sonorisation, mis en place, testé, discuté et réajusté, y compris d'une représentation à l'autre jusqu'au spectacle. L'acousticien choisit des appareils dont les fournisseurs assurent un haut niveau de qualité sonore et la stabilité. Pour limiter les risques, il évite les technologies innovantes et combine plutôt des technologies éprou-

vées, bien qu'hétérogènes. Il les éprouve, en dialogue avec les ingénieur·e·s de grandes marques intéressé·e·s par sa confrontation à des défis vis-à-vis desquels personne n'a d'expérience. Dix régies sont ainsi dotées de consoles standards entre lesquelles l'acousticien répartit les vingt sondeur·ère·s engagé·e·s au printemps 2019 par la Fête. Ces personnes, *freelance* et polyvalentes, choisies pour leurs compétences techniques et humaines à supporter la pression, sont affectées en fonction de leur expérience et de leurs préférences. Normalement engagées sur d'autres festivals, elles ont donné leur préférence pour cette Fête à cause des défis de cette sonorisation et des compétences qu'elles y acquièrent. Le son dépend de leur engagement, bonne entente, organisation et communication (par système d'interphone, groupes de discussion sur une application mobile, contacts directs, réunions, documents écrits ou photographies). Collectivement, elles procèdent à de nombreux essais et ajustements, y compris pendant le spectacle même si les réglages stabilisés cadrent leur activité et leur permettent d'agir de façon plus assurée.

Les sondeur·ère·s HF, depuis leur régie, s'assurent qu'avant chaque répétition ou spectacle, micros, antennes, connexions et liaisons sans fil fonctionnent. Équipés d'écrans géants et d'un logiciel adapté aux besoins de la Fête, ils mesurent la qualité des signaux, vérifient que le signal est bien capté par une antenne et interviennent en cas de problème. Ils anticipent les problèmes (fibre cassée, câble débranché, etc.) et les solutions à mettre en œuvre, puis testent leurs propres capacités de réaction à fournir un son de qualité en toutes circonstances.

Dans chacune des cinq régies chargées de la sonorisation d'une scène, deux sondeur·ère·s manipulent le son via l'écran tactile et les touches de réglages de leur console pour mixer les quarante canaux de la scène d'en face et produire le son destiné au public, ainsi que le retour son, redistribué via les oreillettes dont sont équipé·e·s les choristes et musicien·ne·s qui leur sont proches. Leur travail d'ajustement du son dépend de leurs propres perceptions et de leurs échanges avec les sondeur·ère·s des autres régies, l'acousticien, la topeuse et l'ingénieur réseau audio – à propos d'un changement de micro, de l'absence de retour dans les oreillettes ou de requêtes externes – ainsi que des indications sur le retour son souhaité par les cheffes de chœur et par les musicien·ne·s proches avec qui ils échangent visuellement.

Une régie, dotée de trois consoles, produit des pré-mix : l'une s'occupe des cent micros *head-set* du chœur répartis sur les scènes latérales ainsi que les micros d'ambiance qui se déplacent avec les chœurs ; la deuxième traite les chœurs d'enfants et les choristes-percussionnistes ; la troisième se charge de l'harmonie. Ayant rarement autant de sources audio à traiter (plusieurs centaines), le travail consiste à assembler un signal stéréo destiné aux régies de scène et à la régie télévisuelle. Pour refléter les chœurs de chaque scène, leur travail implique de se renseigner sur les re-compositions des chœurs suivant les modifications de la mise en scène, et d'identifier et activer les micros en fonction des recompositions d'un tableau à l'autre. Pendant les répétitions, ils créent, testent et évaluent des solutions pour la sonorisation sans que la naturalité ne s'impose comme critère évident qui éliminerait toute flexibilité interprétative. Le spectacle approchant, l'exploration créative se réduit ; les réglages sont sauvés sous la forme de *snapshots* rappelés pendant le spectacle, tandis que la stabilité des personnes – les mêmes réalisent les pré-mix d'une représentation à l'autre – contribue à la stabilité du son.

Dans la régie pré-production, deux sondeurs créent des effets sonores pour les *surround* et enregistrent et éditent des musiques en fonction des demandes du metteur en scène afin d'en disposer pendant le spectacle (*playbacks*) en cas de difficulté technique, s'il y a trop de vent pour les

micros ou quand chœurs ou fanfares sont en difficulté⁸. Ils enregistrent chaque piste audio pour réaliser des tests (*virtual sound check*) et des ajustements entre répétitions. L'assemblage socio-matériel dont dépend le son tient aussi aux deux sondiers de la machine *master* qui reprend l'intégralité du mix à diffuser et en contrôle les sorties, le *timecode* pour les vidéos, les séries d'instructions pour les lumières et les commandes parlées injectées dans les oreillettes des interprètes.

Le son apparaît ainsi être un accomplissement pratique, dépendant de multiples réglages censés refléter fidèlement la source sonore, laquelle, en réalité, est une source idéalisée – des chœurs et fanfares en pleine forme et jouant dans de bonnes conditions, quitte à les remplacer, au moment du spectacle, par un son préalablement enregistré – et reflétant les goûts et compétences des sondier-ère-s.

Les ajustements questionnent la naturalité du son

Dans l'enquête, le son est approché comme émergeant d'un ensemble d'éléments progressivement ajustés. Après avoir exposé l'assemblage sociotechnique et présenté le travail engagé dans sa production, nous traiterons de ses ajustements. Résultat de l'apprivoisement de multiples entités et de traitements qui consolident des propositions sonores, il fait l'objet d'une attention en tant que réalité incertaine et en train de se faire.

Un son en prise avec des matérialités qui s'imposent

La sonorisation, modélisée et négociée, puis traduite par des assemblages testés physiquement et virtuellement avant même que l'espace scénique ne soit construit, s'éprouve aussi lors de sa mise en œuvre dans l'arène équipée. C'est un moment de vérité : est-ce que le son dans l'arène correspond au son simulé ? Bien que les premiers essais confirment les résultats simulés et consolident les décisions antérieures, différents éléments surgissent et remettent en cause l'assemblage sonore.

Les premières confrontations tiennent à la matérialité de l'arène. Une fois construite et équipée, les sondier-ère-s y découvrent les containers des régies qui, sur deux ou trois étages à l'est et à l'ouest, forment des surfaces plates qui génèrent de l'écho. Le son émis par une scène bute sur les containers de la scène d'en face, à 85 mètres, produisant un écho à 250 millisecondes, lequel se répète sur les containers de la scène d'origine, repart et revient, provoquant un deuxième écho à 500 millisecondes. Le public le perçoit. La simulation n'avait pas anticipé ce problème car les containers ne figuraient pas sur les plans fournis à l'acousticien. Des études sont engagées avec les fournisseurs pour les habiller avec un absorbant acoustique mais, tenant compte du vent et de la pluie, le revêtement serait dangereux. Choix est alors fait de modifier la sonorisation pour masquer l'écho.

Les sondier-ère-s découvrent aussi que les locaux prévus pour les régies son des scènes sont traversés de structures tubulaires, n'ont pas été étanchifiés et ne présentent pas d'ouverture sur

⁸ Lors de l'avant dernier spectacle, 45 choristes sont absents ou aphones.

la scène malgré les exigences formulées anticipativement par l'acousticien. Ces oublis, malgré les remédiations réalisées, affectent la capacité des sondeur·ère·s à produire un « bon son ».

Par ailleurs, pour les besoins de la transmission télévisuelle du spectacle, de grosses caméras sont installées à des emplacements négociés de longue date mais indépendamment du travail de l'acousticien qui optimise la disposition des enceintes acoustiques. Le réalisateur découvrant l'arène se rend compte d'un conflit visuel ; des enceintes se trouvent dans le champ de certaines caméras. Les négociations conduisent alors à un compromis ; quelques enceintes tubulaires sont retirées les jours de la transmission télévisuelle, ce qui réduit l'intelligibilité sonore pour quelques centaines de spectatrice·teur·s.

Le son lui-même, une fois dans l'arène, se révèle être légèrement distinct de sa simulation sur ordinateur parce que les corps du public absorbent le son, ce qui réduit la puissance sonore de trois décibels et transforme le son. En outre, selon les dires de l'acousticien, le son est « nettoyé » par le public, parce que moins réfléchi ; le son des chœurs et des fanfares est meilleur mais, de ce fait, les fautes s'entendent mieux.

Enfin, l'humidité de l'air – l'arène étant en bordure du lac – et les variations de l'absorption atmosphérique affectent aussi le son, notamment avec une augmentation des sons aigus la nuit. Les sondeur·ère·s modifient le son en conséquence afin d'assurer une sonorisation homogène quelles que soient les conditions atmosphériques. La pluie surgit également au cours des répétitions. Les enceintes acoustiques, tropicalisées c'est-à-dire conçues pour l'extérieur, utilisent des matériaux qui les protègent contre l'humidité. Cependant, la sonorisation prévue implique d'incliner des grappes de haut-parleurs avec des angles inhabituels. Lors des fortes pluies, l'eau les pénètre et provoque divers problèmes électriques dont les sondeur·ère·s s'activent à rechercher les causes – démontage des enceintes, vérification puis étanchéification des amplis et des câbles. Jusqu'aux derniers jours de la fête, les sondeur·ère·s cherchent la cause d'incidents sonores, de court-circuits et de pertes d'électricité pour assurer un même son d'un spectacle à l'autre.

Ces matérialités qui surgissent en cours de route conduisent les sondeur·ère·s à les apprivoiser et à composer avec elles dans leur fabrique d'un son dont la naturalité ne va pas de soi.

Un son résultant de compromis scénographiques

La fabrique du son résulte aussi de compromis liés à la scénographie. Ainsi, la coexistence de deux sources sonores incompatibles – le vrombissement de ventilateurs qui gonflent une grande bâche pendant que joue une flûte de pan – conduit à modifier la sonorisation et à neutraliser un des bruits (Rot 2020), tandis que la placement des chœurs, testé dans l'arène par le metteur en scène, confirme le mauvais résultat prévu par les simulations et conduit à revoir la mise en scène. La sonorisation dépend aussi des costumes, imprévus au moment des simulations. Ainsi, le jour où les choristes répètent costumés, les sondeur·ère·s découvrent que si les bérêts ne gênent pas les micros fixés sur le front pour assurer un bon angle pour la captation, les casques des fourmis (choristes-percussionnistes) posent problème (figure 2), ce qui conduit les costumières à concevoir, tester et fabriquer des serre-têtes. Costume et captation sont réajustés l'un à l'autre. L'apparence visuelle et le son entrent également en tension avec la sonorisation

des cors des Alpes. Le metteur en scène refusant les micros posés sur scène, les sondier·ère·s re-conçoivent l'équipement et fixent des micros sur les instruments, mais, ne disposant plus de micros sans-fil, les musicien·ne·s doivent s'adapter et emmener avec eux câbles, micro et cor lorsqu'ils entrent et sortent de scène.

Figure 2 : fourmis choristes



Source : D. Vinck

La sonorisation devait spatialiser le son afin qu'à l'écoute, le public tourne son regard vers la scène d'où provient le son. Pour ce faire, un paramétrage des consoles assume une bonne spatialisation horizontale, permettant d'identifier la scène d'où vient le son. Par contre, la spatialisation verticale reste un défi : lorsque des solistes chantent, le son attire le regard au-dessus de la scène et il faudra de nombreux ajustements pour que le son redescende sur scène. La spatialisation verticale pose aussi problème quand il s'agit de différencier les instruments sur les escaliers ; la sonorisation ne réussissant à produire cette différenciation, ce sont les musicien·ne·s qui sont espacé·e·s sur l'escalier. Les choristes, par contre, seraient mieux rapprochés mais un enjeu de cette Fête étant que chacun·e puisse être vu·e, la sonorisation compose avec l'espacement imposé. La spatialisation du son, devant permettre au public de localiser les solistes, a conduit à une sonorisation spécifique pour ce spectacle. Or, chemin faisant, la mise en scène évolue et les solistes sont finalement visualisés sur les écrans LED de fond de scène ; le public les voit sans devoir les chercher. Leur localisation sonore n'est finalement pas nécessaire, mais l'acousticien, n'étant pas informé de ce changement, sonorise comme si la localisation était nécessaire. Celle-ci s'explique alors par une dépendance de sentier plutôt que par une nécessité du spectacle. La naturalité du son résulte ainsi de contingences et de compromis entre sonorisation et modification de la source.

Un son épuré

Le son produit surprend parfois les sondier·ère·s. Ainsi, celui qui sort des enceintes tubulaires est ainsi meilleur qu'imaginé. L'évaluation qu'en fait l'acousticien actualise alors sa conception

du son recherché : « Il y a juste le son ; on n'entend plus la technique » dit-il. La naturalité du son ne concerne pas ici la fidélité à la source, mais l'absence d'un effet perceptible venant de la technique. Par contre, ces enceintes étant perçues comme trop agressives – leurs petits châssis ne diffusant pas les médiums bas – elles sont compensées par les *surround*, installés sous les gradins, qui rajoutent des basses. L'effet d'une technique est effacé par une autre, mais, pour les haut-parleurs, cet idéal d'effacement n'est pas atteint malgré les efforts des sondeur·ère·s.

Pour leur part, les sondeur·ère·s HF découvrent que le tapis de LED, 800 m², de la scène centrale interfère en émettant des ondes gênantes, contrairement à ce que garantissait le fournisseur. Les sondeur·ère·s refont alors leurs calculs pour effacer le problème en exploitant les fréquences de réserve.

Un son multiple

La sonorisation repose sur une matrice de temps et d'amplitude qui programme des émissions sonores différentes par chaque enceinte. Les convergences locales de tous ces sons, différents en chaque endroit de l'arène, crée pour chacun·e l'illusion d'un son unique. Aussi, la sonorisation est en fait une production prolifique de multiples sons.

Pour la synchronisation des chœurs et des fanfares, d'autres mix sonores sont produits, différents selon les destinataires, pour leur assurer un son retour de qualité, dans les oreillettes par lesquelles ils reçoivent aussi instructions, tops de départ et *tempo*. Cette autre production sonore permet aux interprètes de savoir ce qui se passe acoustiquement et les aide dans la production du son original. Lorsque le retour son n'est pas bon, l'interprète peut être désorienté comme lorsque le son des micros restés ouverts à proximité des cloches des vaches arrivait dans les oreillettes des solistes. Pour assurer un bon son retour, le son numérique est reconverti en signal analogique et transmis en FM pour éviter les écouteurs numériques qui génèrent un peu de latence. Cependant, le signal analogique n'étant pas aussi propre qu'un signal numérique, à cause des harmoniques et des interférences entre ondes, est traité pour tendre vers un son épuré. Par ailleurs, ce retour son analogique aux interprètes risque de perturber le son capté par leurs micros.

Aussi, difficile de considérer le son original comme naturel tant il résulte de compromis de sonorisation et de scénarisation, et d'un retour son qui aide et interfère, tandis que signaux numériques et analogiques, captation et retour, s'enchevêtrent. Les sondeur·ère·s œuvrent pour les différencier, les nettoyer, les convertir et les faire co-habiter.

Un son ajusté

Pendant les spectacles, l'acousticien circule dans l'arène, écoute et, attentif aux équilibres dans les mix (instrument trop fort, soliste trop bas, etc.), demande des ajustements aux sondeur·ère·s par l'interphonie. Il compense aussi les défauts de l'agencement sociomatériel mis en place et qui perturbe leur perception – régies désaxées par rapport à la source et occultées par une toile acoustiquement étanche. Le son dépend ainsi des oreilles de l'acousticien et des sondeur·ère·s, de leur capacité à se coordonner et à exprimer leur ressenti – ils utilisent des termes relevant de

gammes de matérialités propres à d'autres sens que l'ouïe (un son sec, doux, brillant, rond). La technicité de leur métier se mêle aux compétences perceptives et expressives, au développement d'une oreille sensible et d'une capacité personnelle d'appréciation sonore. L'acousticien se déplace également pour s'assurer que ce qu'il entend à un endroit se vérifie ailleurs et qu'il n'est pas le seul à percevoir un problème. Il se déplace aussi pour éviter de résoudre un problème qui ne se pose qu'à cet endroit, mais dont la correction peut générer un problème pour d'autres qui n'avaient pas de problème. Le son est ainsi ajusté pendant le spectacle.

La sonorisation est aussi réajustée d'un jour et d'une heure à l'autre car la source sonore varie. Les choristes gagnent en aisance, s'habituent à l'arène à ciel ouvert après avoir longtemps répété en intérieur, s'ajustent en fonction de leurs voisin-ne-s et apprennent à repérer leur cheffe de chœur. Leur chant s'améliore et les son-dier-ère-s ajustent la sonorisation en conséquence. Leur performance dépend aussi de la température et de l'heure (représentation de jour, à 11 h, ou en soirée, à 23 h). Lorsqu'il fait 35 degrés, le niveau sonore des chœurs, à court de souffle, baisse de trois décibels. Enfin, les apéros des choristes, avant le spectacle du soir, influencent également la qualité sonore. Les son-dier-ère-s reçoivent aussi l'avis des compositeur-trice-s et cheffes de chœurs qui font part de leur perception du son produit. Difficile alors de savoir ce qu'est un son naturel tant il est constamment ajusté et amélioré.

Conclusion

La sonorisation produit un paysage et une écologie sonores comme pourraient les étudier les *sound studies*. Fruit d'un travail d'exploration de solutions et d'articulations entre des registres parfois en tension (rêves du metteur en scène *vs* physique du son, équipement *vs* confort du spectateur, etc.), elle dépend d'opérations cognitives (conception, calcul, évaluation, interprétation) et de dispositifs sociotechniques qui l'équipent et supportent son évaluation. Les agencements sonores dépendent alors moins de la mise en œuvre d'une méthode que d'une exploration collective tant les faits sonores restent difficiles à établir. Les discussions et les explorations sociomatérielles sont le moteur du travail des son-dier-ère-s. Constitutives de l'amélioration continue du son, elles portent sur sa facticité en chaque point du réseau, sur la pertinence l'approche adoptée, les leçons à tirer de l'expérience et la légitimité d'engager des ressources pour obtenir un effet recherché. Évaluation informelle de la sonorisation, ces discussions et explorations modifient les approches des uns et des autres, et façonnent un régime de sensibilité sonore (Guillebaud and Lavandier 2020). Formes de délibération entre personnes porteuses de divers savoirs et points de vue, elles invitent à déconstruire des dichotomies telles que technique *vs* artistique, naturel *vs* artificiel, en rendant compte de la façon dont les personnes les reconstruisent alors que se stabilisent des agencements sociotechniques producteurs d'effets et d'êtres émergents. Ces agencements modifient la composition et le fonctionnement du monde sonore et transforment les êtres en présence, le son en particulier, mais aussi les équipements et les collectifs humains.

Les technologies mobilisées combinent des éléments hétérogènes que les son-dier-ère-s évaluent, sélectionnent, testent, assemblent et ajustent, relevant du traitement numérique ou de l'analogique ; combinés, ils imposent aux son-dier-ère-s de mobiliser différents registres

de compétences et de maîtriser les processus de conversion et de cohabitation de signaux de natures différentes. Le son capté connaît de multiples transformations qui débouchent sur un son épuré ou plus immédiat – une immersion sonore sans décalage et sans impression de médiation technique. Numérique et analogique, combinés à un souci de naturalité du son, confrontent les sondier·ère·s à des problèmes pratiques de nettoyage du signal – élimination des interférences « naturelles » entre ondes ou des traces d'intervention techniques, afin qu'il paraisse plus naturel – ou de conversion du signal numérique en analogique pour créer l'immédiateté.

Les différents modes d'existence du son s'enchevêtrent en une réalité sociomatérielle évolutive, progressivement constituée, et dont les propriétés sont un accomplissement pratique et distribué dans un réseau sociotechnique complexe, patiemment assemblé et ajusté, un mouvement de transduction (Helmreich 2007) qui recrée le son en permanence. La vérité du son perçu par le public s'obtient en vertu de multiples médiations, ajouts, retranchements et transformations, au fur et à mesure qu'il s'attache à ou se détache d'autres entités et des contingences, et gagne ainsi en consistance. L'enquête rend compte des dynamiques d'assemblage et de stabilisation sociomatérielle de propositions sonores et de leurs publics (spectatrice·teur·s, sondier·ère·s, artistes, organisatrice·teur·s et expert·e·s du son qui suivent cette sonorisation à haut risque).

Le son se situe alors entre une construction (intentionnelle, planifiée) et une facticité (qui s'impose), un auto-engendrement par les choses assemblées (Latour 1996). Ceci invite à le penser en termes de processus de matérialisation (Denis 2015 ; Denis et Pontille 2015) et de *modes of mattering* (Law 2010), faits de l'appropriation de choses multiples, éprouvées et accomodées et de leur assemblage *in fine* doté d'une acouستمologie (Lastra 2000 ; Feld 2015) laquelle est ici une manière de repenser l'histoire de cette Fête pluriséculaire et de se reconstituer comme communauté. L'assemblage est doté d'agentivité, à savoir une capacité à produire un son propre (Rot 2020), qualifié de pur et naturel, qui convainc, touche et émeut, et qui fait faire des choses aux publics, aux artistes et aux sondier·ère·s. Produit de l'activité, le son s'impose ; il influence celles et ceux qui l'ont produit. Œuvrant à faire advenir des sons qui convainquent, qui sont appréciés et résistent aux critiques et qui contribuent au spectacle et au bonheur d'y être, l'agencement sociotechnique produit des sons capables d'installer des effets durables et de transformer les collectifs qui les portent.

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DONKEY KONG'S LEGACY

About microprocessors as model organisms and the behavioral politics of video games in AI

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Abstract

The article discusses forms of contamination between human and artificial intelligence in computational neuroscience and machine learning research. I begin with a deep dive into an experiment with the legacy microprocessor MOS 6502, conducted by two engineers working in computational neuroscience, to explain why and how machine learning algorithms are increasingly employed to simulate human cognition and behavior. Through the strategic use of the microprocessor as “model organism” and references to biological and psychological lab research, the authors draw attention to speculative research in machine learning, where arcade video games designed in the 1980s provide test beds for artificial intelligences under development. I elaborate on the politics of these test beds and suggest alternative avenues for machine learning research to avoid that artificial intelligence merely reproduces settler-colonialist politics *in silico*.

Keywords: *artificial intelligence, machine learning, model organisms, lab studies, algorithm studies*

Introduction

Rose was one of the first researchers who I managed to engage in a longer conversation during my fieldwork in a British neuroscience institute in 2011. She was a very casual person, always chewing on a gum, an unperturbed look on her face, throwing truths around that I was not always prepared to hear. I had come here to observe those who study the human brain, yet what Rose told me is that many people in the lab I was visiting were “kind of largely outside the domain of understanding what the brain is doing. You’re more in the domain of understanding what the signal tells you as a methodologist”, she observed. “We tend to be more computational people”.

As baffled as I was in the beginning, my conversation with Rose raised my interest in computer scientists’ and engineers’ perspectives of the human brain. I was intrigued by the question about what happens when people, who would normally design circuits or code algorithms study the human brain *by their means*. If microprocessors are substituted for human brains in experiments, if machine learning algorithms are used to simulate aspects of human cognition, how does that affect our understanding of cognition and intelligence?

This paper is a study of machine learning algorithms in practice. It differs from studies of algorithms *at work* (Kellogg, Valentine, and Christin 2020) and of algorithms *as or in culture* (Seaver 2017), in that I focus on “agents” in laboratories – experimental algorithms that learn to simulate aspects of human cognition and behavior to illuminate the ominous human capacity of intelligence, and to help researchers in building intelligent systems. These are experiments where the digital tries to pass as a version of the biological. This paper is hence more firmly embedded in traditional lab studies (Knorr Cetina 1992) than in the burgeoning field of algorithms studies, yet it draws on the methods of both fields to get a grip on experiments that shift the boundaries between, or allow for the mutual contamination of human and artificial intelligence.

An experiment conducted by two computational neuroscientists is exemplary in this regard. The experimenters substituted a microprocessor that once powered the Nintendo Entertainment System (NES) and the Apple II for the human brain and ran old video games as example “behaviors” to analyze how the computer “thinks”. Their experiment was first and foremost meant and considered as epistemological critique: the authors provocatively ask why neuroscientists believe they could understand the human brain although the data analysis methods currently used in neuroscience cannot help elucidate the operations of the infinitely less complex MOS6502 chip?

I analyze how the experimenters selectively draw on laboratory experiments in biology to legitimate their decision to substitute a legacy microprocessor for human brains in scanners. Their argument supports a very specific analogy between brains and computers, which derives from mid-twentieth century attempts at modeling human decision-making on computers and suggests that anthropologists ought to study the scripts or protocols of simulations to get a grip on how cognition is reconceived in between human and machine.

At closer look, Jonas and Kording’s study is not only epistemological critique; it provides an inroad to the use of video games as replacement laboratories in the study of cognition and intelligence. Jonas and Kording’s choice of 1980s Atari video games like Donkey Kong as “naturalistic” behaviors is of particular interest, since it exemplifies a recent trend to consider these as “microcosms of the real world” (Markoff 2016). Against this backdrop, it is the video game as virtual laboratory or test bed that determines what counts as creative and intelligent in humans and machines.

Brains are not chips, but ...

My encounter with Rose in 2011 only marked the beginning of an extended engagement with computational neuroscience. I did not immediately notice how closely related the resurgence of artificial neural networks and changing paradigms of computational neuroscience were. Initially, I was too intrigued by the fact that most of the researchers I interacted with in neuroscience laboratories were focused on data and – as one PostDoc in a Swiss neuroscience lab told me – thought of research on the brain as “an interesting application of maths”. Some had just transferred from the field of security engineering, others had opted to analyze brain imaging data although they had originally wanted to become analysts and work in

finance. What they all had in common was that computers were their “lab” and data were their research objects. They ran experiments mostly in MATLAB, carefully modeling how the brain processes and stores information, based on data generated by scanning peoples’ brains. To test the resulting models, my interlocutors ran simulations and compared their synthetic data with those of their volunteers’ brain activity. In those tests, their models turned into artificial brains and the dividing lines between the study of human brains and the science of artificial intelligence began to blur.

This shift from experiments with real brains to simulations of artificial brains has accelerated in recent years. The lab is now more often found in data centers, and machine learning algorithms are substituted for real brains. Researchers hope to detect patterns in data of human brain activity, and by internalizing these patterns, learn to simulate aspects of human cognition and behavior. That is to say that the field has shifted, and labs have partially moved online. Besides lying in brain scanners and participating in experiments conducted in psychology laboratories, I spent months sifting through science blog posts, studying design documents of microprocessors, and engaging with the scripts and protocols of 1980s Atari video games.¹

In 2016, I came across an experiment conducted by two computational neuroscientists, who used a simulation of a microprocessor as an artificial brain, to test cutting-edge data analysis methods used to study the brain. The experiment already made waves when the paper was still in the review phase, accessible only through the online repository *arXiv*. Eric Jonas and Konrad Kording had applied methods typically used to analyze brain imaging data to study the operations of the chip while running 1980s video games such as Donkey Kong and Space Invaders. Although the two researchers were curious to see if they could come up with new insights on how the chip brings Donkey Kong to life, the results of their analysis were only of secondary interest. In fact, Jonas and Kording were sure that their experiment would fail.

The experiment was a clever hoax and a gesture of epistemological critique: if what in the real neuroscience world would be a millions-of-dollars data set does not result in some insights about how the processor works, why do we expect that the very same techniques would work on the human brain? Eric Jonas had come up with the idea to analyze the chip at work with cutting-edge brain imaging methods when he came across the *Visual6502* project, a collective effort of “retro-computing enthusiasts” to study, document, and preserve the microprocessor for generations to come (Yong 2016). Using highly detailed photographs, the *Visual6502* project had managed to produce a fully functional digital model and simulation of the chip, which allowed, among other things, to play 1980s video games on current computers (fig. 1).

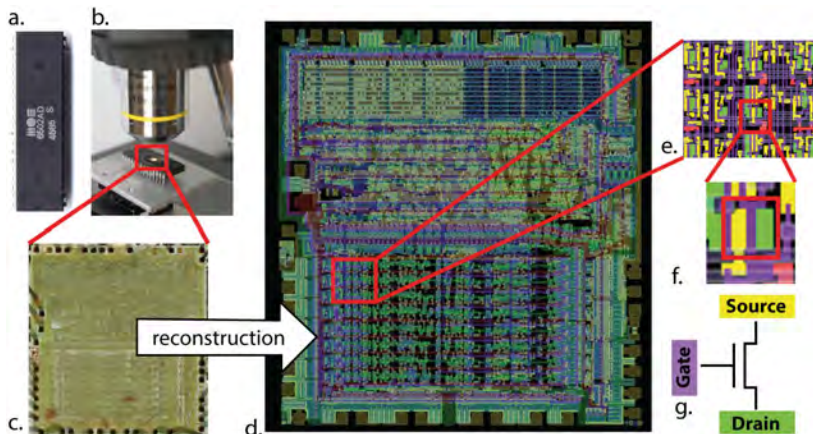
In an interview with *The Atlantic*, Eric Jonas explains how shocked he was that they used the exact same techniques as neuroscientists who are trying to map the brain’s connectome. “It made me think that the analogy [between the chip and the brain] is incredibly strong” (Yong 2016). Nevertheless, Jonas and Kording openly admit in their paper that the brain is not actually similar to a processor.

¹ See Tara Mahfoud’s review of ethnographies of neuroscience practice for an overview (Mahfoud 2014).

Neural systems are analog and biophysically complex, they operate at temporal scales vastly slower than this classical processor but with far greater parallelism than is available in state of the art processors. Typical neurons also have several orders of magnitude more inputs than a transistor. Moreover, the design process for the brain (evolution) is dramatically different from that of the processor (the MOS6502 was designed by a small team of people over a few years). As such, we should be sceptical about generalizing from processors to the brain. (Jonas and Kording 2017, 14)

At the same time, the authors point towards some – rather abstract – similarities in how the workings of human brains and microprocessors have typically been *analyzed*. Anthropologist Joe Dumit observed that circuit diagrams have for decades structured how neuroscientists and psychologists study the human brain through experiments with volunteers in scanners (Dumit 2016). In order to understand how the brain processes what we see, hear, and feel, experimenters still come up with mental tasks for their volunteers, to simulate mundane brain activity while they are lying in brain scanners, waiting for their thoughts to be turned into the meanwhile iconic images of the brain at work. In other words, experimenters activate their volunteers' brains in specific ways to understand how they work.

Figure 1: A visualization of the process by which the MOS 6502 has been optically reconstructed to generate a fully functional digital model of the chip (Jonas and Kording 2017).



The experiment that undergirds Jonas and Kording's paper tested these methods of contemporary neuroscience and substituted the brain of a volunteer with a legacy microprocessor that was primarily used to play arcade video games. Their argument in a nutshell: despite all the differences between microprocessors and brains, we should be able to understand what the MOS6502 does by means of methods developed to analyze the infinitely more complex human brain.

[W]e cannot write off the failure of the methods we used on the processor simply because processors are different from neural systems. ... Altogether, there seems to be little reason to assume that any of the methods we used should be more meaningful on brains than on the processor. (Jonas and Kording 2017, 14–15)

This line of thinking has a precedent. In 2002, the scientific journal *Cancer Cell* published a piece by cell biologist Yuri Lazebnik titled “Can a biologist fix a radio? What I learned while studying apoptosis” (Lazebnik 2002). Lazebnik elaborates on the frustration that takes hold whenever a whole field buys into the most recent hype around a specific target protein that promises to result in a miracle drug – only to abandon it altogether as soon as considerable doubt over the models and methods used arises. “I started to wonder whether anything could be done to expedite this event”, Lazebnik writes. “To abstract from peculiarities of biological experimental systems, I looked for a problem that would involve a reasonably complex but well understood system. Eventually, I thought of the old broken transistor radio that my wife brought from Russia” (Lazebnik 2002, 179–180).

The similarities between the titles of Lazebnik’s paper and that of Jonas and Kording are anything but coincidental. Lazebnik thought that what biology needs is an unambiguous language, adopted from engineering, to “change from an esoteric tool that is considered useless by many experimental biologists, to a basic and indispensable approach of biology” (Lazebnik 2002, 182). In similar ways, Jonas and Kording argue for the language and methods of data science to become central to research on the brain. That is, the necessity or significance of the biological substrate in experiments is called into question: why conduct complicated experiments with cells or human subjects if experimenting with rather simple, human-designed systems could make everyone’s lives much easier?

In both cases, the human-designed circuit stands in for the complex and messy organ to prove that scientific methods currently used must necessarily fail. The Russian transistor radio and the North American microprocessor, however, are not arbitrary choices—they “emerge from particular cultural worlds, not from some technical outside” (Seaver 2018, 379). As model organism, the MOS 6502 invokes specific technocultural practices that cannot be subsumed to the supposedly neutral domain of engineering but extend to the situated worlds of biology laboratories as well as to the cultural niche of 1980s Atari video games.²

Model organisms

“[W]e take a classical microprocessor as a model organism, and use our ability to perform arbitrary experiments on it to see if popular data analysis methods from neuroscience can elucidate the way it processes information”, Jonas and Kording (2017, 1) write. By referring to the MOS6502 as a model organism, they simultaneously re-engage the in many ways flawed brain-computer metaphor and a rich history of experimentation in biology and psy-

² I borrow the notion of “technocultural practices” from Kavita Philip, Lily Irani, and Paul Dourish, who use it in the context of tactics for postcolonial computing, referring to media technologies as constituting “the very cultural categories by which some seek to explain them” (Philip, Irani, and Dourish 2012, 14).

chology, where human subjects have been substituted with non-human animals to elucidate specific aspects of – typically disordered – human behavior.

Despite all the differences between human brains and microprocessors, comparing the MOS 6502 to model organisms in biology would seem to legitimize the experiment. Social scientist Nicole Nelson offers that model organisms are rarely a natural fit; “scientists themselves build up the case for their animal models through methodological experiments and arguments that bind together the animal model with the human disorder in a way that makes future experimental work possible and credible” (Nelson 2013, 7). Entire communities of researchers revolve around specific model organisms, a shared toolbox of experimental techniques and a common language that helps handle the – at times overwhelming – differences between humans and the non-human animal.

Jonas and Kording make a similar case for the MOS 6502 as model organism, which they describe as falling somewhere in between the nematode worm *Caenorhabditis elegans* and the lab mouse. The microprocessor sits at the intersection of their lab lives: whereas the mouse provides a fitting behavioral model, “the processor’s scale and specialization share more in common with *C. elegans* than a mouse” (Jonas and Kording 2017, 3).

Lab mice

According to the Jackson Laboratory on Mount Desert Island in Maine, CL57BL/6J is the most widely used inbred strain of laboratory mice. JAX, as the laboratory is also referred to, has its very own “black 6” that carries the letter J as a postfix to the code that unmistakably identifies the laboratory mouse as a commodity or “technical thing” (Rheinberger 1997). C57BL/6J “is a permissive background for maximal expression of most mutations”, the website states, and thus “used in a wide variety of research areas including cardiovascular biology, developmental biology, diabetes and obesity, genetics, immunology, neurobiology, and sensorineural research”³.

Despite C57BL/6J’s commodification, many science studies scholars and scientists themselves oppose considering lab mice as mere tools. The rodents that appear alongside amino acids, centrifuges, and other technical things in Hans-Jörg Rheinberger’s analysis of experimental systems in biology do not lend themselves easily to standing in for the human, particularly if they are to reproduce behavior that does not come natural to mice – such as binge drinking, for instance. That is to say that even the genetically modified CL57BL/6J, which supposedly has a preference for alcohol and morphine, remains averse to consuming extensive amounts of alcohol. How can binge drinking behavior in mice be “naturalized” if even genetically modified strains will not drink enough alcohol to exhibit blood alcohol levels comparable to those that humans seem to enjoy?

Sabina Leonelli and colleagues have analyzed the use of mice as situated models in North American alcohol research throughout the twentieth and early twenty-first century and

³ Please see Jackson Laboratory’s website for more detailed information: <https://www.jax.org/strain/000664>, accessed February 7, 2021.

found that environmental factors and experimental situations have taken center stage in discussions about the validity of mice to model human drinking behavior (Leonelli et al. 2014). Researchers cannot resort to any “unnatural” incentives or force mice into drinking without tampering with the phenomenon of drinking itself. To create a situation where the mouse adapts human behavior, the lab and the experimental setup must constantly be reconfigured. “Mice and humans, mazes and drugs, genes and behaviors, practical experience and widely recognized findings – all these are continually and carefully set in relation to each other to create a space that functions as credible site for producing knowledge about human behaviour” (Nelson 2018, 6).

Experimenting with *C. elegans* is supposedly easier, not least since its brain has meanwhile been digitally mapped. The nematode worm was a staple of the Human Genome Project (HGP) and has become a poster child of genetics research in biology. Despite being infinitely less complex than humans, *C. elegans* promised insights into certain common or even universal biological mechanisms. Differences in complexity have typically been smoothed over by a hypothesized common biological lineage, well-founded in the theory of evolution and formalized in the genetic code. Ruth Ankeny, who studied the use of worms in the HGP, cites a *Science* article from 1998, where Francis Collins – former director of the HGP – and colleagues argue that

all organisms are related through a common evolutionary tree [and] the study of one organism can provide valuable information about others... Comparisons between genomes that are distantly related provide insight into the universality of biologic mechanisms and identify experimental models for studying complex processes. (Collins, quoted in Ankeny 2007, 47)

Lab worms

Despite the fact that *C. elegans* is fairly atypical even compared to closely related organisms, it gained biological prominence because of its experimental manipulability and tractability: “an organism that proved experimentally straightforward to manipulate and had relatively basic behaviors and structures, but was not so simple as to be ‘unrepresentative’”, Ankeny writes (Ankeny 2007, 49). In fact, the experimental manipulability of *C. elegans* rests foremost on the ease of breeding an array of “actual material worms” – using the worm as a model organism therefore allows to construct what Ankeny calls a “data-summarizing descriptive device” (op. cit.). Thanks to its simplistic biologic make-up, it was the first multicellular organism with a completely sequenced genome and a known “brain”.⁴ Both are ideal types that do not exist in nature – thus “summarizing” and “descriptive” – but they provide stable models that permit investigating, analyzing and quantifying deviations from what is consid-

⁴ The *C. elegans* genome was initially completed in 1998 and updated roughly two decades later to include genetic variations and mutations (The *C. elegans* Sequencing Consortium 1998; Yoshimura et al. 2019). The wiring diagram of neural connections for female worms has been available since 1986; it was updated, digitized and complemented by the male wiring diagram in 2019 (Cook et al. 2019).

ered normal or biologically sound. The genetically modified and standardized lab worm is hence closer to being an experimental device or machine than to an actual living organism.

Jonas and Kording consider *C. elegans* as a fitting analogy for the MOS 6502 since the nematode worm is as different from the human as the microprocessor is from a brain. Experimenting on *C. elegans* is considered worthwhile not because it is biologically or physically similar to humans, but because worms appear to be infinitely simpler to control – especially if they are disembodied and dematerialized in simulations. In a companion piece to the paper that announced the completion of a digital atlas of *C. elegans* brain, (neuro)biologist Douglas Portman contends that a detailed simulation of the worm’s nervous system will allow “generating a virtual worm that ‘lives’ inside a computer” (Portman 2019).

In ways similar to the case of the virtual *C. elegans*, the virtualized MOS 6502 acts as a proxy for the human brain and was chosen as a model organism since “it is fully accessible to any and all experimental manipulations that we might want to do on it” (Jonas and Kording 2017, 3). And in ways similar to the case of the lab mouse, the experimental tasks for MOS6502 were chosen to mediate between behaviors that come “natural” to both, chips and brains. In fact, their choice of experimental task was not arbitrary – it reflects the experimenters’ familiarity with certain test beds and attendant technocultural practices.⁵

The games they play(ed)

In their paper, Eric Jonas and Konrad Kording half-jokingly admit that most of their colleagues

have at least behavioral-level experience with ... classical video game systems, and many in our community, including some electrophysiologists and computational neuroscientists, have formal training in computer science, electrical engineering, computer architecture, and software engineering. As such, we believe that most neuroscientists may have better intuitions about the workings of a processor than about the workings of the brain. (Jonas and Kording 2017, 3)

I write half-jokingly since their statement obviously represents an ironic use of field-specific language to say what many of my interlocutors in neuroscience laboratories emphasized: that they feel more comfortable experimenting with models and algorithms than with living model organisms. This sort of irony is well-known among ethnographers of computing cultures (Coleman 2010; Seaver 2017). It helps navigate the ambiguities of computational practice – such as data that are “of the world” and simultaneously “of the computer”, or test beds that are highly constrained, yet nevertheless pose as “microcosms of real-world problems” (Hassabis 2016). Engineers and computer scientists know very well that video games

⁵ I use the notion of test bed in dialogue with Orit Halpern, Jesse Lecavalier, Nerea Calvillo, and Wolfgang Pietsch’s “test-bed urbanism”, which describes how tests, experiments, and demos are increasingly embedded in real life contexts and thus have immediate effects on our lives (Halpern et al. 2013). See also Marres and Stark (2020).

do not resemble the real world; and yet, some problems and strategies coded into video games such as *Donkey Kong* (1981), *Space Invaders* (1978), and *Montezuma's Revenge* (1984) are currently omniscient in artificial intelligence research and determine the problems that artificial agents are supposed to solve.

At one of the current powerhouses of machine learning and artificial intelligence research, the London-based Google subsidiary DeepMind, many leading protagonists have experience in professional chess and video game design. Their very own brand of “neuroscience-inspired artificial intelligence” consists in augmenting commonly used machine learning approaches with mechanisms that are supposedly at work also in the human brain (Hassabis et al. 2017). To test the capacities of their agents, researchers typically resort to well-known games. AlphaGo, for instance, became famous for beating the reigning (human) Go world champion in 2016. A more recent version, Agent57, learned to master all video games originally designed for Atari computers that were powered by the MOS 6502. In these experiments, the chip is *not* the model organism; instead, the so-called “Arcade Learning environment” is reconsidered as test bed for general artificial intelligence. That is, the video game is for Google DeepMind's Agent57 what the maze is for JAX's CL57BL/6J.

Google DeepMind offers that video games are an excellent testing ground for machine learning algorithms. Their ultimate goal is not to develop systems that excel at games; rather, gameplay is used “as a stepping stone for developing systems that learn to excel at a broad set of challenges”. Video games reportedly force machine learning algorithms to develop “sophisticated behavioural strategies” and the high score provides “an easy progress metri to optimise against”. Indeed, Agent57 outscored the average human in each of the 57 Atari 2600 games it learned to play. According to Google DeepMind, it “performed *sufficiently well* on a *sufficiently wide* range of tasks” and would thus need to be considered intelligent (Badia et al. 2020).

But what form of intelligence is this? In *Donkey Kong*, the protagonist and Mario are kept in an endless loop of outwitting their opponent, throwing wooden barrels or climbing ladders to ultimately win (the heart of) the princess. *Pitfalls* and *Space Invaders* are similar in that they reduce life to surviving in adverse environments, where the protagonists have the opportunity to roam the virtual worlds at will and amass capital if they find ways to outwit their opponents and survive. Yet, analyses of the strategies that Agent57 and its peers developed revealed that they did often not satisfy this rather simple objective (Ecoffet et al. 2019; Lehman et al. 2020). For instance, in *Montezuma's Revenge* an agent exploited a bug to remain in the treasure room indefinitely and collect unlimited points, instead of being moved to the next level and finish the game.

The agents would often reach high scores while failing to solve the actual problem (Kraikovna et al. 2020). But does that mean that they failed? “If I put you in front of a computer game, you'll treat the point score as the objective”, a machine learning researcher put it to me while we were discussing DeepMind's experiments. “And it seems to me that this is quite a delicate thing, because you have every incentive to sort of lie to yourself and look for the loophole that lets you score high without actually finishing the game or even dying as quickly as possible”. Against this backdrop, it would seem that the sort of intelligence that machine learning algorithms exhibit when trained in the highly constrained worlds of 1980s Atari

video games is essentially that which video game designers expected human players to develop when they built cheat codes into their games.

If DeepMind researchers admit that many agents currently excel in exploiting loopholes, they reify specific cultural parameters of success that define intelligence as the ability to amass enormous amounts of capital without necessarily solving any problems. Against this backdrop, singularity acquires a whole new meaning: the general intelligence that is put to the test is modelled after a very specific and singular understanding of what human intelligence involves. It universalizes the idea of a player programmed into 1980s Atari video games and restricts the task of an agent to outperforming this benchmark. What the resulting artificial intelligence throws back at us is a radically provincial idea of human creativity, intelligence, and ability, courtesy of technocultural practices that derive from the domain of video game design in Europe, the US, and Japan.

Old games, new worlds

In concluding, I would like to return one final time to one of the most significant statements within Jonas and Kording's paper: the brain is not a chip! Throughout, the authors add qualifiers to the analogy between brains and microprocessors that should please all humanists and appease experimental psychologists and neuroscientists. Yet, what sits at the heart of their statement is a re-engagement of the failed brain-computer metaphor rather than its outright rejection. Jonas and Kording's choice to substitute a simulated version of the legacy microprocessor for the human brain in their experiment shows to what extent computing and cognitive science have for decades been entangled. While brains are no longer compared to computers, computational neuroscience has successfully implemented a language that allows to describe cognitive processes in the Cloud and in human brains in similar and compatible ways (Bruder 2019).

Again, this thinking has a historical precedent. In the mid-1950s, social scientist and artificial intelligence forerunner Herbert Simon and his colleagues at the RAND Corporation tried to model and operationalize human reasoning on the JOHNNIAC computer, to investigate a phenomenon Simon dubbed "bounded rationality" (Simon 1957). It was an attempt at exploring the very possibility of rational decision making and experimenting on the computer's capacity to circumnavigate the limits that biology imposed. Simon and his colleagues therefore implemented a program called Logic Theory Machine on the JOHNNIAC. In a paper published in 1958, Simon and colleagues offer that they "are not comparing computer structures with brains, nor electrical relays with synapses. Our position is that the appropriate way to describe a piece of problem-solving behavior is in terms of a program: a specification of what the organism will do under varying environmental circumstances in terms of certain elementary information processes it is capable of performing" (Newell, Shaw, and Simon 1958, 153).

In 1958, the JOHNNIAC put a strict limit on the complexity of human behaviors that could be simulated – both due to its insufficient computational capacities (Dick 2015) and the deeply North American technocultural practices that manifested in its design. The case of

MOS6502 is similar. While generally a multi-purpose processor, it comes with certain “naturalistic behaviors” which predetermine what “sophisticated behavioral strategies” *can be*. The player coded into 1980s video games is a liberal subject that conquers and stays, to accumulate capital and outscore existing benchmarks. The fact that these agents discover loopholes and bugs in video games is thus hardly “surprising creativity” (Lehman et al. 2020, 274). It proves that the agent performs sufficiently well in its task to mimic and outperform the player that was coded into the game. Against this backdrop, it would seem that it is not primarily the machine that contaminates our understanding of (human) intelligence, but that a very provincial understanding of the liberal subject, rooted in settler colonialist thinking and manifested in Arcade video games, bleeds into machine learning algorithms by way of the experimental task.

Nevertheless, this article is not to dismiss computational test beds, demos, and experiments; instead, it is an attempt at problematizing the notion that artificial intelligence must necessarily restrict our understanding of intelligence. The question that I would like to ask is whether we can avoid over-fitting agents to test beds that privilege exploitative strategies and winning at all costs? In other words, could the use of microprocessors and machine learning algorithms as model organisms incite experiments where what an organism *can become* is not determined by the design of its test beds?

A change of perspective on the laboratory and model organisms allows for very different mediations between the digital and the biological to come to the fore. In her analysis of mice as model organisms in post-genomic biology, geographer Gail Davies argues that the humanized mouse potentially offers a means of escape from the biological grammar of genomics. She observes that the “process of ‘becoming human’ opens these model organisms to biological relations, which are not only interior but also external, remaking relations between experimental subjects and objects, laboratory spaces and clinical contexts” (Davies 2013, 147). Hers is an invitation to study the humanized mouse as an object of patchwork, linking different fields and territories of scientific investigation and the continued exhaustion of nature (Tsing, Mathews, and Bubandt 2019). It may also be read as a call for attending to the epistemological and ontological opportunities of multispecies thinking, of thinking through, yet most importantly, beyond the roles that mice are relegated to in the lab: “not only are there many humanized mice in the world, there are also many worlds in the humanized mouse” (Davies 2013, 147).

In this spirit: there’s potentially more also to Donkey Kong’s legacy than the contamination of artificial intelligence through the situated technocultural practices of 1980s video game design. For instance, after youtuber @Hbomberguy played through Donkey Kong 64 in a gruelling 57-hour shift to raise financial support for UK trans charity Mermaids, his live stream on Twitch turned into a gathering of trans rights activists and claimed Donkey Kong as an icon of trans rights online, literally opening up new worlds in the humanized ape. This little episode from contemporary digital culture arguably shows how technocultural practices can be reclaimed and reconceived – a task that machine learning could valuably support if it waved goodbye to test beds and benchmarks that reward winning at all costs.

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FABRICATING THE INTEGRITY OF GOLD IN REFINERIES

Digital Visibility and Divisibility

Matthieu Bolay

Abstract

Gold refineries are under pressure to revise their understanding of “integrity” beyond the physical cohesion of gold products, in order to integrate supply chain due diligence on human rights, labour conditions, and conflict financing as part of what can be coined the ethical integrity of gold. This article interrogates how processes of erasure, through material purification in the refining process, and disclosure, through certification against “responsible” standards, are reconciled within one expanded notion of integrity. By paying specific attention to processes of digitizing gold in this endeavour (blockchain and ICO), it argues that, while limited in its role as a transparency device, digitization fosters new uses of gold, making it more liquid, more rapidly tradable, and potentially more speculative. These digital fetishes open new fields of value, not out of the gold itself but out of its traces, in which, paradoxically, artisanal ground producers selling physical gold remain poorly included so far.

Keywords: *responsible supply chains, integrity, gold refining, blockchain, digital fetishism*

Introduction

Our mission is to ensure the highest levels of leadership, integrity and transparency for the global precious metal industry by setting standards and developing market services. (LBMA Mission statement)

In an interview conducted in 2018, an executive of a Swiss gold refinery noted that

the industry has changed a lot in a very short time span. As refiners, our role has always been to guarantee the integrity of refined gold to build trust for the industries who trade it. For long, this meant achieving the GDL [Good Delivery List] standards¹ in terms of assaying, cast, marking, size and appearance, as well as our internal management. (...) But with

¹ The Good Delivery List is the list of refiners accredited by the London Bullion Market Association (LBMA), the refining industry association, to trade in the London market.

increasing demand for compliance and supply chain due diligence on human rights, we have had a lot to do with the responsible gold guidance [which the London Bullion Market Association (LBMA) made mandatory since 2012]. Still now, it's nothing easy.

And, as if anticipating a possible critique, he also added that “Maybe it’s true we were a bit late, and that we were not very prepared for that.”

Along with the rise of consumers’ concerns for ethical products and the risk of transnational embargos on so-called “blood” or “conflict minerals” (Jacka 2018), gold refineries have also had to revise their understanding of “integrity.” This new understanding of integrity, a central notion in this industry said to be the choke point between extractive industries and the sectors of jewellery, finance, and central banks, should be expanded beyond the physical cohesion of gold products, in order to integrate supply chain due diligence on human rights, labour conditions, and conflict financing as part of what can be coined the ethical integrity of gold. As the chief executive of the LBMA put it in a public statement, “Not only does gold have to be gold, but it also has to be responsible” (Crowell 2016, 6). This line of discourse suggests that the industry should be held equally accountable for the “sociality” of gold (Law and Mol 1995), as it constitutes an integral part of the material’s value that should be made visible and legible, just like its physico-chemical qualities of elemental purity. Within this newly defined “zone of qualification” (Barry 2006, 240), rather than only ensuring the “true nature” of the gold processed against counterfeits and standardizing its form and purity to make it commensurable with monetary concerns, as was historically their role (Vilar 1974; Green and Murray 2011), refiners are now expected to act as the international market’s barriers against flows deemed illicit or not compliant with human rights, as defined by the OECD Guidance for Responsible Mineral Supply Chains (OECD 2016).²

Based on this dual understanding of “integrity,” both physical and ethical, this article asks what qualities are produced, retained, or concealed to achieve the integrity of gold, as well as the role of digitally mediated technologies in this endeavour. In particular, it interrogates how processes of erasure, through material purification in the gold refining process, and disclosure, through certification against “responsible” standards, are reconciled within one expanded notion of integrity. The article thus tracks the fabrication of gold’s integrity and the practices developed to achieve it in the selective compartmentalization and (in)visibility of the social life of refined gold on the one hand, and the hybrid imbrication of mineral and digital materialities on the other. In doing so, it asks two questions. First, how is the possibly contentious ethical biography of gold mediated to enter the zone of licit and legitimate international trade? Answering this question not only implies paying attention to the materiality of gold, but also looking at the way gold goes beyond its identity as a resource to be mined (Richardson and Weszkalnys 2014) to become both a commodity and a financial asset – a double and ambiguous status already noted by Marx, who saw gold as the ultimate “money-

² The OECD (Organisation for Economic Co-operation and Development) Due Diligence Guidance for Responsible Mineral Supply Chains was launched in 2011 and became the blueprint for most “responsible” certification schemes in the extractive industries. It sets a five steps framework for due diligence on minerals from “conflict-affected” and “high risk” areas, amongst which the largely informal sector of artisanal mining is a main focus because of its association with various forms of exploitation.

commodity” (Marx 1976 [1867], 188). This analysis will depict the socio-material procedures of gold purification proper to the refining process, and it will delve into the techniques and legal categories on which refiners rely to address issues of security and integrity. I will pay specific attention to gold mined artisanally, for which concerns of ethical integrity are particularly salient. The discussion will mostly follow Switzerland’s legal categories, a country through which 70% of gold is estimated to transit.³ Second, the article will question how gold’s physical and ethical qualities, and underlying processes of erasure and disclosure, are assembled. To do so, I will focus on emerging trends of digitizing gold and traces of its trajectory in a zone of qualification deemed “responsible” and accountable for the social relations underpinning the extraction and trade of gold. This endeavour implies considering what Appadurai famously termed the “social life of things” (1988), which acknowledges that commodities are not “inert and mute, [but] set in motion and animated (...) by persons and their words” (Appadurai 1988, 4). Such a view of “things,” according to Appadurai, empirically actualizes one of the intuitions that underlaid Marx’s famous discussion of the “fetishism of commodities,” that is the masking of relations between people as relations between things. In making his argument, Appadurai advocates for a minimum level of “methodological fetishism” whereby only “human transactions and calculations enliven things” (1988, 5), which reinforces dichotomies between material and social orders. However, gold is a naturally occurring substance that has been entangled in techno-economic networks throughout history and in contemporary times; this entanglement, which constantly recalls its status of hybrid agent (Field 2019; Ferry 2020), will be discussed below.

Therefore, I take inspiration from works in science and technology studies (e. g. Callon 1991; Latour 1991; Latour 2006) to describe this endeavour of tracing and digitally “inscribing” gold’s qualities, acquired along its journey, as new “irreversibilities” (Callon 1991, 150). According to Callon (1991, 150), irreversibilities suggest mediation processes which render “impossible to go back to a point where [ascribed qualities] were some amongst others”. In the first half of the article, the analysis helps to show how certain qualities are stabilized, while others are concealed, in the making of the material’s integrity. It questions the extent to which such irreversibilities contribute to the making of new fetishes, as has been argued for fair and ethical schemes for instance (Hudson and Hudson 2003). In the second half, I seek to go beyond assumptions of “green-” or “bluewashing,” in order to look at the new forms, uses, and valuation of gold that this impetus for digital traceability produces. Before moving forward, the article gives a brief discussion on the dual meanings of integrity and purification, followed by a definition of what a refinery is and does in light of its role of “mediator” to the licit zone of the gold trade (Latour 2006, 58).

To do so, I rely on interviews with executives and technicians from nine refineries located in Switzerland, the UK, Dubai, and Mali (visits were conducted in the two malian refineries only), as well as with policy advisors and providers of digital traceability and compliance technologies.⁴ I also mobilize long standing ethnographic research among artisanal miners and gold traders in West Africa. Finally, I attended industry events, workshops, and webi-

³ https://www.swissinfo.ch/fre/m%C3%A9taux-pr%C3%A9cieux_la-suisse--carrefour-de-l-or/33666468, accessed 2nd February 2021.

⁴ I conducted 38 formal and informal interviews in Switzerland, the UK, France, Germany, Mali, and Guinea.

nars, during which not only compliance officers and CSR executives – the public face of the industry – but also engineers and technicians participated and debated technical options.

Purification and integrity

Refining lies at the junction of the so-called “upstream” or production, and the “downstream” or consumption and trade of the gold supply chain.⁵ Technically, gold refineries proceed with the material purification of gold from impurities, that is any other chemical element than Au (gold), up to a fineness of 99.99 percent, as is the so-called four “9” standard for gold bars. Subsequently, refineries act as socio-legal guarantors of the integrity of the bars they produce for the gold market.

Both “purification” and “integrity” have dual and converging meanings. Purification is defined in the Oxford dictionary as “the act of removing substances that are dirty, harmful or not wanted from something,” which then expands into two sub definitions. In a technical sense, this definition means “taking a pure form of a substance out of another substance that contains it,” but in a religious sense it means “removing evil from one’s soul,” which suggests an ethical process behind removing substance from a whole. Integrity can thus be understood as the result of purification, which consequently entails a similar divide between physical and ethical properties. Still according to the Oxford dictionary, integrity is defined as “the state of being whole and not divided.” However, in its most common use, as noted by McFall (1987, 5), integrity is also defined as a “complex concept with alliances to conventional standards of morality – especially those of truth telling, honesty, and fairness – as well as to personal ideals that may conflict with such standards.” In the case of gold refining, integrity speaks to both sides of these definitions, that is as a physically undivided whole (99.99% “fine” gold), and, more recently, as bearing qualities of honesty and fairness towards certain standards (“responsible” gold).

From an industry standpoint, what is at stake is that the technical purification towards obtaining fine gold inevitably goes hand in hand with erasing traces of its earlier states that would precisely give credence to claims of ethical integrity. The purification of bars and semi-finished products is thus not only a material operation, but also a social one, whereby the melting of gold from various sources, forms, and degrees of purity is turned into a new standardized item, cleansed from any trace of its previous social life. Such purification increasingly raises concerns surrounding what Les Field terms “uncontested assumptions” about the incommensurable exceptional nature and value of gold and its “alleged indestructibility and immortality” (2019, 176). As Field rightly notes, the assumed “indestructibility and [relative] immortality” of gold as a unique substance is a construct of western narratives, which have literally “liquidated” (2019, 166) other uses and conceptions of gold – a process which hints at the contentious ethical biography of gold. Take a ring, a bank ingot (“gold

⁵ While annual mined gold production was estimated to 3540 tonnes in 2019, LBMA listed companies only refined more than 5000 tonnes of gold, which stresses the large share of recycled gold. For a detailed mapping of the various actors and roles involved across the so-called global gold supply chain, see Verbrugge and Geenen (2020, Chap. 1).

bar”) or a smartphone component; the gold in these items can just as well come from a large-scale gold mine in Canada, date back to the colonization of the Americas and the systematic theft of golden adornments, or originate from one of the many informal artisanal gold mines that have boomed in mineral-rich, but economically poor countries, after the 2008 financial crisis. What is more likely, is that the gold from these items came from a mix of these sources and was aggregated and disaggregated, smelted and recast, sold and resold, and moved across the boundaries of the licit and the illicit an uncountable number of times (e. g. Bolay 2021). It is the industry’s construction of refined gold as both a circulating commodity and a financial asset – depending on its context of indexation in jewellery or finance – that continues to maintain the “public secret” (Taussig 1999) of gold’s often-contentious origin. As could be put after Taussig, by restricting the understanding of gold’s purification and integrity only to a material process, the refining industry has essentially demonstrated its ability to “know what not to know” (1999, 5–6), despite regular instances of the material resurfacing under the umbrella term of “dirty gold” (Bloomfield 2017; Pieth 2019). This emerging terminology echoes Mary Douglas’ classic thesis on purity and danger (2002 [1966]), in which she argues that notions of dirtiness reflect material and embodied forms of social pollution that question societal classifications, orders, and values. In order to maintain the integrity of individuals, and by extension of the group they belong to, ambiguities and contradictions that could threaten an established societal order tend to be either separated and excluded, or ritually transformed into a socially acceptable form or product. In this view, the technical work of erasure done by refiners is part of such a ritual transformation.

It is also important to note that “purification” in the social sciences, especially in the field of the social studies of science, also carries a signification that precisely questions such dichotomies between the social and the material on which refiners’ understanding of integrity is constructed. In *We have never been modern*, Latour (1991, 20–21) refers to purification as a process of continuously constituting separate social and material orders – those of humans and of non-humans – from hybrids of both. In this view, hybrids of nature and culture, like a gold bar, are purified from the networks of human and non-human agents that constitute them. Then, they are translated through works of mediation, for example in refineries, into interpretable objects. In Latour’s words, such processes point to an important distinction regarding the role and capacities of agents: while so-called “intermediaries” transport meaning without transformation, “mediators” can produce new irreversibilities and potentially enable new uses (Latour 2006, 58). In the next section, I expand on how refineries’ work of purification typically partakes in processes of mediation.

Gold refiners as mediating authorities

In most cases, the gold that enters a refinery for purification takes the form of *dorés*⁶, which designates non-standardized semi-purified bars chemically obtained out of the ore body at mine sites. However, the material to be refined can also include what the industry broadly

⁶ French term meaning “golden” used both in English and French for semi purified mined gold.

defines as “recycled gold,” which encompasses coins, already-refined bars, jewellery, and scraps obtained mainly from jewellery, dental, and electronic components. While metallurgy historians date the process and the fabrication of alloys malleable enough to be worked into jewellery and adornments in ancient Egypt back to 500 B.C., its current forms are closely tied to the emergence of national monetary systems, most of which used the gold standard, like in the UK where the value of the pound first started being fixed by statute to a weight and fineness of gold in 1717 (Schenk 2013, 19). With the emergence of the gold standard, the role of refineries shifted from merely providing an industrial smelting process to acting as guarantors of the gold’s value to national banks. This shift was substantiated by merging already-existing but separate processes and artisan works of smelting, assaying, and hall-marking into one single entity – the refinery – which then had to be accredited by the newly created Good Delivery List of the Bank of England in 1750 to enter the London Gold Market (Green and Murray 2011). Fire assaying consisted in testing the metal to define its degree of purity; refining consisted in enhancing this degree up to a certain standard; and hall-marking certified the product’s integrity regarding the standard. At the same time, issuance of paper money had to be backed in gold whose trade in London was not based on weight anymore, but on the face value of minted gold. This work of translating a naturally occurring substance with political considerations about the settling of central banks and later of finance banking, into a standardized financial artefact became the defining feature of gold refining.⁷

From this perspective, refineries proceed to a dual work of mediation and purification, following Latour’s terminology. On the one hand, refineries act as mediators in the production of hybrids (gold bars) to be traded within a qualified zone after having been assembled out of a network of physical substances, human labour, machinery and logistics, industry rules of compliance, international financial regulations, customs procedures, laboratory work, and other interconnected human and non-human agents and processes. On the other hand, refineries’ output is purified from all of these agents and their interconnections into a single, standardized, and commensurable product artificially made of purely “natural” gold. Hence, in demanding to transform the borders and entry criteria of the zone of the licit international gold trade in order to better account for the social and environmental conditions of gold production, voluntary regulations (such as the LBMA accreditation duplicated from the OECD guidelines) question the premises of this purification process. Through the idioms of transparency and responsibility, such initiatives pretend – although selectively – to render visible and legible the social life of gold and the networks that brought it into being prior to its legitimate and licit status as a commodity or financial asset.

Refiners thus inscribe the physical qualities of gold in a standardized cast or minted bar – broadcasting a serial number, a year of production, an assay, and the refinery’s hallmark against counterfeits, which in turn mediates the gold’s entry and future uses in the licit market. Yet, other authorities may also act as mediators to other zones of qualification earlier in the gold’s trail. For example, earth priests in Guinea perform sacrifices in which they inscribe gold’s qualities every time a new piece of land is about to be mined for gold (Bolay 2014). In

⁷ For instance, three of the current four major refineries in Switzerland were owned by the major Swiss banks (UBS, Crédit Suisse, SBS) (Lindt 2016).

doing so, they separate gold from their previous owners, *djins* who populate the underground and are said to be villagers' ancestors, so that the gold "stops moving" and, once it is stable, can be moved away from the realm of underground spirits in order to be handled as an object by the living. At a later stage, the central bank's officers in Conakry smelt the gold, assess its value, and inscribe its origin as "Guinea" into customs' export forms – even though it may have been smuggled from one of Guinea's neighbouring countries. In turn, the paper trail that these officers produce attributes qualities to the gold, both in terms of value and provenance, that enable its licit international shipment outside of the country. Refiners are thus one mediating authority amongst others, with the commonality that they conflate gold's material transformation – into raw ore, *dorés*, or minted ingots – with its rights to enter and be circulated within one zone of qualification in which successive irreversibilities are superposed but never contest their earlier versions.

Strikingly though, the material purification of gold itself may be almost anecdotal. If we consider that gold can be found in a purity of up to 23 carats, or 96 % purity, in certain regions of Guinea and Mali for instance, it means that there are very few impurities to remove until fine gold standards are achieved. This suggests that the value of gold is rather instilled through what Power (1999) calls "rituals of verification" rather than in the actual degree of physical integrity of the product, whose composition remains in fact hardly unchanged. Power's analysis of the audit society provides a fruitful entry point to understand refiners' role as mediating authorities. Indeed, it points to the dual characteristics of their verification practices, which always contain both "programmatic (normative) and technological (operational) elements" (1999, 6). As will be argued in the next section, these two components produce internal tensions surrounding the different normative definitions of gold's integrity as both physically true and ethically responsible, and antagonist operational processes of erasure and disclosure.

Reconciling physical and ethical integrity?

In another interview conducted in 2019, the head of a refinery explained the following:

You have to see the industry as a fortress. There are countless attempts to make fraudulent gold [including authentic gold with counterfeited hallmarks] enter the trade, and we have to protect it and constantly develop the technologies that allow us to do so. Otherwise, it's mainly compliance work and doing one's due diligence, and above all, it's about trust.

While the question was explicitly directed towards the operational elements of the authentication and refining process, the interlocutor implicitly assumed that the "programmatic" element of refineries was essentially to ensure the gold's physical integrity. The fact that refining did not only entail a material purification, but also a social one which erased all past traces of its production, was somehow dismissed as a technical, and inevitable, consequence of the industrial process of refining gold.

This emphasis on the operational, rather than on the normative, is especially salient in industry conferences, such as the LBMA biannual summit, where accredited refineries meet and share expertise. During one such event held in London in 2019, the largest and most attended session was devoted to “security and integrity.” Successive speakers described how their companies dealt with hallmarks’ counterfeits, identified scams, produced reference material to calibrate the purity analysis, developed sampling procedures of assaying, or secured transportation from the mines. Integrity, in this context, was essentially about ensuring that the batches of *dorés* or recycled bars entering the refinery were indeed composed of “real” physical gold to the same degree than what their suppliers claimed. This was indeed confirmed in a live poll, which showed that the first-ranking consideration of refiners in the audience was to identify counterfeits – for instance gold plated tungsten bars with a similar density to gold. Somehow, this shared concern appeared not to be so different to that of Antiquity’s roman craftsmen who worried about being cheated with substitutes and plated alloys (Oddy 1983, 52).

Strikingly, in spite of the emphasis placed on “responsible sourcing” and the importance of gold’s ethical integrity during the opening speech to the summit by LBMA executives, this second face of integrity seemed to be much less of a practical concern in the audience. While this might be interpreted as an illustration of the industry’s focus on the “theatricalisation of virtue” (Rajak 2011), rather than on enforcing normative changes in light of “responsible sourcing” initiatives, discussions with technicians, engineers and managers, who made up most of the audience, suggested instead an organizational “decoupling” (Power 1999, 95–97) of integrity’s two facets (physical and ethical) within companies. Ethical integrity was perceived as a legitimate concern, yet beyond the scope of their job.

The question of whether refineries ultimately also had to protect this ethical integrity however, was not totally eluded. Anxieties surrounding the origin of gold often gushed as a personal and moral concern, as explained by the head of one refinery’s laboratory:

All of a sudden, we are accused of supporting child labour and causing environmental harms. It's not just about the company's reputation. Personally, I don't want to be associated with that in any way. But we are not miners, what can we do?

This interlocutor continued to explain how he had volunteered as part of one of his company’s corporate social responsibility (CSR) programs to provide technical training to aggregators’ partners in Peru, so that they would be better equipped to distinguish their sources and avoid taking and mixing gold from “dubious mines.” This engagement towards making gold more ethical was thus framed as a personal engagement, distinct from his actual job. Similarly, at one company which provides small Swiss jewellers with gold labelled as “fair trade,⁸” the chief of operations explained that this new product had been integrated as an initiative of her own, as she felt that “[she] had to contribute in some way,” thereby separating her personal ethics from her company’s core business.

⁸ For a discussion of fair trade gold, see Oakley 2015.

Hence, small and medium companies see a transformation in their roles of guarantor, but they do not perceive themselves as being sufficiently equipped to protect “the market,” not only against counterfeits, but also against contentious origins and conditions of production. Large corporations, however, have for long integrated CSR and compliance officers within the dedicated branches of their organizations. At one such major refinery, this problem was unambiguously resolved by separating the production lines according to the declared provenance of gold, thereby enriching and diversifying the qualities attributed to refined gold:

We provide different goods. We can propose our clients three bars which have exactly the same characteristics. Physically, they are identical in all respects, be it their provenance. One bar originates from an industrial mine, another from recycled and the third is labelled fairmined. That's why [fairmined] is only part of our CSR. (...) As we can see so far, this production [of certified “fair” gold] is too small in volumes to be economically viable. It can find its way among certain jewellers, but otherwise it doesn't have much impact on the act of buying [in the investment or banking sector].

By inscribing provenance as a new quality, this refinery – like others financially and logistically equipped to do so – would speak to what Oakley termed the various “facets of gold’s social identity” (2015, 158). In the western world, the most prominent facets are “elemental gold,” as a morally neutral element culturally determined by scientific definitions (2015, 159), and “economic gold” for its propensity to store, transport, and convert value (2015, 160), which in turn may convey moral consideration depending on its uses – for instance, in money laundering (Pieth 2019). Information on the provenance of gold thus adds a new facet to this analysis. As a response to growing campaigns against so-called “dirty gold,” some refiners, jewellers and luxury brands have started labelling some of their gold as “ethical” (Bloomfield 2017), allegedly to allow customers to make ethically-informed choices regarding its origin, despite the fact that it is the same elemental gold with the same economic value. Yet, the transmutations of “same gold” into different forms reverberates into legal classifications that tend to neutralize the ethical dimension of gold’s social identity.

Gold’s ambiguous materiality: commodity, jewellery, financial asset

The segmented logics presented above, between protecting gold’s physical integrity and taking into consideration ethical integrity as an additional concern, appear to work as a prolongation of the organizational decoupling between the maintenance of a status quo in core business on the one hand, and CSR investment on the other. One of the reasons to maintain this segmentation of integrity is that the “rituals of verification” (Power 1999) performed by refineries simply cannot accommodate contradictive normative purposes within the same operation. Indeed, the history of the gold industry clearly shows how the purification of the material contributed to the cleansing of its past lives to facilitate its entry in a zone of licit and legitimate trade. Swiss sociologist Jean Ziegler (1997) demonstrated, for instance, how the laundering by Swiss banks of gold held by Jews during World War II relied on coordi-

nated efforts to convert stolen assets into legitimate financial products for the Reich. Later, Sandra Bott, Sébastien Guex, and Bouda Etemad (2005) showed how an alliance of banks and refineries circumvented the embargo on South African gold production during the apartheid period in order to turn illegitimate South African gold into legitimate Swiss gold. More recently, a series of scandals revealed that several Swiss refineries participated in laundering gold used to finance conflicts (Pieth 2019). Hence, in all of these cases, it appears that the operational pursuit of gold's physical integrity goes hand in hand with the normative erasure of its contentious origins and past ownership.

This programmatic erasure in gold refining is neither just an activists' "fantasy," as was suggested in an interview by the CEO of one major company (Budry Carbó 2019), nor just a burden of the past. This double process of erasure and inscription conducted by refineries is enforced via legal classifications derived from the ambiguous materiality of gold inherited from the emergence of this industry as a subcomponent of banking. While gold is traded as a material commodity, it is legally treated as an abstract financial asset by the Swiss government since "the movement of precious metals is more closely related to payment transfers as a substitute for paper money than it is to the movement of commodities to be processed or used."⁹ Consequently, Swiss customs only have three classifications for gold: "unwrought," "monetary," or "jewellery" – while, for instance, cocoa imports are divided into no less than 45 categories based on quality. Only jewellery is subject to taxes, whereas monetary and unwrought gold are both treated as abstract financial assets, which means that the categories used to register gold are based on its material form rather than on its quality (in terms of purity) and value.

In addition, only the origin of mined gold is scrutinized through the LBMA Responsible Sourcing Program, while monetary gold and jewellery are considered "recycled," and thereby provenance-free. Playing on form has thus become a strategy of non GDL accredited refiners to access licit markets. For instance, newly-established companies in Bamako, Mali, seeking to seize the large artisanal production in the region, have acquired industrial technologies to pour mined gold directly into basic jewellery for export. A recent study also showed that gold from artisanal mines was massively imported by investors and refineries in Dubai, where it was then transmuted into jewellery, before being refined as "recycled" gold and transmuted again into licit gold bars (Ummel 2020).

Thus, the legal and institutional context meant to regulate the circulation of gold sustains its ambiguous and unique conception, whereby its legal qualities are not attributed according to its actual state and circulation as a material commodity. Instead, in alignment with outdated monetary concerns associated with the banking sector, gold is qualified according to its material form and thus becomes a "liquid" financial asset, like a currency, in LBMA chief executive's phrasing. Consequently, issues of provenance and product traceability have been largely circumvented, not only because of the technical limits of tracing a fungible, indestructible, and therefore continuously recycled substance, but also because of gold's ambiguous legal status, perpetually shifting along with its form.

⁹ https://www.swissinfo.ch/eng/business/international-trade_counting-gold-in-switzerland/41417986, accessed 2nd February 2021.

Whereas information on gold's provenance – albeit undisclosed – is overall perceived as relatively uncontentious for industrially mined gold, the story changes with gold coming from artisanal sources, whose social identity conveys stigmas of conflict and exploitation. With rising extraction costs and an increasing reliance on artisanal sources (Verbrugge and Geenen 2020), which represent close to 30 percent of global gold sources, the production of ethicality has become a prominent issue to allow artisanal gold to enter licit markets.

Artisanal gold, the ethical shifter

As for other highly valued mineral substances like diamond or gems (e. g. Calvão 2019; Cartier, Ali, and Krzemnicki 2018), the notion of transparency has been upheld as the means towards expanding gold's integrity to both its physical and ethical qualities. Transparency, broadly understood as the disclosure of information, is believed to “empower the weak [including small scale producers] and hold the more powerful [such as the refineries and their clients] accountable” (Mol 2015, 154). Following this logic, one way to provide more transparency lies in the traceability of gold, that is the ability to “track (from mine to market) and trace (from market to mine)” (Cartier, Ali, and Krzemnicki 2018, 212), upon which due diligence guidelines set against the LBMA Responsible Sourcing Program are expected to be conducted.

For the largest volumes of gold extracted industrially, traceability mainly translates into the systematic documentation (via paper trail for example) of *dorés* from the mines to the refineries, with whom they usually have exclusivity contracts. Refiners agree that, although it requires high “compliance costs,” tracking gold does not pose too many logistical issues. Indeed, the enclave model of industrial extraction implies shipping gold without any go-betweens other than air fret and security transport firms, which makes traceability easy to achieve. Yet, as explained by several refiners, most anxieties conflate around the possible “contamination of flows” by artisanally mined gold, which, because of its widespread association with crude forms of exploitation, is classified as “major risk” in the OECD guidance and its LBMA replica.

Nonetheless, a new trend towards more direct sourcing was elicited in the closing remarks of the 2019 OECD Forum on Responsible Mineral Supply Chains, during which refineries were urged to source from the artisanal sector and encouraged to see artisanal mines as an opportunity rather than a risk. The rationale underpinning this new position entails two dimensions. First, that refineries should enable licit routes, assume the high compliance costs associated with them, and thereby “contribute to development” in the Global South. Second, that with decreasing deposits and rising extraction costs, artisanally mined gold is essentially a cheaper supply source, as noted by the director of Metal Focus at the LBMA 2019 responsible sourcing workshop.

As you know, the cost of compliance [for artisanally mined gold] is exceptionally high, and it's rising. Yet, if you speak with many refineries, many of them will tell you that the value added to the product is rising so much, or certainly not keeping pace with the increase in compliance

costs. (...) Even with the risks, the fact that the artisanal sector is such a large area and that we see global growth in mine production slowing combined with a continuous drop in recycling, makes it a tremendous opportunity for the industry.

In other words, artisanally mined gold is always profitable. The issue is that the social identity of artisanal gold can never be neutral. The same gold can either be charged positively as a manifestation of corporate benevolence in supporting the livelihoods of mining communities and fostering local development (e.g. Childs 2014), or, conversely, be charged negatively as a way for corporations to profit from crude forms of exploitation (e.g. Bloomfield 2017). Hence, whether gold can be considered legitimate (or not) to enter the zone of licit trade under the LBMA banner, depends above all on the compliance infrastructure put in place by refiners and other actors along the supply chain, or what these actors refer to as “the burden of audit.” Put differently, anxieties of “contamination” reflect what can be coined as “dangers of social pollution,” which audits are meant to prevent by normalizing possible ambiguities to reach unequivocal interpretations (Douglas 2002 [1966], 58–59).

Yet, given the high costs and increasing distrust of audit firms cumulating roles of clients and guarantors, and acting as consultants rather than accountants (Shore and Wright 2018), a new trend towards delegating traceability and trust to decentralized digital ledgers, also called blockchains, has attracted considerable attention in the space of gold refining, notably for making artisanal gold licit. The second half of this article will thus interrogate how this technology is used by analyzing the industry’s attempts to accommodate gold’s ethical and physical qualities within one expanded notion of integrity. I suggest that, in view of its initial purpose, blockchain works as an intermediary, in Latour’s words. Indeed, this technology is able to displace fetishism onto the digital without transforming the interpretation of the object it carries. But once in operation, the technology also becomes a mediator and enables new uses of gold.

Digital fetishism and divisible integrity

As outlined in the previous sections, refiners face conflicting issues in fabricating gold’s integrity, as the process needs to accommodate physical purification (erasure) while ensuring its traceability and ethicality (disclosure). These conflicting issues lead the industry to envision differential integrities: that is ethically different, yet physically identical gold items. Compliance to certifications – or their absence – inscribe gold on an ethical continuum based on its degree of traceability, ranging from gold noncertified by Good Delivery listed refiners, GDL listed refiners, single mine origin (SMO) gold, to fair trade gold. These qualities are substantiated in separate supply chains and production lines whose segregation manifests the difficulty of refineries to accommodate two conceptions of integrity that are in fact drastically opposed. Here, I discuss the perceived potentialities that a new digital technology – blockchain – has crystalized in the industry of gold refining to accommodate the conflicting physical and ethical integrities of gold.

Gold on blockchain: from intermediary to mediator

Blockchains are public or private distributed digital ledgers that are said to be able to “support chain of custody through a system that makes documentation tamper-proof and, potentially, provides new opportunities for traceability” (Cartier, Ali, and Krzemnicki 2018, 221). The main appeal of blockchain in the refining industry is that its decentralized architecture, like cryptocurrencies for which the system was initially developed, allows to digitally record and verify every transaction in an encrypted “block” so that it can be stored in an immutable ledger (Calvão 2019). At first sight, blockchain can thus be considered as an “intermediary” for acting merely as a repository – an immutable ledger – able to “transport meaning without transformation” (Latour 2006, 58). Refineries, in turn, maintain their role as mediators by attributing unequivocal interpretations to gold. Yet, a closer look at the uses of the technology suggests that blockchain may also become a “mediator.” Indeed, by transmuting physical gold into the digital, the technology can also produce new irreversibilities and enable new uses.

Blockchain-based traceability systems are appealing because they might make centralized and costly third-party auditing redundant, by creating immutable digital traces of the gold’s journey without compromising the privacy of ownership along its trail. As put by one refiner, “the good thing is that we can store verified information, and above all control with whom it is shared.” The second appeal is cost, as presented by an IT engineer at a training workshop for smelters and refiners:

Blockchain does not rely on WET code [Write Everything Twice, or humanly repeated coding prone to errors]. It operates without the need for inputs from people. Once you have invested in the infrastructure, what is great with blockchain is that everything is DRY code [Don’t Repeat Yourself, or automated coding] and it functions autonomously.

As a result, besides privacy, the main advantages identified by the proponents of this technology were that human errors could be eradicated and costs could be minimized, because as noted by the IT instructor “once implemented you just have to maintain one copy of that blockchain which is propagated to the other nodes.”

As defined by the instructor quoted above, blockchain works as an “intermediary” for it defines the relationship between actors such as refiners, suppliers/clients, or producers. Blockchain “describes their networks,” (Callon 1991, 139) which include the human and non-human actors at stake in the transaction, such as gold and its recorded qualities, the price, the traders, producers and the refineries involved; and once inscribed onto the ledger, this description is irreversible. From this perspective, the technology raises paradoxical expectations. As an intermediary, blockchain has the purpose of dis-intermediating relations, such as auditors’ brokerage, since it can circulate on its own through automated and autonomous coding. At the same time, the irreversibilities blockchain circulates on ledgers are inevitably based on human appreciations at the entry point, or what industry actors refer to as the problem of “garbage in, garbage out.” What is left is thus an immutable description of the network at successive stages of the supply chain, whose transparency of operation is

the product of an “institutionalised second-order description” (Strathern 2000, 313), for example reports written by a compliance officer or an NGO delegated for this purpose. Against utopian visions of an automated post due diligence future, no longer based on “reasonability, judgment and ethical self-fashioning” (Maurer 2005, 476), but on *DRY code*, most of the interlocutors agreed that transparency would still require “boots on the ground,” as one LBMA executive put during an industry talk.

So, if blockchain technology cannot replace a “qualitative mode [of due diligence, which is] the production of narratives that make visible certain actors, relationships and processes in the past” (Hansen and Flyverbom 2015, 878), it nevertheless can store and circulate records of both the physical and ethical qualities of gold into an “algorithmic mode of due diligence,” thus producing truths where numbers are believed “to speak for themselves” (2015, 883). Most importantly for refiners, the blockchain system allows to keep the content of each encrypted block secret, as they gain their authentication strength only in relation to other blocks. Thus, as an intermediary, blockchain does not change the normative aims of rituals of gold verification. Rather than attempting to “counter the pervasiveness of commodity fetishism [by making] visible and relevant the social relations that underlie production and exchange” (Hudson and Hudson 2003, 413), including those of small-scale miners within the gold supply chain, blockchain as an immutable ledger, may reinforce fetishism by becoming a fetish in itself, like labels, certifications, and audit reports.

However, the operational side of the blockchain system also deserves attention, for, like any technology, it generates “novel and previously unthinkable” options (Callon 1991, 132). In particular, the digital tokenization of gold points to its role of mediator whereby bars’ physical and ethical integrity becomes divisible. To allow a systematic record of transactions – or networks descriptions in Callon’s words – one of the premises of the technology is that gold and its various qualities get to be digitally encoded at different stages. While this was often presented as a technical detail within a larger infrastructure of traceability, once digitized, gold becomes not only traceable, but also divisible and tradable at any scale without necessarily relying on intermediaries such as banks, refineries, or exchange traded funds (ETFs). This means that any portion of gold physically stored in a vault and digitally inscribed in a block, be it the 0.01-gram portion of an allocated bar, or a redeemable large bar of 12.4 kg, can be acquired or sold instantaneously. Similarly, the gold’s ethical integrity could be divided through so-called mass balance, whose principle allows to mix certified and non-certified materials if the exact volumes entering the supply chain are controlled with equivalent volumes at the exit point. One single bar could thus be encrypted with various ethical inscriptions, such as a certain percentage smelted out of standard GDL compliance gold and another out of a fair-trade certification scheme.

The paradox of de-materialising gold to make it more liquid in trade, while resorting to its materiality for valuation purposes is not new. For instance, Elizabeth Ferry (2020) interrogates the role of gold’s materiality as a source of value in finance, in particular in the case of so-called “paper gold” to designate gold in Exchange Traded Funds (ETFs), which are investment devices that allow the buying of shares in a basket of gold indexed to the price of the commodity in order to trade them without having to physically possess the material (Ferry 2020, 106–107). With ETFs, Ferry shows how gold plays contradictory roles “acting

both as a sign of speculative practice and marker of probity and ‘real value’” (2020, 93) and thus “straddles the seemingly opposing poles of solidity and speculation” (2020, 97). By looking at digitized gold on blockchain technology, I bring in other forms of gold in between these two poles, which I illustrate through the cases of gold-backed cryptocurrencies and the tokenization of gold traces in digital coin offerings (ICOs). Indeed, such digitized forms also convey contradictory representations of gold as a physical store of value and as a source of speculation. However, they do so in ways that seek to conciliate both through transparency devices that make certain qualities of gold’s integrity visible, and thereby its digital form tangible.

Digitized gold in gold-backed cryptocurrencies

In the space of cryptocurrencies, blockchain technologies are increasingly mobilized both to establish a link to gold deemed more direct than through ETFs, and to circumvent the regulations applied to these financial instruments. Various cryptocurrencies backed with digitized gold have recently been developed either by refineries, or with the support of refineries and vaults. These are meant to open a new space for investment in between “paper gold” and “physical gold” with the aim of appeasing what Ferry coined as “anxieties [conveyed by ETFs development] concerning the continuing creation of financial vehicles and instruments and their relationship to so-called ‘real value’ as embodied in tangible objects” (2020, 107).

Gold-backed cryptocurrencies usually follow the same logic. LBMA certified gold bars are encoded in a blockchain with a fixed corresponding number of digital tokens. In contrast to highly volatile cryptocurrencies whose market value is assumed to rely on unregulated offer and demand only, digitized gold tokens promise not to be worth less than the spot price of the physical gold of which they are meant to act as a more “liquid” digital double. One token is usually equated with common metrological standards of one gram or one tenth of a fine troy ounce. Tokens are thus issued as a digital proof of ownership of allocated gold in a vault, tradable anytime without an intermediary (other than the blockchain which supports it), and redeemable into physical gold. Many efforts, which largely resort to visualization techniques and a segmented access to the insurance data of gold’s integrity provided by refineries, are consequently deployed to render these digital assets tangible. By way of example, after purchasing ethereum – a popular cryptocurrency – from a crypto trading platform, I could use them to buy digitized gold tokens on several other online platforms. Much of these providers’ rhetoric revolved around direct ownership and transparency, which epitomizes ideals of dis-intermediation common to blockchain proponents.

Direct ownership is substantiated in the access to pictures of the physical gold bars, audit data, purchase receipts, assay certificates, responsible certifications, and asset identification on the dedicated blockchain, which speak to the ethical and physical integrity of the product. In providing this data, blockchain works as an intermediary repository, which does not actually provide additional information – or more transparency – on gold, but rather enables the storage of previous inscriptions within one block. As a result, digital traces that have been

produced to credit claims either of ethical (responsible certifications) or of physical (refiners and assayers' certificates) integrity cohabit and are attached to one single item. In Birchall's words (2016, 157), in this case the blockchain serves a "management of visibility" rather than of "visuality" that would inform on the conditions determining the scope of looking. Although such systems display qualitative and quantitative transparency features, they remain tied to the refinery as the sole mediator and guarantor of gold's integrity and, thus, exclude earlier segments of the gold's social life – an information which is of little concern in the field of investment, for which digitized gold is designed.

It is precisely in the field of investment that blockchain ceases to be just an intermediary and becomes a mediator in Latour's sense (2006, 58). Once encoded and transmuted into digital tokens, physical gold bars are divisible and instantaneously tradable, which enables fast trading on small price variations – as is commonplace with cryptocurrencies. This is a stark contrast to dominant conceptions of gold as a safe haven asset suited for long term investments. Through such uses, transparency is further performed by the possibility to track the blocks and attached transactions. Such visualizations of transparency, by making lists of encrypted hashes visible, yet incomprehensible, partake in a paradox pointed by Birchall (2011, 14), in which while technologies of "transparency attempt to promote trust, we still have to trust in [their] procedures and promise." From this perspective, blockchain, as an intermediary, accommodates various traces of integrity, including ethical certifications. However, as a mediator, blockchain does not translate gold towards a consubstantial physical and ethical integrity, as its proponents' claims to a superior form of transparency would suggest, rather the technology produces a new fetish – more liquid and easily tradable.

Digitized gold traces in ICOs

If digitized gold maintains ethical and physical integrity segmented, what does the technology do when it is precisely mobilized to counter the tendency of commodity fetishism? Among the various technology providers interviewed who were involved in pilot projects for tracking and tracing artisanal "ethically" produced gold using blockchain or compatible infrastructures, several mentioned that, in the absence of substantive financial support from the outset, the technology was very hard to implement. Besides the expensive digital infrastructure itself, traceability of small quantities originating from various artisanal mines requires considerable additional labour. For instance, in a pilot project in the Democratic Republic of Congo (DRC), artisanal miners, grouped in cooperatives supervised by a Canadian NGO that implements the due diligence, can sell their production to a registered buyer who collects and registers all purchases on paper before bringing them to a dedicated buying house. There, all purchases are segregated from those of other mines. Then, they are logged onto a digital traceability platform together with copies of the paper trail for export, thereby allowing full chain of custody for the importer. As was explained by one manager of the project, this process of traceability requires continuous additional monitoring work by technicians, registered traders, NGO and cooperative members, which is not compensated at the buying price, and ultimately represents under ten kilograms of gold per year. Allegedly

working on small margins, refiners, who are the only gateway to the licit market, consider such a quantity of gold not profitable enough.

One way to circumvent this “loop,” according to another traceability and blockchain protocol provider, would be to “tokenize” the gold in order to attract funding by settling an Initial Coin Offering (ICO). ICOs are an emerging funding mechanism, especially popular in the economic space of start-ups, which consists in issuing “tokens” on the model of cryptocurrencies that can be purchased from a limited stock at a defined time before the launch of the project. Unlike shares in the stock market, the acquisition of ICO tokens does not credit ownership on parts of the issuing company, but it does give a right to access the products or services provided by the company.

For instance, one blockchain provider, involved in a pilot project of traceability for artisanal gold, explained how his company was in the process of tokenizing not the gold, but “smart contracts” to trace the gold, to enable the decentralized traceability network to work. Every transaction, transmutation of gold, and due diligence data would be encrypted in a block, just as in the previous example, but in two separate hashes. Subsequent owners or companies, later in the chain, would then have to use the issued tokens to decrypt the data assembled from different blocks, store them and re-encrypt them, adding their own compliance data, into two separate hashes and data packages, and so on. Through this process, the system promises to maintain privacy while enabling decentralized verification,¹⁰ but at fluctuating costs depending on the token’s value. As this interlocutor put it, “the ICO allows us to raise funds and finance the system, but if our tokens become too expensive it can also be an impediment for the network to grow.”

In contrast to ETF “paper” gold documented by Ferry (2020), or to refined gold-backed cryptocurrencies presented above, tokenization processes delineated here do not bank on the financial value of physical gold, but on the production and access to traces of its physical and ethical integrity. From this perspective, the assumed intrinsic value of physical gold purified to a degree approaching the chemical “purity” of the element Au, as often argued by industry actors, or its alleged natural scarcity, as traditionally argued by economists starting with Marx (Schoenberger 2010, 3), should be nuanced in favour of its successive inscriptions into qualified zones of valuation. Rather than the material itself, the illustrations above suggest that gold gets much of its value through irreversible translations and transmutations at the intersection of natural, social, and digital orders, yet without necessarily redistributing this value down to the miners.

Conclusion

By tracking how gold’s dual dimensions of integrity, physical and ethical, are fabricated in the purification process of refining, this article has depicted the socio-material techniques deployed by the gold industry to accommodate seemingly irreconcilable processes of erasure

¹⁰ Privacy is ensured through the principle of self-sovereign data, meaning supply chain, certification, and supporting data are visible only to the owners of the data, and not to third parties or other users of the system.

and disclosure. In doing so, it followed how gold's qualities were inscribed through mediations and transmutations into different material (jewellery, *dorés*, gold bars) and non-material forms (financial assets, digital tokens), hence enabling it to cross the boundaries of the licit and the illicit, the legitimate and non-legitimate, and to neutralize or activate markers of (un) ethicality.

Though most of the responsibility apparatus of refining companies maintains a segmented understanding of gold's integrity, along with well-established corporate strategies of decoupling business and CSR, the irruption of a new digital technology, blockchain, meant to decentralize verification processes, brings promises to accommodate gold's physical and ethical qualities within one expanded notion of integrity through new performances of transparency. In addition, blockchain appears to fulfil more than just one function. As an intermediary, it prolongs fetishism, and reinforces the segmentation of integrity in a digital and immutable order, which maintains the industry's logics of decoupling rather than enforces more accountability towards the producers. However, once in use, blockchain appears to act beyond its role as a transparency device. By inscribing physical gold into an encrypted digital ledger, the technology works as a mediator and translates gold into a digitized form that enables it to be both integral and divisible. Digitization thus fosters new uses of gold, making it more liquid, more rapidly tradable, and potentially more speculative. In so doing, this digital fetish opens new fields of value, not out of the gold itself but out of its traces, from which, paradoxically, ground producers selling physical gold remain excluded so far.

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THE NEOLIBERALIZATION OF SLEEP

A Discursive and Materialist Analysis of Sleep Technologies

Tina Sikka

Abstract

This article explores the implications of sleep apps which are sociologically significant in that they represent an attempt to colonize, exploit, and make profitable one of the last vestiges of the human lifeworld through discourses of self-subjectification, authenticity, and self-improvement. I assess the websites of two sleep tracking apps (Pillow and SleepScore) using critical discourse analysis (CDA), new materialism, and autoethnography. I make the case that the neoliberal values associated with the use of these apps perpetuate the logic that a better sleep makes for a more productive worker, better citizen, and ideal consumer subject. I also demonstrate how these apps function to open new sites of potential profit and reproduce a form of embodied neoliberal subjectivity generated by intra-active entanglements between identities, technologies, and discourses. Finally, I take up the issue of marginalization and intersecting subject positions as it relates to inequalities that these sleep trackers might exacerbate.

Keywords: *critical discourse analysis, new materialism, sleep apps, autoethnography, neoliberalism, biopower*

Media headlines, literature, myths, movies, and medical science have helped to cultivate contemporary popular discourses around wellness culture in which sleep has become a locus through which to achieve happiness, wellbeing, and health. This has been aided by the practices of managerial and business elites, particularly in Silicon Valley, for whom techniques to optimize sleep are *de rigueur*. One of the most significant changes in how sleep is represented and understood in popular culture has to do with how discourses of efficiency and wellness have become constituted in and through sleep apps. These apps, like the health and wellness app ecosystem they belong to, are being used instrumentally to self-optimize, correct pathologized behaviours (in this case sleeping patterns), perform an ideal form of neoliberal subjectivity and citizenship, and curate a form of individual subjectivity that aligns with contemporary objectives of efficiency and normative health. In this article, I explore the implications of this strange new world of sleep apps by probing how these apps have evolved since they were created. My central argument is that they represent an attempt to colonize, exploit, and make profitable one of the last vestiges of the human lifeworld.

I begin by analysing the websites of two sleep tracking apps (Pillow and SleepScore) using critical discourse analysis (CDA) informed by a biopolitical critique of neoliberalism followed by an investigation using new materialism. In using these theoretical approaches, this study aims to bridge the gap between discourse analysis and new materialism by formulating

a dialectic between the two. On the one hand, CDA sees discourse as the determinative factor in the (re)production of dominant ideas, norms, identities, and institutions. New materialism, on the other hand, sees engagement with bodily self-experience and the corporeal as constitutive of subjectivity, values, and normativity. Taken together, I use these approaches to draw out findings that reflect how corporate and medicalized discourses about technology work in conjunction with felt experience. The article advances three main claims. First, the values associated with neoliberalism, specifically self-knowledge, namely, authenticity, and self-optimization, are based on the logic that a better sleep makes for a more productive worker, better citizen, and ideal consumer subject; second, the opening up of a new area of potential profit wherein sleep is seen as a state of being that can be optimized. This is accomplished through the commercial packaging of sleep apps as an extension of the health and wellness industry; and third, the cultivation of a specific kind of embodied neoliberal subjectivity generated by intra-active entanglements between identities, technologies, and discourses. This approach leaves room for the possibility that agential forces could align in ways that subvert dominant or intended outcomes.

As a coda, and in line with the materialist and user driven analysis towards the end of the piece, I have included my own auto-ethnographic reflections as a user of both apps for a period of one week each. During this time, I kept a journal in which I wrote my first impressions of my sleep upon waking up and then after reviewing the apps' output. Authorial reflections on user experience, consistent with an auto-ethnographic approach, encourages the study of what I, as the analyst and user, have learned about my own positionality vis-à-vis this research and allows for the expression of my personal experience from the standpoint of a racialized woman (a perspective that is often marginalized) (Camangian 2010). Auto-ethnography works to connect the personal with the socio-cultural and encourages readers to "become aware of realities that may not have been thought of before" by allowing them "to make a connection with the researchers' feelings and experiences" (Méndez 2013, 282). Finally, it grounds the conclusions reached in the sections on CDA and new materialism in something more resonant and close at hand which, as it relates to the subject of sleep, adds a layer of concrete knowledge to these more abstract modes of analysis (Op. cit.).

The apps I focus on for this research track sleep patterns specifically and are often referred to as sleep trackers. Users are instructed to download the apps onto their smartphone, provide basic information, and place their phones close to or under their pillow overnight. Ostensibly, the apps then use their "sensors" to track sleep cycle and movements thereby providing consumers information about sleep quality and duration. SleepScore and Pillow are two of the most popular of these apps and will serve as illustrative case studies in the first part of the article. There are, however, a host of additional capabilities offered by sleep apps including soothing music, guided meditation, wake up sounds, and journaling capabilities. For this study, it is the tracking, graphic representation, and algorithmic evaluation of REM, deep sleep, light sleep, heart rate, "sleep quality" that are most important.

It is important to note that the purported accuracy of these apps which, while significant as it relates to biomedical outcomes and consumer protection, is less critical here. The most recent independent studies from a clinical perspective have thrown cold water on company claims of precision citing the lack of scientific evidence, poor correlation between in-lab tests

and the apps, and, in a particularly scathing evaluation, the finding that that “no supporting evidence on how well tracking devices can help mitigate sleep loss and manage sleep disturbances in practical life is provided” (Lee and Finkelstein 2015, 458). Yet, despite this, the use of sleep trackers has increased as have the inflated claims in the advertising that surround them.

In order to establish this argument, it is important to flesh out the process by which the app-ification of sleep has taken centre stage and establish the ways in which neoliberal and wellbeing discourses have worked to bolster its popularity and connect it to processes of biopolitical control and self-subjectification. It is the study of the unique way in which the agentic materiality of the apps, coupled with the power of neoliberal and self-optimizing discourse, work to produce desirable subjectivities under capitalism that constitutes the telos of this research.

A brief political economy of sleep apps

Before beginning, a short political economy of sleep apps is necessary in order to acquaint the reader with the key players, ownership structures, user demographics, economic significance, laws/regulations, and market potentiality (Mansell 2004). These structures form the impetus for neoliberal intensification through strategies of biopower and subjectification even in sleep. Sleep is an activity that,

...binds individuals to institutions, and when disordered sleep disrupts these interactions, medicine intervenes to reorder the everyday. These everyday orders, in turn, structure American capitalism, a form of capitalism that is tied to long-standing conceptions of normalcy, medicine, and everyday life. (Wolf-Meyer 2012, 3)

Sleep apps fall under the general category of mHealth (medical health) trackers which, through their sustained use, provides users with detailed, useable, and actionable biomedical knowledge about their bodies and health. The business category of “sleep-health vectors and associated products/services,” which includes sleep apps, is quite sizeable and is expected to grow by more than 8% a year from a 2017 estimate of USD30-40bn. More granular analysis of the sleep tracker market, according to MarketWatch, sees opportunities for growth since the key drivers are already prominent actors (e.g. Apple’s Fitbit, Garmin) as well as the “greying” of the population in countries like China and Japan (age tends to be positively correlated with sleep disorders) (MarketWatch 2019). There is, however, some fragmentation in the sleep app industry with insurgent actors challenging some of the more established brands (e.g. Sleepspace Sleep Dot and the Oura Ring).

The obsession with perfect sleep, often referred to as orthosomnia, has been an unfortunate outcome of the overuse of some of these apps. Barbee, Moloney, and Konrad refer to this as SIC or the Sleep Industrial Complex through which sleep has become commodified, made purchasable, and connected to the productivity imperative. The result, they argue, is a kind of “somnolent capitalism” defined as a state in which sleep is seen solely as a means of

productive regeneration driven by “neoliberal expectations that require individuals engage in a hyperproductive, globalized, and profit-driven marketplace” (Barbee, Moloney, and Konrad 2018, 6).

This literature around biopolitics, neoliberalism, technology, and the quantified self is vast and well established. It spans critical work on health and health adjacent technologies, inclusive of apps and wearables (Fotopoulou and O’Riordan 2017), the critique of contemporary labour practices that center surveillance, wellness, and productivity (Moore and Robinson 2016), gender and body projects (Sanders 2017; Doshi 2018), and the embodied performance of normative citizenship (Baldwin-Philippi 2015). Deborah Lupton, the most prolific writer in this area, argues that the union of technology with biopower and neoliberalism has resulted in a culture of quantification in which health is no longer seen as the responsibility of the states, but as the domain of individuals whose behaviour and choices are dispositive (Lupton 2014).

Contemporary work in the area of health, bodies, and wellness connects this biopolitical critique with a robust theory of neoliberalism to describe the transformation of our economy into one driven by market forces, beginning in the 1970s, and the more granular transformation of everyday life by neoliberal modes of logic and reasoning (Foucault 2008; Urry 2012). This has led to a cascade of socio-cultural changes in which self-generating responsible agents, oriented towards autonomy, choice, competition, productivity, and perfectibility, are seen as citizens par excellence. This form of neoliberalism, according to Catlaw and Sandberg (2018, 6), relies heavily on technologies of performance to “construct market type relations where non previously existed” using data and information to do so. Modes of governmentality associated with neoliberalism draw attention to how discipline is exerted by these digital trackers (Crawshaw 2012). Chun (2016) describes sleep apps as indicative of this “prevailing neoliberal, if not bioliberal... mandate associated with identity and selfhood, individualisation and responsabilization” (Williams, Coveney, and Meadows 2015, 1040). Also of note is a study of sleep app discourses by Fage-Butler who draws on Foucauldian discourse analysis to identify common themes in sleep app marketing. Discourses inclusive of disempowerment, responsabilization, mindfulness, and empowerment are shown to be making a significant mark on users and on a growing app culture in which the problem and solution are clearly identified (Fage-Butler 2018).

Sleeping apps thus represent an ideal instantiation of neoliberal governmentality and biopower since they work to collect data on living beings and are able to present that data in a manner that integrates individual with population level knowledge. As will be shown, their objective is to effectively and efficiently “instrumentalize the self-regulating propensities of individuals in order to ally them with socio-political objectives” (Miller and Rose 1990, 28). To do so, I focus in the following section on how the neoliberal and biopolitical discursive frames of wellness, transformation, optimization, productivity, self-knowledge, and efficiency are used by sleeping app companies, SleepScore and Pillow, to sell an ideational package of self and life-image that aligns with the larger objectives of capitalism.

CDA allows for the critical examination of texts for “social inequality as it is expressed, signaled, constituted, legitimized and so on by language use (or in discourse)” (Van Dijk 2003, 352). Using an adapted form of critical discourse analysis, I demonstrate how these

discourses are used to cultivate forms of neoliberal subjectivity through the purchase and use of these products. Methodologically, the textual content has been parcelled out and subjected to a microanalysis of description, focusing on the meaning of the text itself in a denotative sense; interpretation, in which norms, relations of power, and values were extracted; and explanation, in which the socially constative effects of language were identified and elaborated on (Fairclough 1992; 2013). Cumulatively this approach provides a multi-layered analysis that “incorporates textual, processing and social levels of discourse analysis...” while also reading for “linguistic evidence for claims made out of the discourse analytical work” (Wang 2006, 68).

Following the application of CDA, this analysis of discourse is then combined with more recent work in materialist studies to produce a robust analysis of sleep apps as discursive *and* material objects of nature-culture that, in the context of sleep, works to cultivate forms of subjectivity oriented to self-knowledge, authenticity, and efficiency as well as insights, using a materialist lens, into the phenomenon of data doubles, materially evoked user experience, and user agency.

Pillow and SleepScore

Pillow’s website incorporates a sleek purple background with images of iPhone and iWatches around which the text incorporated expounds the benefits of the app. Ease of use is common theme (“No buttons to push, no need to install, ...”), as is the ability to exert “complete control” by reverting to manual mode. The SleepScore website is similarly minimal in its aesthetic featuring comparable images of iPhones displaying the open app. The basic, max, and do I snore? versions are depicted together with text claiming that SleepScore is “the world’s most accurate non-contact app,” and that it, “measure[s] the quality and quantity of your sleep” thereby improving “your sleep using only your smartphone.” The SleepScore tag line is “Good sleep can be life-changing.”

Both Pillow and SleepScore purport to use the closely tracked metrics of heart rate, sleep cycle, and audio recording to provide users with a deeper understanding of how they sleep allowing Pillow users to “wake up refreshed” and SleepScore subscribers to “unlock your [their] true potential.” They both reassure users of their accuracy – with SleepScore claiming the “most accurate sleep app” designation mentioned above and Pillow drawing on a discourse of precision and detail to make a similar claim. What unites the discourse surrounding both apps is their deployment of the three central discursive frames of self-knowledge, authenticity, and self-optimization discussed below and identified using CDA.

Self-knowledge

The Pillow and SleepScore websites draw heavily on the neoliberal claim of productive self-knowledge through, for Pillow, its appeal to the transformational force of just knowing “health metrics like weight caffeine, blood pressure, and more” and, for SleepScore, giving

customers the ability to “track and measure your breathing rate and body movement” and provide “insight into your sleep environment and delivers an in-depth analysis into every stage of your sleep.” Hardey (2019) refers to this claim of self-understanding as somatic or corporeal knowledge production in which a new kind of self-awareness is revealed through digital data leading to the accumulation of biocapital that can be used to further neoliberal objectives. It is the idea that one can know oneself more fully for purposes of productive control and manipulation, particularly in the case of sleep – a domain customarily inaccessible to such manipulation, that is expressed by the claim that SleepScore affords users with “unique insight[s] into your sleep.” Pillow’s colourful images breaking down sleep according to wake, REM, Light Sleep and Deep Sleep gives users a visual representation of time spent in each region and a percentage scoring sleep quality. SleepScore makes a similar offering with respect to the visual tracking of sleep trends and the thematization of “scoring,” “learning,” and “comparison” as three of its five primary objectives.

The ability to algorithmically score and cross reference sleep metrics with “weight, caffeine, blood pressure and more” (Pillow), is a key feature of the Quantified Self (QS), a Silicon Valley based social movement turned cognitive worldview in which technologies are used to self-surveil life processes and produce numerical outputs that can then be productively manipulated and/or hacked in ways that facilitate normative behavioural change. Their motto, “self-knowledge through numbers,” has permeated popular, workplace, economic, and political discourse (Lupton 2016). SleepScore draws on this frame by ensuring users that the data they accumulate will allow them to “optimize” and “improve” their lives through, for example, the reduction of sleep to “32 parameters” and an 0-100 sleep score. Very detailed claims of enhanced sleep quality, “in one week,” and improved sleep, “by an average of 45 minutes,” it is claimed, come from the sustained use of the app and, in particular, in light of the data it provides. The QS, according to Btihaj Ajana, turns “bodies and minds... into measurable machines and information dispensers in the quest for personal development, productivity, health and better performance” (Ajana 2018, 2). Sleep, until now, has been spared by this datafied instrumentalization even though it has been a locus of analogue forms of manipulation for decades. SleepScore is particularly adept in the optimization qua information/data/statistics front with sections dedicated to teaching customers about sleep and providing them with “tips and ideas for improving your sleep to perform your best everyday,” while also offering users access to basic information about the algorithm, cutting-edge sleep science, and the latest data about “how America’s sleeping.” Self-optimization through self-knowledge is essential to the production of a neoliberal subjectivity desired by capitalist societies where productivity, efficiency, and the exertion of agential power over life processes is key. Williamson refers to this as the “data-driven life” characterized by biopedagogies that are part of a “solutionist obsession with ‘tuning’ and ‘perfecting’ the body with the right algorithms” (Williamson 2015, 142).

Authenticity

Another frame deployed by Pillow and SleepScore that attends to the objectives of late capitalist, data driven governmental neoliberalism is that of authenticity. Authenticity, defined as resonant with “the real,” the inherent, the natural, is discursively deployed both with respect to the apps (i. e. claims that they are working towards the betterment of you, the user), and the users themselves (e. g. by helping them realize their true, well rested, selves). It involves the promise that these technologies will result in a move toward a more true and in-control self-subject and they “will result in a transformation of one’s relationship to one’s health and further to one’s body, psyche, and self, based on data that can reflect back a truer or more authentic self” (Sharon 2017, 107). Williams refers to this as the cultivation of the “neoliberal spiritual subject” which, while traditionally gendered, in the context of sleep has a much wider remit (Williams 2014). For Genz (2015, 545), this kind of commodification of authenticity involves elements of “(self)branding, entrepreneurship and ... agency” deployed for the benefit of product brands as well as, it is claimed, for the users. Gill and Kanai (2019) demonstrate how forms of “intimate psychological governance,” through the promotion “of self-esteem, happiness, positive mental attitude,” are used by cultural technologies like apps in instrumental ways. SleepScore deploys this discourse effectively through a claim of providing “personalized advice and recommendations” that are “science-backed” (with links to published studies and experts), and, significantly, through the inclusion of an entire section on wellness. Wellness culture, it should be noted, has an intimate connection to the discourse of neoliberal authenticity through the motif of empowerment which propels the further entrenchment of self-governance wherein the “personal, obligatory, and moral achievement to both self and community” is seen as essential (Lavrance and Lozanski 2014, 78).

Pillow, in addition to providing users with personalized “statistics and analysis,” also offers expertise, support, and other personalized elements that are presented as effective in helping users to make “the right decisions” for them in their journey towards “the best sleep ever.” The manufacturing of an enduring connection based on user-brand relationships that feel “authentic” is a central feature of intensified consumer capitalism. The app is thus presented as an interface between a service that promises a better life and a more connected self, but which requires labour *on both sides* to reach this objective (Lury 2004). This “work” functions as a stand in for an authentic relationship while also promising the user a service that will provide access to a more actualized, effective, and authentic self (Ekman 2013; Harding 2013). This neoliberal ethos presents consumer products as signifiers of identity wherein “the kind of people we are” is “based upon manifestly meaningless things like what kind of car we drive or brand of shoes we wear, and are encouraged to enjoy and create our own authentic selves, in part through consumption” (Catlaw and Marshall 2018, 4).

Consumer feedback on the Pillow website furthers this claim to effective authenticity through technologies of control with comments lauding how they have aided users in bettering themselves by helping them to “feel energized” and “more rested” through “actionable advice.” While SleepScore does not include readily accessible comments on their website, they do have a section lauding their “Sleeping Children Around the World Initiative” which provides underprivileged children around the world with a “bedkit for a restful night and a

happier tomorrow” through donations and proceeds from purchases. There is a rich history of companies using charity as a means by which to certify their own authenticity and virtuousness while also providing customers with a similar feeling of personal integrity. What is masked, however, is how this ethos of authenticity, care, and “emotional citizenship” is often used to temper the harsh “neoliberal logic of ‘fact’-based rationality, individual enterprise and market efficiency” (Mitchell 2016, 290). This rather cynical reading is not helped by the fact that the images of the charity feature exclusively smiling Black children (likely from a country in Africa) with the one non-racialized person handing a mattress to a young Black child.

Self-improvement/optimization

Finally, both Pillow and SleepScore make claims to agential, individualized self-improvement, a key theme in neoliberal discourse. For Pillow, this is done through an appeal to how the use of the app “can improve your mental operations, performance, reaction times and alertness.” Self-improvement through self-surveillance is a prime example of “the workings of neoliberal-biopower” in which the self is seen as in need of constant correction through regimes of control and discipline made possible by the provision of “choice, empowerment, and a celebration of consumerism” (Chen 2010, 62–64). This logic is also present in Pillow’s recommendations which provides tips, feedback, and personalized experiments so that users will be equipped to “make the right decisions to improve your sleep” while assuring customers that the benefits of a good nights’ sleep will be “life-changing.” This framing overlooks the labour and investment that is required for such an endeavour such that it becomes “the individual’s moral responsibility to embody, practice, and ultimately *consume* healthist practices and ideologies,” rather than the collective responsibility of communities or that of the State (via the social safety net) (Wiest, Andrews, and Giardina 2015, 22).

Sleep scores, offered by both apps, are even more explicit in their use of the self-improvement frame by providing users with an overall sleep score, improvement notifications, comparative analytics, and aspirational targets. SleepScore’s promise of achieving and “maintain[ing] restful nights so that you feel better, look better, live better” is an essential part of self-improvement through a neoliberal lens. Tinkering with this “improved self,” as one would do a machine, and doing so based on algorithmically sourced advice, is indicative of the exponential quantification of the self often referred to as the “algorithmic self” wherein algorithmic self-regulation and discipline is practiced in pursuit of ideal personhood (Pasquale 2015). On the other hand, there is the possibility that, having internalized neoliberalism, users of these apps are trying to find a way to reenchant their lifeworld and cultivate a sense of wonder through consumer delight and play (Berman 1981). While this argument is applicable as it relates to health apps that incorporate interactive gamification, it is perhaps not as salient as it relates to sleep apps which monitor its users in an unconscious state. However, this desire does speak to a felt desire to reimagine biological processes that have been alienated by capitalism by making them meaningful, even if it is through gadgets.

Pillow’s claims of facilitating self-improvement through deep analytics and the ability to “synchronize securely all your sleep data ... across your devices,” situates these particular

technologies of the self as one part in a larger technical and discursive ecosystem of tools aimed at facilitating personal progress and betterment. Remember that under neoliberalism, people are consistently encouraged to become “autonomous, choosing, self-managing and self-improving subjects who are reliable, responsible and accountable” (Gill and Donaghue 2016, 93). Sleep has become one in another line of everyday practices, inclusive of diet, maternity, and exercise, subject to this kind of instrumentalization.

These neoliberal frames of self-knowledge, authenticity, and self-optimization buttress the apps’ objective of “induce[ing] an enterprising subjectivity” and “...increase[ing] [ones] capacity to make calculative choices” (Ong 2007, 6). This is accomplished through the use of technology rather than via an analysis of the labour, economic, and political structures that might contribute to a lack of sleep.

Auto-ethnography: SleepScore and Pillow

My own experiences of the apps were largely ambivalent to negative. I found that I preferred the SleepScore app since it was easy to use – requiring nothing in the way of wires or sensors. I positioned it on my bedside table (using my iphone) which felt much less intrusive than Pillow which I experienced using a (borrowed) Apple Watch. While I only used each for a week, I did so with an eye towards my experience of the frames of self-knowledge, authenticity, and self-improvement. Using the SleepScore app, I received an overall sleep score of 86 on the first night and 82 on the second (the others were within the same range) which led to an internal, embodied desire to “improve.” This was heightened by Pillow whose breakdown of the quality of sleep and audio recordings was much more granular and resulted in some time spent finding out if my score was “normal” and listening to the audio recordings for “anomalies.”

Both apps made me feel somewhat superior upon learning that my sleep score was “above average” which resonates with the frame of self-knowledge and competitive self-awareness identified above. This made me want to “do better,” to progress, to increase these stats, and thus to reach a more authentic or natural relationship with sleep. I found myself fluctuating on the “to what end” question – was it, like the apps said, to feel better, be healthier, and more productive? Or was it more in line with personalized neoliberal finetuning in pursuit of economic productivity?

Both apps also performed a relational familiarity that mitigated its remove as a technology. For SleepScore, this stood out in how it elicited detailed sleep goals while for Pillow it was the request to reflect on and record my mood when I got up in the middle of the night (it was just to go the bathroom, nothing that required intimate self-reflection). There was also an element of internalised abstraction I felt wherein in my “sleeping self” was packaged, quantified, and externalized in the form of statistics that I could examine, scrutinize, and reflect on upon waking. Like Elmer’s data double (2003), the manipulability this engendered made me feel as though I was not really part of or related to these daily numbers or the reports I downloaded at the end of the week. This ethos of individual self-improvement and the pressure to work towards this as a moral task connected with “good health” was palpable. The

awareness that I was a transparent, readable person reducible to numbers was particularly off-putting and made me feel as though my agency could only be productively filtered through behavioural change. In this sense the technology, and its algorithms, were in charge and a wider more contextual consideration of *my life within a wider social world* were of little consequence. This made me consider my own socio-economic privilege reflected in my sleep stats and which were a product of my own general good health and access to healthcare as well as the fact that I live in a house on a quiet street without the kinds of occupational stresses that might have lowered this number. Overall, much of my experience of these two apps resonated with the frames identified by my application of CDA. I experienced, firsthand, the frames of self-knowledge, authenticity, and self-improvement as well as that of technological and algorithmic agency that produced particular kinds of idealized subjectivities and emotional states. One thing I did not experience was the pleasure of self-tracking over and above my underlying fixation on perfection – which these apps intensified. I suggest that coupling the discursive study of sleep apps with a materialist approach opens up space for a more situated and relational analysis of human-tech interactions. Taken together, this brief auto-ethnographical addendum provides from the perspective of me, the researcher, an exegesis on how these apps work in practice. This experiential knowledge is important in that it taps “into unique personal experiences to illuminate those small spaces where understanding has not yet reached” in ways that are sociologically significant and deserve further study (Stahlke Wall 2016, 7).

In the next section I turn to a materialist critique. New materialism sees a focus on discourse as insufficient in its ability to provide a robust accounting of the impact of sleep apps on the self where the self is defined through the lens of relationality and interconnected networks. Through new materialism the traditional binaries of nature-culture, discourse-material, male-female are challenged. After offering analysis of sleep apps through new materialism, I close the essay with a discussion about the implications that new materialism could have in future research with respect to arguments around marginalization by exploring the intersections of gender, race, and childhood.

New materialism

In what follows, I explore some of the insights a materialist methodology reveals that a purely discursive or semiotic approach does not. With respect to mHealth apps and trackers like Pillow and SleepScore, according to Lupton, it is their “thing-power,” inclusive of the experiences, affects, relations, and cultural imaginaries they cultivate, that is critical. I begin by unpacking the significance of an important neologism used in materialist thinking to discuss emergent interrelatedness before engaging in a few choice applications of this approach. It should be noted that this analysis is executed by describing sleep apps in a singular sense rather than focusing on particular products, since doing so would require an empirical study of app use, while also allowing for a commodious discussion of sleep trackers as performing objects with iterative properties that can be productively generalized.

The key neologisms that are most useful in applying a materialist method of analysis to the study of sleep trackers are Karen Barad's conception of intra-actions and agential cuts (Barad 2007). Intra-actions, similar to assemblages and networks – and drawing on agential realism (Fox and Alldred 2015; Van der Tuin and Dolphijn 2010), posits that the world is made up of material configurations (inclusive of objects, discourses, laws, values etc.) that exist as inseparable components or apparatuses. These apparatuses are open-ended and “dynamic (re)configurings of the world, specific agential practices/intra actions/performances through which specific exclusionary boundaries are enacted” (Barad 2003, 816–817). It is through agential intra-actions that elements of the apparatus (i. e. boundary properties) become meaningful. Scholars make deliberate agential cuts in order to render subject-objects intelligible and transparent enough for study. As Barad argues, “the world can never characterize itself in its entirety; it is only through different enactments of agential cuts, different differences, that it can come to know different aspects of ‘itself’” (Barad 2003, 432). Applying this to sleep apps and trackers, the cuts I make and discuss below have to do with data doubles and algorithms, materially evoked user experience, and user agency.

Data doubles and algorithms

The affordances of sleep apps, while enforcing hierarchical relations of control, optimization, bodily manipulation, and perfectibility consistent with the neoliberal ethos of liberalization and responsabilization, also externalizes the body into veritable “data-doubles.” The body, in all its vitality, becomes data by enactments elicited by the app itself. For Elmer, this means that,

The observed body is of a distinctly hybrid composition. First it is broken down by being abstracted from its territorial setting. It is then reassembled in different settings through a series of data flows. The result is a decorporealized body, a “data-double” of pure virtuality.
(Elmer 2003, 611)

Sleep apps accomplish this out of what has heretofore been seen as a liminal space inaccessible to this kind of manipulation. This is particularly the case with respect to the kinds of granular manipulations required of neoliberalism apart from the tinkering of routines or the corporate deification of non-sleep (i. e. the “I’ll sleep when I’m dead” mantra of the business elite). Rather, the app, in conjunction with the body, co-produces a surveillant cyberbody which is intended to “encourage the user’s body to act in certain ways” (Lupton 2012, 237). Questions related to who has access to these technologies? (the affluent? the educated? the abled?), how is this information used? (for health? efficiency?), who has access to its outputs? (employers? insurance companies? corporations?), and is how the informational body categorized (is the sorted and extrapolated in ways that further gender, racialize, and stigmatize?) have to be answered. As it stands, both apps analyzed in this article (Pillow and SleepScore) are programmed to facilitate and engender the kinds of neoliberal subjectivities set out in the earlier part of the piece.

In concrete terms, and using a materialist lens, this means that the configuration of these apps – down to their algorithms as they interact with other objects, discourses, and institutions – permits the tracker to exert agency on the physical body in ways that transform our understanding of the body as an object that is readable, transparent, passive, and something to be controlled. It also engenders a relation to sleep in which rest is filtered through the lens of science and expertise. This is accomplished “through the ‘objectivity’ of numbers and the codification and routinization of algorithms – into clear-cut, ‘reified’, ‘scientific’ diagnosis” (Fullagar, Richand, and Francombe-Webb 2017, 135). For a fully materialist analysis, it would be useful to perform a study of these algorithms by tracing how information moves, forms, and is understood over time; monitoring the entanglements of expert knowledge, embodied experience, and technical affordances in situ; and accounting for the intra-actions between Big Data, small data, and institutional priorities (Sharon and Zandbergen 2017).

User experience and user agency

A further level of materialist analysis, requiring extensive empirical and/or ethnographic work, would engage in a detailed study of the experiences of users themselves. Similar work has been done in relation to mHealth (Lupton 2019; Nygren, Olofsson, and Öhman 2020), and mental health technologies (Trnka 2016). For example, Fullagar, Richand, and Francombe-Webb perform a materialist-ethnographic analysis of how mental health tracking apps, together with institutional knowledge, public policy, medications, and regimes of authority, “mediate how young people articulate their experiences of distress via categories of depression, anxiety, disordered eating etc.” (Fullagar, Richand, and Francombe-Webb 2017, 99).

Questions related to how sleep apps and trackers change behaviours, exert norms, and reify values like efficiency, control, and manipulation are essential, as is how they make users feel with respect to privacy (particularly with those that require the phone to be placed under a pillow), as well how they might elicit feelings of shame, guilt, self-doubt, and stress if sleep goals are not met or behaviours do not change as the technology asserts they should (Boyd 2008). Addressing issues of intrusiveness, feelings of failure, and the implications of a device that aims to determine bodily patterns and behaviours traditionally thought of as intuitive require further study.

However, one of the most important contributions of new materialism is that it makes room for the reconfiguration of the “affect economy” in which technological affordances and forces, coupled with human agential desire, power, and resistance (and moderated by structural and contextual factors), are able to excite user resistance and subversion (Clough 2004). Studies of the users of other kinds of technologies inclusive of, but not limited to, health apps and trackers have found innovative ways in which customers have challenged the technology’s intended uses. This includes, for example, the democratic appropriation of the Internet by academics, the open source movement, and political activist communities (Feenberg and Friesen 2012; Lessig 1998). With respect to apps, recent research suggests a variety of ways in which the neoliberal discourses and material constraints of digital trackers can be sub-

verted. This includes the cultivation of forms of synchronous and asynchronous community that, allows users to share, connect, discuss, vent, and get support from others; fosters forms of self-care; exerts power over aspects of everyday life that might feel unmanageable; and encourages the “enjoyment, fun, and ludic aspects of self-tracking” (Gimpel, Nißen, and Görlitz 2013). With regard to sleep apps, the empowerment and pleasure that might be elicited from sharing, the soothing promise of a solution to sleep disruption, and the pleasures associated with manipulating the numbers, data, and visual information via health app gamification are fundamental (Thomas and Lupton 2015).

As such, and taken together, this layered analysis of sleep apps using CDA and new materialism reveals, first, how the ideological force of neoliberal frames like self-understanding, authenticity, and self-improvement, which construct subjectivities and behaviours in line with “the flexible individual who acts responsibly in relation to the market and who is valued in market terms,” works to fulfil larger objectives under capitalism (Davies et al. 2005, 347). Second, this framework also highlights how a materialist approach that attends to the often overlooked force and inter-relatedness of matter, technologies, objects, and things can be “cut” in a myriad of different ways resulting in new opportunities for engagement. The cuts I have made with respect to data-doubles and algorithms as well as user experience and agency are only two such examples.

Conclusion

In concluding this piece, I want to leave readers with a vigorous call for subsequent analyses of sleep apps and related technologies to include race, gender, and childhood as central categories of analysis. Traditionally, the granular analysis of subject positions are left out of studies of this sort – particularly with respect to how neoliberal subjectification, the profit motive, and processes of dataveillance work to exacerbate material, social, and cultural inequalities on a micro level.

The implications of the biopolitical regulation of sleep via trackers like SleepScore and Pillow on racialized communities, gendered minorities, and the intersectionally marginalized (inclusive of children and those who identify as fat), need to be centred in future quantitative and qualitative research. With respect to race and gender, focus needs to be on the impact of collected data coupled with, for example, research demonstrating that women and racialized communities suffer from less sleep and more sleep-related disorders than white men (Fuller-Rowell et al 2017; Mai, Jacobs, and Schieman 2019).

Access to health care, education, stable employment, a clean environment, and healthy food, in addition to the impact of misogyny and structural racism, need to be a central part of accounting for these disparities, as does a robust discussion of how investment in apps and trackers might discourage the further study of socio-economic, labour-related, and environmental factors that give rise to these inequalities in the first place.

Moreover, forthcoming studies on sleep trackers must also engage in the study of their material impact on public health systems in order to obviate the danger that they might function to prise open a new locus of inequality wherein action on health is relegated solely to

individuals rather than being addressed as a collective action (Grandner et al. 2010). Additionally, it is important to point out the significance of these technologies as they extend to more vulnerable demographics like children. Lack of sleep, primarily as a result of caffeine intake and technology use, have been correlated to behavioural difficulties, asthma, and a host of other pathologies amongst children of which childhood obesity is given primacy in much of the medical literature (Calamaro et al. 2012; Aparicio et al. 2016). The moral panic around childhood obesity inculcated by the media has produced an easily exploitable discourse deployed by companies selling sleep apps for kids (Patel, Kim, and Brooks 2017). Sleep apps might thus not only open the door for major profits to be accumulated through advertising, data collection, and medicalization, beginning at the earliest stages of life, but also play into and perpetuate dangerous forms of discrimination, disordered eating, healthism, and ableism (Webster 2019; Bitman and John 2019).

Taken together, this analysis provides a discursive, materialist, and autoethnographic study of sleep apps which I contend are part in parcel of a long line of subjectifying health and wellness technologies that are programmed to encourage the adoption of neoliberal behaviours and ideologies. Significantly, I have performed this analysis so that material agency and entanglement is also realized and avenues for material re-articulations are left open. Sleep, until recently, has been under-researched in this particular way with the majority of analysis concentrating on health, wellness, and diet. Because we spend decades of our life asleep – the app-ification of such an important area of our lives deserves further study using methods that are not only material-discursive, but also attend to the structural and felt inequalities of marginalized groups and individuals.

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FROM ASHES TO DIAMONDS

Making Lab-grown Afterlife

Filipe Calvão, Lindsay Bell

Abstract

This article examines the making and makers of “memorial diamonds.” These are “natural” diamonds identical to gemstones found in nature but produced in laboratories with carbon sourced from genetic material (cremation ashes) or other objects of symbolic and emotional value. Threading corporality and objectified life forms, we examine the transformation from ashes to the “afterlife” of these “living” objects that are at once synthetic and organic. We ask, first, what material and affective properties distinguish synthetic diamonds from those extracted from nature? Second, how are these living and memorialized representations of inert substances – in continuity with bodily elements of the deceased – valued and mediated through “real” human, though artificially grown, natural objects? Drawing from research with the leading companies in the memorial diamond business in Switzerland and the United States, this article suggests that these diamonds’ singular connection to the human body offer a window into the transmutations between nature and the artificial, memory and material likeness, life and death.

Keywords: *memorial diamonds, synthetic, death, value, materiality*

Introduction

George, we will call him, was a charismatic, adventurous, and doggedly kind traveler from Canada, who, at age 22, tragically fell to his death while hiking in the Swiss alps in 2002. After the body’s cremation, and without consulting his next of kin, George’s mother mailed a little over the requisite 200 grams (8 ounces) of his ashes to Life Gem, a well-known producer of “memorial diamonds” in the US. After a couple of weeks of intense pressure and heat, the sample of ashes was rendered as a diamond stone to be worn as a pendant on a necklace. As the story was relayed to us, the decision to turn George’s remains into a diamond was not approved by his sister, who felt that scattering the ashes in a park would have been more “natural”, insisting that she would eventually throw the stone in the ocean when she inherited it from her mother so that George would be “with nature” as he would have wanted. As the mother used the physical token of her son to cope with the pain of her loss, George’s sister softened her critical view of the “ashes to diamond.” It was the perceived “realness” of George’s physical body pressed against the mother’s skin that made his presence felt every day. The stone was lost one year later, but this was explained by the mother as a sign that

George had moved on, carving his own path as he would have in life. Even in the stone's material absence, George was symbolically present.

Memorial stones, like objects of remembrance more broadly, allow the grieving to “preserve a material presence in the face of an embodied absence” (Hallam and Hockey 2001, 18). Unlike other natural-qua-synthetic products borne out of developments in synthetic biology, such as laboratory-grown meat (e.g. Wurgaft 2019; Abrell, this issue), these diamonds are unique in that they offer the possibility, literally and figuratively, of materially embodying the deceased in the form of a carbon-based stone. These synthetic stones made of human or animal remains can now be cheaply “cultivated” in laboratories, offering a reliable alternative to the social and ecological impact of mining extraction, or the negative reputation of “conflict gemstones.” Having previously worked on diamond extraction in Angola and Canada's arctic where questions of ethics and value have always been front and center, we began by questioning to what extent synthetic diamonds would pose a threat to the “natural” mined industry. The pervasive ideology around diamonds' value insists that diamonds are expensive because they are rare in nature; similarly to other precious gemstones, the naturalness of diamonds would herald from “material worlds seen (at least within many European traditions) as outside of the social and even the human” (Ferry 2019, 110). Memorial diamonds challenge these assumptions as a particular subset of the synthetic gemstone market. They seem to create new ways of valuing gemstones by recasting the relation between death and life through the production of an organic-based synthetic material. By straddling the domain of synthetic substances while being produced from biological remains, no longer outside the domain of the human, these objects also trouble acquired notions of what is natural and artificial. We take up these concerns through a closer examination of the material transmutations taking place inside a laboratory-qua-factory aiming to replicate processes occurring in nature.

The production of memorial diamonds, and recent attempts to engineer and synthesize biological sciences and life itself (Rabinow and Bennett 2012; Roosth 2017), raise a new set of problems: how is the natural and the synthetic embodied? What distinguishes organic substances found in nature from those produced in laboratories, and how to account for the shifting boundaries between life and death, the “living” substance of a dead human being and its “inert” memorialization in the form of a diamond? As Sophia Roosth puts it (2017, 8): “Life’ as an analytic object has come undone. Seeking answers, synthetic biologists build new living things, and in so doing they retroactively define what counts as ‘life’ to accord with the living things they manufacture and account to be living.” In the context of memorial diamonds, this problem is compounded by the ontological uncertainty of what constitutes the organic in living substances, as when the term “lab grown” seemingly describes a process akin to a natural process.

This article draws from research on the emergent market for memorial diamonds, produced with carbon from human remains. As we were told very matter-of-factly in January 2017 by Rinaldo Will, the CEO of Algordanza, a Swiss-based memorial diamond producer, “we’re in the business of personified diamonds”. These modern-day alchemists collect, create, and manipulate genetic and symbolic material of human provenance to chemically produce pure carbon molecules from human remains. Primary data was collected between 2016

and 2017, based on interviews and observations at two of the world's leaders in memorial diamond production, Life Gem, headquartered in Chicago, and Algordanza, based in Domat/Ems, in the Swiss canton of Graubünden. Interviews followed a semi-structured questionnaire, paying heed to the situational perspective of the interviewee, each company's commercial and technological strategy, and the broader communicative register in which notions of ethical value, memory, commoditization, and materiality were conveyed. We also draw from the relevant academic literature, as well as industry association reports and regulations on synthetic diamonds, media accounts, and other synthetic diamond producers' online presence.

The article suggests that the qualities of natural and synthetic are not always distinct, but are negotiated inside labs and outside them. As unstable material substances, these diamonds allow us to interrogate the original referents – a carbon-based molecule abundantly found in nature – and the work put into reinforcing the categories of synthetic, lab-grown, or man-made. More than simply rendering in material form the life of a deceased, these objects create new forms of unstable value through precarious transmutations between an emotional absence (memory) and real presence (a wearable object). The first section of the article examines the technology that makes these synthetic transformations possible. The second section looks at how these diamonds mediate the notion of “real-ness”. In-between the source material and their symbolic power, we question how these singular objects are at once the product of a synthetic process – the natural body of a diamond – that uniquely connects to the human body. The third section conjures more specifically notions of valuation, from the desired qualities of diamonds expressed by clients to the material likeness of the end product to the memory of the deceased, and the ability to manipulate material features in a process largely left to the whims of technology. Finally, as these synthetic diamonds represent a shift away from the “affective power” of natural gemstones (Walsh 2010, 109) and the widely reported impact of mining extraction, we conclude with a reflection on the nature of matter and extractivism. We now move on to examine the technical process allowing for the making of these provisional and shifting assemblages of humans and non-humans.

Material transmutations and synthetic transformations

Recent scholarship concerned with natural resource extraction has aptly proposed new ways of understanding how resources are known, transformed, and experienced in the distributed and assembled relations of materials, labor, infrastructures, and knowledge (Richardson and Weszkalnys 2014; Anand, Gupta, and Appel 2018; Rolston 2013; Ferry, Vallard, and Walsh 2019). Examining how material processes of extraction hinge upon the cultural, social, and biophysical value ascribed to natural resources, this literature has further sought to destabilize the domains of culture and nature, human and non-human by bringing these categories into provisional assemblages, oscillating between contrasting material and ontological states. The move toward the production of man-made or lab-grown “natural” substances implies three important conceptual shifts: first, the move away from extraction in nature onto the terrain of man-made minerals from nature; second, the recentering of use-value, in a classic

Marxist interpretation of commodity value, through the transmutation of the memory of the deceased into a new biological shape; and third, the growing recognition of the importance of new bioeconomies of biocapital and biovalue, as well as the ensuing recomposition of artificial-natural landscapes (Birch and Tyfield 2013; Cooper 2008; Rajan 2006; Waldby 2002). But what exactly are man-made, cultured, lab-grown, or created diamonds, and how has this technological revolution set in motion shockwaves felt across the industry? Let us now consider these transformations by a closer examination of the technical and material processes underpinning the production of synthetic diamonds.

The technology for making synthetic diamonds has been available for decades, but it was not until the late 1990s that Chemical-Vapor Deposition (CVD) and High-Pressure, High-Temperature (HPHT) processing techniques made serious inroads on an industrial scale, with man-made diamonds now prevalent in industrial use, with 99 % of the US industrial diamonds of synthetic origins (USGS 2021). Partially enabled by energy improvements (Ali 2017), technological advancements, and lowering prices in HPHT and CVD techniques, start-up companies dedicated to manufacturing synthetic diamonds and other gemstones have sprouted over the last decade across Europe, Asia, and North America, posing a significant commercial and existential risk to the mining industry (Dobrinets, Vins, and Zaitsev 2013, 231 ff). Some estimates calculate that 200 000 carats of synthetic diamonds enter the “natural” gemstone market every month, which may pose an existential threat to an \$80 billion industry premised on the artificial scarcity of a natural product.

In 2019, soon after entering the lab-grown fashion jewelry market, the diamond corporate group De Beers announced a 40 % decline in sales of natural diamonds (Biesheuvel 2019). Shortly after De Beers cut its prices, reckoning with a 40 % decline in sales for 2018, Gem Diamonds and Lucara, two of the largest sellers of expensive diamonds, also reported lower prices in November 2019. In an ironic turn of events, De Beers turned its back on its brand message of “rare is natural” by entering the lab-grown fashion jewelry market with its own brand, Lightbox Jewellery. After decades of developing techniques to detect “fake” diamonds, De Beers responded to the emergent consumer desire for lab-grown diamonds by launching a cheaper line of diamonds. Unlike natural diamonds, De Beers’ brand does not provide a grading report for lab-grown stones, deemed to be the exclusive purview of a diamond’s rarity, although the company launched its own screening device in 2018, aptly called “SYNTHdetect.” But with declining production costs, from \$4000 per carat in 2008 to anywhere between \$300 and \$500 today, according to Bain & Company’s Global Diamond Report (Bain & Company 2018), De Beers could no longer ignore the importance of this growing market, creating what has been termed a “demi-fine” brand. According to David Prager, De Beers executive vice president, these diamonds should not be priced “as inherently rare or precious things” (Bates 2018), thus justifying their more affordable and accessible price target. Other luxury brand companies, like Tiffany’s, remain committed to consumer desire for the “rarity and amazing story of natural diamonds,” for whom lab-grown diamonds does not constitute a “luxury material,” according to Andy Hart, senior vice-president of diamond and jewelry supply for Tiffany’s in statements widely reported to the press (Danziger 2019). Instead, the company recently unveiled its effort to render transparent the

provenance of all individual diamonds sold to its customers, in what it calls Diamond Source Initiative.

In tandem with these transformations, the US Federal Trade Commission revised in 2018 its definition of a diamond as a “natural mineral consisting essentially of pure carbon crystallized in the isometric system.” After a request from Diamond Foundry to remove “natural” from the definition, the commission eliminated the reference to reflect the new reality of lab-created diamonds (FTC 2018, 114), joining a more widespread effort by the industry to revise its guidelines for disclosure, nomenclature, and regulations.¹ Alongside the creation of an International Grown Diamond Association, established in 2016, the share of lab-grown diamonds in the market looks more expansive every year. For diamond producers, the tide of synthetic or lab-grown minerals seems unrelenting: in May 2019, one commercial entity owned by the largest retailer of diamond jewelry, Signet Jewelers, began selling lab-grown diamonds; that same month, the Dubai Diamond Exchange held the first ever tender of lab-grown rough diamonds with 50 000 carats on offer and the Guagzhou Diamond Exchange, for its part, signed an agreement between its partners and China’s synthetic suppliers by promoting an event during the 2019 Shenzhen Jewellery Fair called “Discover the magic of lab-grown diamonds.” Most certification laboratories, including the International Gemological Institute and HRD Antwerp, announced that each graded synthetic diamond would be inscribed with the words “Lab Grown.”

The Diamond Producers Association, one of the main lobbying bodies of diamond mining companies, unveiled in late 2017 its “Real is Rare” marketing campaign to enhance the value of natural diamonds. De Beers also launched its first synthetic diamond detection course and the company is stepping up its own synthetic diamond knowhow to distinguish “fake” from “real” diamonds. Despite the industry’s improved verification and detection technology, most experts and traders are unable to pick up on improved and ever more refined “faking” techniques or stop man-made diamonds from entering the market (Bolay and Calvão 2020). These efforts may well prove spurious if the value of “authentic” gemstones is thrown into question in a more profound move toward socially aware consumption. After investing in a US-based company specialized in man-made diamonds, actor Leonardo DiCaprio expressed a more widespread sentiment: “I’m proud to invest in Diamond Foundry Inc., cultivating *real diamonds* [our emphasis] in America without the human & environmental toll of mining.”

The industry of lab-grown diamonds can be divided between jewelry business and industrial manufacturers, largely based in Europe, Asia, and North America.² The first category of companies goes at great lengths to explain the distinction between man-made and mined

¹ See, *inter alia*, the Kimberley Process’s Administrative Decision on the Use of Unified Diamond Nomenclature and Terminology as a Best Practice (2018); Responsible Jewellery Council Code of Practices (2019) for product disclosure and grading; GIA’s updates on education materials and grading reports for laboratory-grown diamonds (March 2019), as well as the IGI and HRD’s updates on grading and laser inscription of synthetic diamonds.

² The former includes companies such as Amiable Diamond, Scio Diamond, Pure Grown Diamond, Diamond Foundry, Cred Jewellery, or LightBox. The latter include industrial manufacturers such as Applied Diamond Inc, Ila Technology, New Diamond Technology, or Lake Diamond.

diamonds. Brand positioning hinges in great measure on their ability to posit their product as real and by appealing directly to consumers as co-constructed agents, namely in social media and online presence. Cred Jewellery, the self-proclaimed “original ethical jeweller,” presented the “Ultimate Ethical Engagement Ring,” combining lab-grown diamonds with Fairtrade gold. By “emulating nature’s process” in a laboratory, the company suggests on their website, they create a diamond that “sparkles like a mined diamond, as pure as a mined diamond, 100 % socially responsible.” If the luxury retail segment has predominantly refused marketing and commercializing synthetic gemstones, new jewelry actors have emerged to question the monopoly in natural gemstones, such as Courbet in the Parisian Place Vendôme. Other retail agents produce jewelry lines that combine lab-grown diamonds with Fairtrade mined gold.

The two companies we examine in this article, Life Gem and Algordanza, explicitly try to avoid entering the competitive market of synthetic jewelry. Rather, as Algordanza’s CEO, Rinaldo Willi, explained to us, his work is dealing “with death and people.” The company specializes in extracting carbon and graphite contents from a deceased’s lock of hair or cremation ashes, and less frequently, from personal objects rich in carbon and emotional value such as letters or personal diaries. This chemical extraction is usually done with a chlorine bath or a purification process that heats a ceramic container and vaporizes all the elements until only carbon or graphite is left. Once the carbon-based human material is obtained, it is placed in a growing cell or core – akin in size to a small seed – which will meld the various chemical components under a large 16-ton press. In two weeks or less, depending on the size of the desired stone and stable conditions of approximately 2500 degrees Celsius, companies like Algordanza – along with an entire cottage industry of diamond manufacturing facilities mushrooming across the world – have mastered the ability to create extremely rare “natural” diamonds, at very low cost and in everything identical to gemstones sourced in nature.

The term “lab grown” is interesting as it alludes to a naturalistic process in a way the word “synthetic” does not. To start the process of a lab-grown diamond, one puts a “seed” of a mined diamond in with the carbon remains. This follows the principle of HPHT techniques, when the growing cell is put under a large multi-ton press, where it will be subject to high pressure and high temperatures. The reproductive diamond then yields another. This act of reproduction further emphasizes the production as being at once natural and technological, akin to In Vitro Fertilization (Davis-Floyd and Dumit 1998; Franklin 2013).

From our interviews, we learned that these manufacturers of memorial diamonds are not particularly concerned about providing ethical alternatives to mined stones. By tapping into the emotional value of “knowing where our diamonds come from”, the Swiss company, similarly to its American counterpart, is not intent on producing a dent in the jewelry market nor does it hold the logistical capacity to compete with mass-produced synthetic diamonds in large facilities of hundreds of presses. Rather, they see the company as providing “not a product” but “an emotional service”. This attachment to the emotional dimension of the company stemmed from the CEO’s own personal story, as he described it. After being diagnosed with cancer, Algordanza’s founder “played with these thoughts, death, what options do you have, how would you like to be remembered,” which eventually led to the creation

of the company and its emphasis on the “emotional side.” Unlike the “negative” weight of visiting a cemetery or keeping ashes at home, Rinaldo Will explained to us, “a diamond is sexy, it’s a gem, it’s clean, ... you are more aware of the nice memories you shared with the person than with the loss.” If you “can’t touch the ashes”, he concludes, memorial diamonds valorize the positive memories by extending the material connection to the deceased in the form of a wearable gem. The company also privileges a personalized relationship with clients, and each “token of memory” is inscribed and personally inspected by the CEO. Although exporting to over 30 countries, the company has an annual output of only 1000 diamonds and 12 employees in its workforce.

Putative “clients” are faced with a paradoxical problem: on the one hand, they seek a natural product, made from carbon traces of intimate kin, that respects the final wishes of their loved ones. Algordanza, for example, makes sure to communicate to their Japanese customer base that they don’t use nuclear energy. On the other hand, the company has no direct control over the production of these diamonds, left to the whims of time, high temperature and pure pressure. As we were told during our visit, “once we have the carbon and we put it into the growing cell and put it into the presser we have no in-process control, no one has.” Admitting their powerlessness over the manufacturing process would expose the lack of genuine emotional value of synthetic stones and potentially reveal the company’s inability to produce diamonds that reflect the deceased’s personal and physical traits. This associative process linking the bodily material to the end product, as we will see, threads a fine line between the desired “humanness” and the “real” artificiality of these diamonds. On the other hand, having a modicum of control over a process eminently chemical and mechanical would betray the pure naturalness of these gemstones, meant to emulate those found in nature. It is around the mediation of this paradox – between what is real and fake, synthetic and natural about these gemstones – that we now turn to.

Mediations: realness, symbolic matter, and natural humanness

In this section, we explore how memorial diamond makers attempt to configure meaning-making across material orders as human ashes are turned into diamonds. We show how the emphasis on the “real-ness” exposes the tensions and transmutations between material orders and conceptions of life and death. In an industrial park near O’Hare airport in Chicago, Life Gem’s unassuming office and production lab are staffed by two of the company’s owners, Greg and Rusty. Both men were dressed casually in converse sneakers, jeans, and button down shirts the day we arrived for a tour and interview. Their upbeat tone during our discussions almost seemed cavalier when contrasted with expected norms of service providers who deal with the deceased. It was clear that the pair did not see themselves as mortuary workers, yet notions of death and the deceased were paramount to meaning-making for their services. As Greg explained, although the material properties of Life Gems are nearly identical to mined stones, synthetic stones could not be sold for a worthwhile price at a small scale. The added symbolic value of the memorialized changed that. Yet the pair weren’t trained in grief counselling. They essentially outsourced the client interfacing work to

funeral homes, or conducted most business online. While the dead are what make “Life Gems” valuable, the emotional labor of talking to those at a loss was not part of what they did. They had a long-term vision of welcoming visitors and adding a space for guests to sit and have a drink. They already brewed beer during “down times” and had a bar room with a high top counter on which a half empty bottle of Jack Daniels stood. For them, allowing people to see the technological process of conversion would, in and of itself, provide comfort.

As we learned the process involved in making and marketing memorial diamonds, our conversation that day tacked back and forth between notions of real and not-quite-real, between ideas of what is natural and what is not, and between what is human and what is no-longer-human. At Life Gem, the owners stressed that mediating the “real-ness” of synthetics through marketing and customer interactions was vital to the semiotic production of value. Yet the notion of the lab-made “real” was an unstable target due to the material and symbolic properties and processes involved. Ideas of “natural” and “real” were at times conflated and at other times convoluted. This was not the result of trickster marketing-speak; rather, the ambiguity stemmed from the challenges memorial diamonds pose to established ontological categories.

The emphasis in our discussion was on the ability and what it meant for Life Gem to produce “real” diamonds. In our conversation, we observed that the owners of Life Gem, much like our interlocutors at Algodanza, tried to establish real-ness in three ways. 1. Emphasizing the molecular properties of finished memorial diamonds, in all identical to natural, mined diamonds 2. Matching carbon from human remains with “naturally occurring” carbon to establish material likeness and, finally, 3. Enmeshing material endurance with symbolic endurance of connection to the deceased. We elaborate each of the facets of mediation below as integral to the translation of meaning as ashes are turned into diamonds.

What the owners of Life Gem stressed to us in our tour was the specifics of the physical composition of the finished product. Greg explained “this is a real diamond, it’s 10 on the Mohs scale, it’s hard, you know?”³ Life Gem sends their stones for physical evaluation to the Gemological Institute of America (GIA) headquartered in California, one of the leading institutions for certification and evaluation of diamonds and other precious gemstones. Each Life Gem product is issued a certificate that establishes the gemstone’s attributes in similar lexicon as mined stones, thus drawing attention to the material similarities between lab-grown and mined stones, while making clear when a particular stone is lab-grown. However, after GIA’s laboratory in Hong Kong identified in 2016 a CVD grown diamond in an undisclosed batch – the largest ever detected at the time – GIA decided to adapt its certification nomenclature by relying on clarity and color-equivalents.⁴

³ The Mohs’ hardness scale was developed by German mineralogist Frederich Mohs in 1812. This scale is a chart of relative hardness of the various minerals (1 – softest to 10 – hardest). “Hardness” is the resistance of a material to being scratched. Diamonds are the hardest mineral and have a score of 10.

⁴ According to a statement by Tom Moses, GIA’s chief laboratory, to the National Jeweler, “[w]hen identifying clarity, the lab only uses VVS, VS, SI or I for synthetic diamonds,” without attributing specific color and clarity grades (The Diamond Loupe 2016). According to GIA’s 2019 updates to education materials and grading reports, in response to new FTC regulations, “The new GIA Laboratory-Grown Diamond Report will feature the same visual representation of the scales for color, clarity and cut as GIA’s grading reports for natural diamonds. The updated reports will continue to use descriptive terms for color and clarity, for example,

The second piece to establishing “real-ness” is adequation of source material. Greg remarked that “a natural diamond is, really, just maybe that oak tree or that dinosaur”, by which he meant that that, ultimately, all diamonds come from carbon. The distinction between what is made at Life Gem and what emerges from the mine is, from the company’s perspective, the carbon source. In this way, the transformation of a carbon source is a diminished aspect of what makes a diamond a diamond, instead what matters is that it begins with carbon at all. With the Chemical Vapor Deposition (CVD) method, a substrate of carbon-containing gases is ionized in a growth chamber and energized at high temperatures to create the diamond. This method can also be used to grow a diamond film onto natural diamonds or to adhere it to other materials, raising the possibility of this technique being used to enhance the clarity of natural diamonds. Simply put, a synthetic diamond with highly-sought features may hide a less valuable diamond. It is precisely the prospect of synthetic-natural hybrid diamonds, also known as “composite” stones, that most haunt the industry and defy existing screening methods, such as when GIA detected a natural white diamond covered in a thin blue synthetic layer.⁵

Finally, the real-ness of the memorial diamond comes from its connection to the deceased. Greg explained it this way: “We’re going to create a diamond that’s going to last forever out of your loved one that you can pass down for generations. This is Grandpa Joe, this is, you know... 50 years from now you’ll still have that diamond in your family and, you know, it will be more than just a natural diamond that someone brought into the family”. As Greg understands it, the Grandpa Joe diamond is “real” insofar as it is made of human remains. Because of the connection between the diamond and the deceased kin, it becomes “more than just natural”. Stones that get brought into the family (from mines) are seen as lesser than those that emerge from within it. Algordanza’s CEO echoes this sentiment, when he posited the demand for this service as an index of emotional value: “only people who really liked the deceased will request the service. You wouldn’t do it for an uncle you didn’t like ... people you like you do the diamond.” Paradoxically, the real memorial diamond has human traits, whereas the natural is “fake” – or not quite real – to the extent that it does not contain an added value of humanness, even if it indexes kin through past ownership. Algordanza claims a certain “naturalness” to its diamonds by stressing that they are made without additives to enhance colors other than those already present in the human body. The diamond is just the body, the material vessel of what remains of its humanness. As Verdery explains, dead bodies are “heavy symbols” (1999, 127). They are the thing that is always more than a thing (Engelke 2019). This presents an opportunity to create distinction from mined counterparts, which are unable to materially embody this symbolic weight as efficiently as memorial lab-grown stones.

Near Colorless and Very Slightly Included, as shown on the scales. The report will also include a QR code linking to GIA’s online Report Check service with more information about the growth processes of laboratory-grown diamonds. All detected clarity treatments will be disclosed” (The Diamond Loupe 2016).

⁵ This layer was measured at about 80 microns, or 0.003 inches. According to a Diamond Loupe report on the discovery, the “0.33-carat stone was a composite of CVD synthetic Type IIb diamond overgrowth on a natural Type Ia diamond,” and GIA warned at the time that “more such composites might be on the market” (The Diamond Loupe 2019).

For synthetic stones to generate new forms of value, it is imperative that memorial diamond makers attempt to establish their sameness/difference from mined counterparts. In Saussurean terms, this means assessing their comparative position in a broader system of value understood as meaningful difference. For Ferry (2013, 18), value can be defined as “the politics of making and ranking differences and deciding what differences are important” (see also Ferry 2019). The value of memorial diamonds, in other words, is perceptible in a total system of distinction and contrast. For memorial diamond makers, thus, differences in production (mined versus lab-grown) are downplayed while differences in their capacity to symbolize and memorialize a loved one are heightened.

Valuation: likeness, reference, and semiotic instability

While makers of memorial diamonds stress the material and symbolic “real-ness” of their products in various ways, how do clients take up these meanings? Do they see the same hierarchy of difference? Not always, as we learned from George’s story that introduced this article. The deceased’s attachment to nature complicated the immediacy of the stone-as-relative. This section focuses on the instability of valuation of memorial diamonds as it emerges from the nexus of material, biological, and technological domains. We illustrate how the outcome of lab-grown diamonds has the capacity to both create and undermine value in that the relationship between materiality and imaginative process is as generative as it can be unpredictable. As signs, memorial diamonds are semiotically flexible enough to be “more than just” a diamond, and more like a loved one, but also less like one as well.

Memorial diamonds have much in common with objects of commemoration more broadly. Cultural anthropologists and (bio)archaeologists have long been interested in the connections between loss, memory, and material culture as it “mediates our relationship with death and the dead” (Hallam and Hockey 2001, 2; see also Bille, Hastru, and Soerensen 2010; Engelke 2019; Maddrell and Sidaway 2010). Memorial diamonds are by no means the first example of human remains acting as a memory artifact. All of the major religions of the world have historically incorporated relics into their spiritual practices at some point. Usually consisting of the physical remains or personal effects of a saint, these objects were preserved and displayed as tangible memorials that could serve as sites of veneration. An example of “everyday” people memorializing the deceased through their physical remains is the production of hair jewelry between the 17th and 19th centuries in Northern Europe (Luthi 1998). Alongside precious stones and metals, hair was used to create broches, locketts, rings, and bracelets. Much like the tensions we heard in learning about disappointed clients whose lab-grown stones did not reflect their loved ones, “hair work manuals published in the 19th century provided instructions on how to make hair jewelry which would call to mind the deceased” (Luthi 1998, 139). Like memorial diamonds, for which hair is one possible base component, hair jewelry could be passed from one generation to the next. Memorial objects made from human remains are especially appropriate, even if contested, memory forms because of the “... the quality of endurance and the specificity of reference to a particular individual” (Hallam and Hockey 2001, 136).

In the case of memorial diamonds “the specificity of reference” cannot be taken for granted. Part of how clients establish “real humanness” of a lab-grown diamond is by attributing meaning to aspects of finished stones that, ultimately, emerged by chance. More than size or shape, the feature that draws parallels between the object and humans is the color; Algordanza, for example, claims that some clients will make associations such as “if the deceased had blue eyes, [and the stone is blue], it’s blue like his eyes.” The company encourages these associations in their marketing: “The unique blueish colouration emphasizes the uniqueness of your personal Memorial Diamond”.⁶ While memorial diamond makers stressed the uniqueness of lab-grown diamonds, the chemical process leaves open the possibility of a range of colors for finished stones. These colors can be useful in connecting object to human but this associative process potentially means that the client doesn’t see “the real” person in the finished gemstone. As representatives from Algordanza explained to us, there was one instance where the customer was not happy “because the diamond was too dark, almost black. [The client] said ‘my wife was not a bad person’ ... it was a problem. He associated the black color with the character of his wife.” When a client is not able to connect ideas of their loved one to the finished product, the object fails to hold its projected value. Companies like Life Gem try and work through this tension by using various chemical processes to control for color or colorlessness. Competitors like Algordanza recast such practices as making stones more synthetic and less natural and, by extension, less like the deceased.

One of the unique features about these two companies, and man-made jewelry more broadly, is the ability to create, at very low cost, extremely rare natural diamonds. While stones larger than 4 carats (rough) are still technically challenging to produce, it is very common to fabricate blue, pink, or yellow diamonds. Blue or pink colored diamonds – devoid of nitrogen impurities, or that carry specific concentrations of boron impurities – are easily produced in laboratory conditions by either removing nitrogen from the carbon concentrate or by adding powdered boron to the mix. Whereas colorless diamonds are far more complex to produce in laboratory than colored diamonds, moreover, the same techniques can also be applied to enhance the clarity of natural diamonds. Algordanza, for its part, claims to not include any additives other than those already present in bodily remains, stressing their singular connection to the humanness of diamonds.

That diamonds are marketed as “forever” and that they are materially difficult to destroy is crucial to become legible as memorial objects. When asked about the possibility of other memorial gems (rubies, sapphires), Life Gem staff’s response was quick and certain: other stones were unlikely as “diamonds are forever!”. Hallam and Hockey have described how

[t]he perceived duration of an object – its capacity to endure time and to operate across time by encoding aspects of the past or future in the present moment – is crucial to its memory function ... the materiality of memory objects often alludes directly to the bodily process of dying, death and decay and such objects maintain tensions between physical presence and the threat of disintegration and absence. (2001, 48)

⁶ As explained in Algordanza’s “Symbol of Love. Your Memorial Diamond,” a 14-page glossy brochure given to prospective customers.

In this regard, memorial diamonds are materially and symbolically ideal memory objects as they are able to hitchhike semiotically off of De Beers famous marketing campaign of the late 1930s (Falls 2014) and are known for their hardness and indestructibility. Yet their well-suitedness to becoming memorial objects does not make the process of valuation straightforward.

The work of American conceptual artist Jill Magid can assist this reflection. In a series of pieces using memorial diamonds, Magid shows how value creation is cultivated at the blurred and often tense boundaries between incommensurable categories such as organic and mineral; person and thing; life and death. In her 2005 piece, *Auto Portrait Pending*, a brightly lit display case houses an engagement ring set without the expected diamond solitaire. Alongside the stone-less ring are documents that, upon the artist's death, commit her remains to be sent to Life Gem for transformation into the diamond that will ultimately complete her self-portrait installation. Her instructions, written alongside the display case, are clear: "Make me a diamond when I die. Cut me round and brilliant. Weigh me at one carat. Ensure that I am real" (Magid 2005).

In Magid's own words, her art deals with "the question of artistic legacy: How is it constructed, manipulated, accessed and owned?" (Hirsch et al. 2016, 6). *Auto Portrait Pending* plays with the boundary between an artist's physical body and her body of work. It asks the viewer to consider: What makes the piece valuable? Is there value in the promise of a body alone? Or will the transformation of body into gemstone render the piece valuable? What differences are helping to create value here? The artist's labor, her physical body, or something else? This conceptual art piece lays bare the enmeshment of synthetic, digital, and natural materialities. As we have seen, memorial diamonds in general, and in *Auto Portrait Pending* in particular, make it difficult to separate the synthetic from the biologic, the natural from the artificial. The semiotic efficacy of this art piece lies in the punctum (Barthes 1981) created by the simultaneous future presence / present absence of the artist's material body in the lab-grown diamond. What makes the piece possible are technological advances in synthetic gemstone production we described earlier, as well as enduring ideologies of value in the perceived permanence of diamonds (as in "diamonds are forever") and a western emphasis on individual legacy.

Magid deepened her conversation about artistic legacy using memorial diamonds through a second piece titled *The Proposal*. In 2014, she organized the exhumation of the remains of Mexico's acclaimed architect Luis Barragán. Magid sent the cremated remains to Algodanza where the architect's ashes were transformed into a single synthetic diamond. Magid put the architect-turned-diamond in an engagement ring to stage a "proposal" to the private holder of Barragán's professional archive, Frederica Zanco, who had previously received Barragán's collection of work as an engagement gift from her husband. Zanco kept the archive at the Vitra Design Museum in Basel, Switzerland, but Magid's "proposal" invited Zanco to return Barragán's archives to Mexico in exchange for the ring made of the architect's remains. Essentially, Magid was offering to trade the architect's material body for his body of work, exchanging one form of legacy for another. Magid's "proposal" to Zanco was never accepted, yet the offer of the gift binds them in a perpetual chain of obligation that can never fully be dissolved (Povinelli 2016). The proposal's value as "real art" and as a "real pro-

posal” came from the human-indexing qualities of the stone.⁷ It was, after all, *really* Barragán who made that particular stone possible. An identical stone could not have been produced. However, at least for Zanco, the architect’s archive holds more value and better indexes his human worth than the fabricated stone.

In sum, lab-grown diamonds are, quite literally, given a “vibrant” and vital force (Bennett 2010) to grow and expand from a carbon seed, forcing us to rethink the unstable forms of “matter” (Ingold 2012) as it composes inert and living substances, not quite alive nor dead. Approaches in the vein of the new materialism offer a privileged vantage point to reflect on the shifting nature of matter as it is reconstituted within the setting of these laboratories. Following Coole and Frost (2010, 16), these diamonds would be suitable sites of inquiry to examine “the blurring of clear boundaries or distinctions between bodies, objects, and contexts [as] evident in the myriad biotechnological and digital technological developments that are changing the landscape of the living.” Threading corporality and objectified life forms, as we have seen, the transformation from ashes to “afterlife” and the unpredictable and indeterminate qualities of these “living” objects complicate the capacity of matter to generate social and commercial relations – in objectifying the memory of relatives, artists, or architects in the shape of a commodified objects – and to be given specific agentive capacities.

Conclusion

As the world economy inches closer to decarbonization and de-materialized production, while simultaneously pursuing new extractive frontiers, this article repositions the centrality of carbon to think through the materiality of lab-grown synthetic substances, nature, and human life. As materiality is redefined in human geography and anthropology in the study of natural resources, accounting for a more dynamic and relational definition of resources extracted from nature (Bridge 2009; Richardson and Weszkalnys 2014), a new set of challenges emerge on the problem of agency, the precarious assemblages of human and non-human actors, and the problem of material causality “without straying into object fetishism or without attributing intrinsic qualities to entities/ categories whose boundaries are ‘extrinsic’ – defined, at least in part, socioculturally” (Bakker and Bridge 2006, 8). This was also the challenge we faced at the outset of this research.

Memorial diamonds appeared to stand apart from the contexts of extraction we were most familiar with in large industrial diamond mines in Canada (Bell 2017) and Angola (Calvão 2011, 2015, 2017) in that lab-grown stones are often positioned as an ethical and sustainable alternative to mined gems. What our work with memorial diamond producers revealed was the ways in which these two types of objects (lab-grown and mined diamonds) had a high volume of semiotic, material and value traffic, and transmutations – lest we forget that Dominion’s CEO (the world’s third largest diamond producer) and Alrosa’s president (the Russian

⁷ Since the time of its inception, *The Proposal* has been turned into a film (Magid 2018) and an exhibit that travels to art galleries around the world.

diamond giant) left these companies to start their own synthetic diamond start-ups – that defy a siloed and compartmentalized understanding of these objects.

Memorial diamonds are discursively linked to mined stones through an emphasis on the molecular properties of finished lab-grown stones and the equation of carbon from human remains with “naturally occurring” carbon. They gain distinction from their mined counterparts through the enmeshment of diamonds’ material endurance with symbolic endurance of connection to the deceased. Yet these connections are destabilized by the unpredictable effects of the technology itself, the qualities ascribed to the deceased made real with the product, competing sentimental values – to recall George’s family disputed significance of the material body-qua-diamond and what the object stood for in relation to nature – as well as incommensurable ideas about value, legacy, and artistic and emotional expression, as in the art proposal examined earlier.

As an object of adornment that memorializes a deceased relative, lab-grown diamonds discursively and materially recast the relationship between the living and the dead, nature and technology, humans and non-human entities. The value of these material objects and immaterial signs are encompassed in their capacity for relational subjectivity and for activating inanimate objects (Masuzawa 2000, 256). We have extended conversations of materiality and value (Pietz 1985; Ferry 2013; Graeber 2005; Masuzawa 2000) to synthetic substances and the biological (Roosth 2017) by theorizing more explicitly the socio-cultural and ethical value in the creation of synthetic-qua-natural substances, at once objects of deep affective and economic value. The approach we have suggest here privileges relations over bounded objects, in particular as they manifest in moments of conflicted enmeshments of life and death. Critically, the question remains as to whether synthetic diamonds contest or restate the assumption of discrete entities and the very borders mounted between the social and natural.

If critical geographers and political theorists (Arboleda 2019; Gago and Mezzadra 2017; Mezzadra and Neilson 2017) have called for an “expanded conception of extractivism” to account for the ways in which primary commodity production becomes intermingled with finance, logistics, infrastructures, or urbanization, this article invites an even wider conception anchored in the lived worlds of those tasked with transforming the bodies of the dead and “alchemise” nature. Although memorial diamonds are not “extracted” from nature in the classical sense, their value is linked to the shifting cultural, symbolic, and affective terrain on which they rest. What is more, they are inextricably real inasmuch as they are attached to human life, precarious and tenuous as this relation can be. Scholars of extractivism, we suggest, must account for this co-creation of objects of value as they enliven and make all more complicated already familiar circuits of production.

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CUISINE PROFITABLE, CUISINE CHARITABLE

Formes quotidiennes de persistance dans un restaurant social

Yann Cerf

Résumé

Qu'est-ce qu'un restaurant social? En contrastant deux expériences ethnographiques (un apprentissage dans une cuisine gastronomique et un terrain comme cuisinier et anthropologue dans une cuisine solidaire), cet article propose une description des contraintes pesant sur l'approvisionnement et la préparation de repas gratuits dans une cuisine charitable, opposée ici aux cuisines profitables. La littérature sur les résistances subalternes et celles discutant de l'invisibilité du travail domestique offre le cadre à une description des formes quotidiennes de persistance et de résistance qui rendent possible le travail précaire des acteurs du monde charitable.

Mots-clefs : *ethnographie, aide alimentaire, économie du don, résistance, restaurant, néolibéralisme*

PROFITABLE KITCHENS, CHARITABLE KITCHENS: EVERYDAY FORMS OF PERSISTENCE IN A SOCIAL RESTAURANT

Abstract

What is a social restaurant? By contrasting two ethnographic experiences (an apprenticeship in a gourmet kitchen and fieldwork as an anthropologist and cook in a charity kitchen), this article offers a description of the constraints on the provisioning and preparation of free meals in a charitable kitchen. The literature on subaltern resistances and on the invisibility of domestic work provides the framework for a description of the daily forms of persistence and resistance that make the precarious work of actors in the charitable world possible.

Keywords: *ethnography, food aid, restaurant work, gift economies, resistance, neoliberalism*

10 octobre 2019. C'est le service quand j'arrive aux portes du restaurant social « La Pause ». La cuisine est ouverte sur la salle à manger. Yvan¹, le responsable terrain des professionnel-le-s du travail social chapeaute l'organisation du restaurant. Je sors tout juste de mon apprentissage en cuisine², ce sont des lieux familiers. Je m'y sens bien. Il se plaint de l'installation irrégulière du nouveau piano : « On ne peut pas ouvrir ce volet. Mais bon, on s'arrange, on fait avec, c'est partout le système D ». Ça ne m'étonne que trop peu. Les cuisines sont des lieux demandant une attention constante. Pourtant, et bien que mon expérience dans les cuisines gastronomiques partage avec celle-ci le même « goût des choses ethnographiques » (Stoller 1989 voir aussi Fine 2008, 239), j'ai marqué ce jour d'automne dans un coin de mon carnet, « bizarre ».

Dans le cadre d'un projet intitulé « Indigence en pays d'opulence : une approche anthropologique de l'aide alimentaire en Suisse³ », j'ai effectué un terrain de 6 mois, à raison de deux à trois jours de travail par semaine à La Pause. On y sert 200 repas gratuits chaque midi, c'est un restaurant à bas seuil, ou d'accès inconditionnel⁴. Entre 50 et 100 personnes peuvent y manger en même temps, sur des tables communes toutes en longueur, assises sur de petits tabourets. Une équipe fixe de 5 à 8 personnes est assistée de bénévoles. Les produits cuisinés proviennent pour une très grande majorité d'une banque alimentaire régionale. Le terme de « restaurant » social est-il adéquat dans cette situation ? La question m'est venue plusieurs fois en sortant du terrain, quand la réalité de la précarité alimentaire prenait le pas sur l'agitation du service. Gary Fine, un des anthropologues pionniers de l'ethnographie de la restauration, propose la définition suivante des restaurants. Ce sont des « des organisations orientées vers le profit, produisant et servant de la nourriture » (Fine 2008, 1 ; traduction française de l'auteur). La gratuité des repas, la dépendance aux banques alimentaires, le surplus comme matière première, le bénévolat : cela fait déjà trop de différences pour que ce lieu caché du centre-ville de Genève y corresponde vraiment. En revanche, cela reste un endroit où l'on produit et où l'on sert de la nourriture, une cuisine. Seulement cette apparence masque une diversité importante des expériences et en particulier en ce qui concerne l'insécurité du procès de travail.

Je propose dans cet article de revenir sur plusieurs de ces décalages afin de répondre à une question simple : qu'est-ce qui fait la particularité d'un restaurant social ?

La première hypothèse étant que l'analogie entre restaurant classique et restaurant social ne résiste pas à la comparaison ethnographique. Toutes les cuisines sont extrêmement dépendantes de leurs communautés de travail (Fine 2008, 26), pourtant la nature des produits cuisinés ainsi que les rapports de pouvoirs au sein de ces communautés ont une incidence majeure sur le procès de travail et son vécu. Je distinguerai les cuisines profitables des cuisines charitables et les comparerai en prenant comme point de départ l'incertitude dans le travail⁵. Ce critère de com-

¹ Tous les prénoms ont été changés. « La Pause » a été choisie pour refléter les valeurs que ce lieu d'accueil tente de véhiculer : un espace de repos, ou l'on peut se restaurer et « souffler un coup ».

² J'ai obtenu mon CAP, l'équivalent du CFC suisse, dans un restaurant gastronomique marseillais en 2019.

³ Genève. 2019-2022. Recherche financée par le Fonds national suisse de la recherche scientifique (FNS), 10001A_185449, voir aussi <https://www.hesge.ch/hets/recherche-developpement/projets-recherche/en-cours/indigence-en-pays-opulence-approche>.

⁴ À l'inverse de l'aide conditionnelle, qui fonctionne la plupart du temps sur un système de *vouchers*, de bon justificatif, contrôlant l'accès à l'aide sociale. (Voir Ossipow et al. 2020, Ossipow et Cuénod 2019, Caplan 2016, Cloke, May et Williams 2017).

⁵ Voir Douset 2018 au sujet de l'incertitude comme entrée analytique en anthropologie.

paraison est assez restreint. Toutefois les modalités de l'insécurité alimentaire des populations bénéficiaires en temps normal et *a fortiori* en temps de crise sanitaire, semblent faire écho à celle de l'insécurité de la chaîne d'approvisionnement des banques alimentaires et des lieux de distribution. Par ailleurs, des recherches récentes montrent tout l'intérêt d'interroger le rapport entre les mondes de la charité et ceux de l'économie ordinaire (Lhuissier 2013 ; May et al. 2020).

La seconde hypothèse étant que cette juxtaposition peut être un terrain fertile pour comprendre le fonctionnement de l'aide alimentaire à Genève, et vraisemblablement au-delà. En particulier en ce qu'il concerne les stratégies de résistance (Scott 1985), version opératoire des « arts de faire » de De Certeau (1980), adoptées face à l'effacement progressif de l'aide sociale qui crée en partie la demande dans ces institutions (Reynolds et Miroso 2016 ; Cloke, May et Williams 2017 ; Ossipow et Cuénod 2019). Ces formes quotidiennes de résistance et de persistance alimentaires ont peu fait l'objet d'études ethnographiques. Elles prennent place dans une économie du surplus, où l'institutionnalisation des banques alimentaires voisine avec la place ambiguë que l'industrie de la grande distribution occupe dans la lutte contre la précarité alimentaire (Le Crom et Retière 2003 ; Ossipow et Cuénod 2019 ; Caplan 2017 ; Riches 2018).

Je reviendrai en premier lieu sur le contexte général de l'aide alimentaire en Suisse, ainsi que sur l'ethnographie du travail en cuisine. Je décrirai ensuite le travail de commande et les relations qu'entretiennent les chef·fe·s d'équipes et les transporteurs et transporteuses avec la banque alimentaire. Finalement, en décrivant la mise en place à la Pause, je propose de revoir le concept de stratégie de résistance pour parler de formes quotidiennes de persistance. Les comparaisons proviennent de la littérature ethnographique sur le travail en cuisine, ainsi que de journaux de terrains écrits lors de ma formation en tant que cuisinier dans un restaurant gastronomique.

Définir l'insécurité alimentaire et décrire les cuisines profitables et charitables

L'insécurité alimentaire et la sociologie du bénévolat en Suisse

Paul se roule une clope, il en propose une à son voisin. Celui-ci n'a pas touché ses aides sociales et attend le virement pour se racheter du tabac. Sur la table la plus proche de la route – ou vrombissent de belles voitures sombres – une famille range tant bien que mal les pizzas surgelées offertes en libre-service à la fin de leur repas. La plupart des définitions de la pauvreté insistent sur la notion de seuil, en dessous duquel une personne ne peut accéder à un niveau de vie minimal, relatif à ce qui est reconnu comme tel dans les différents contextes nationaux. Cela implique une série de privations matérielles, culturelles et sociales. À La Pause, les bénéficiaires ont des parcours de vies et des situations très variées, à l'image de ce phénomène multiforme. En Suisse, en 2018, ce seuil de pauvreté est de 2293 frs par mois pour une personne seule et 3968 frs pour deux adultes et deux enfants. À titre de comparaison, le taux de risque de pauvreté est de 14.6 % en Suisse la même année, quand la moyenne européenne se trouve à 17.1 %, il est de

19 % à Genève et de 10 % à Fribourg⁶. « Mais ils ont le droit de manger ici, eux ? », demande une bénévole. Eux, ce sont deux jeunes hommes portant des caissettes de livraisons vertes, estampillées UBER. Une des travailleuses sociales de La Pause tente de lui expliquer l'importance d'un accueil indifférencié, de la situation compliquée de ces autoentrepreneurs. La bénévole reste sceptique. Une partie de cette pauvreté est générée par l'absence ou la faiblesse des aides sociales et s'explique par l'augmentation du nombre de familles monoparentales ainsi que la part grandissante des « *working poors* » (Crettaz 2018 ; Martenot 2020). Une partie de la population démunie de Genève, à la différence du canton de Fribourg par exemple, est comprise par les requérant·e·s d'asile, les « sans-papiers », mais aussi les étudiant·e·s étranger·e·s. Toutefois, ces informations ne permettent ni de comprendre ni de préciser ce qu'« insécurité alimentaire » veut dire dans ce contexte. Parle-t-on de pauvreté alimentaire, d'insécurité alimentaire ou de faim comme urgence biologique ? La « pauvreté alimentaire » et « l'insécurité alimentaire » ont des sens similaires dans la littérature spécialisée, étant définie par un gradient allant des difficultés d'accès à de la nourriture de qualité, créant des formes d'angoisses, jusqu'à l'impossibilité de s'en procurer totalement, en passant par des stratégies mixtes (Riches 2018, 19). À La Pause, toutes ces situations sont possibles : des plus précaires venant faire face à la faim, pressante, à la personne bénéficiaire de passage pendant un mois plus difficile qu'un autre, en passant par cet habitué, effectuant sa « tournée » des lieux de distribution, affectueusement surnommé « Glouton » par ses amis. Les différentes définitions de la faim, de la malnutrition ou sous-nutrition se placent dans ces échelles et dépendent des capacités d'accès et du caractère abordable ou non de la nourriture dans un contexte donné (Riches 2018, 20). Les définitions de l'insécurité alimentaire sont donc particulièrement labiles, et résultent des différentes façons qu'ont les chercheur·se·s d'établir la responsabilité de ce qui aura causé la faim (Reynolds et Miroso 2016). Ce qui en fait une catégorie éminemment politique (Riches et Silvasti 2014 ; Reynolds et Miroso 2016 ; Ossipow et Cuénod 2019).

Il n'existe pas pour Genève de chiffres officiels sur le bénévolat dans l'aide alimentaire. Toutefois, une partie de sa démographie est connue, en particulier l'âge des volontaires. Les bénévoles tendent à être à la retraite et viennent de milieux socio-économiques relativement aisés (Martenot 2020). La Pause fait des partenariats avec des entreprises qui payent à leurs employé·e·s des « heures sociales ». Une grande banque par exemple, spécialisée dans la gestion de patrimoine pour multimillionnaires, envoie régulièrement certain·e·s de ses employé·e·s pour six heures de travail à La Pause. Cela rend possible une communication favorable pour l'entreprise, quand l'association est assurée d'une présence régulière en cuisine. Ce qui rappelle que si une partie de l'équipe de La Pause est composée de bénévoles, l'opposition entre cuisine professionnelle et cuisine non professionnelle n'est pas pertinente pour comprendre la différence entre cuisine charitable et cuisine profitable. Il suffira de remarquer l'hétérogénéité des parcours professionnels, d'un côté et de l'autre du spectre. Dans les cuisines profitables, beaucoup des travailleur·se·s n'ont aucune formation diplômante ; et il arrive que des cuisines charitables emploient des cuisinier·e·s très qualifié·e·s. Cela, sans s'attarder sur ceux et celles dont le profil est véritablement hybride, comme un cuisinier à la retraite devenant bénévole.

⁶ OFS, enquête SILC 2018. <https://www.bfs.admin.ch/bfs/fr/home/statistiques/situation-economique-sociale-population/enquetes/silc.html> consulté le 27.05.2020.

L'ethnographie du travail en cuisine : visibilités et invisibilités du travail de restauration

« Une blague récurrente était de faire comme si le restaurant social [*Soup Kitchen*], était un établissement commercial, où l'on pouvait acheter un café » (Glasser 1988, 151.) Cette anecdote est tirée du livre de référence en ce qui concerne la recherche qualitative sur les cuisines charitables, écrit en 1988 par Irene Glasser. Toutefois, elle s'intéresse dans ce livre presque exclusivement au public des *Soup Kitchens*. La centralité de la cuisine dans le travail de l'aide alimentaire est toutefois remarquée, tout comme chez Bonzi (2019) pour un exemple français. L'ethnographie du travail dans les cuisines profitables a reçu plus d'attention, quoique bien moins fournie que la recherche sur les client·e·s et la gastronomie (Fine et Demetry 2012). Depuis Whyte (1946) on sait qu'un des déterminants du travail de restauration est de combiner production et service (voir aussi Gross 1958 ; Freeman et Hannon 1983). Fine s'inscrit dans cette lignée. À sa suite, plusieurs auteur·e·s ont écrit sur la précarité, ou sur la violence en cuisine. Qu'elle soit physique (Bloisi et Hoel 2008), raciale (Hill 2018) ou de genre (Droz 2015 ; Fellay 2010 ; Stephenson 2012 ; Graham 2020). D'autres se penchent sur la créativité au travail (Stierand 2014 ; Fine 1995, 1996). Certain·e·s poursuivent des intuitions de Fine quant à la temporalité du travail en cuisine (Laporte 2010, 2013). Ces dernières recherches méritent notre attention, car elles décrivent la place particulière que la division temporelle du travail occupe dans le processus de production et les conflits qui en résultent (Bouffartigue et Bouteiller 2012). Dans une analyse plus large du secteur de la restauration française, Mériot (2002) montre comment la restauration commerciale, en occupant le devant de la scène médiatique, éclipse les autres facettes du métier et avec elles les pratiques de restauration moins valorisées.

Les cuisines ne sont pas des lieux où l'on ne fait que transformer de la matière. Les cuisines charitables et les cuisines profitables ne restaurent pas les mêmes classes sociales, ce sont des espaces de reproduction et de distinction sociale (Bourdieu 1979 ; Fine et Demetry 2012 ; Johnston et Baumann 2010). Penser les cuisines comme des lieux qui produisent des relations ainsi que des rapports de pouvoir a plusieurs intérêts immédiats. L'accent est alors mis sur la « communauté de travail » (Fine 2008, 38), étendue à toute la chaîne de distribution. C'est un décentrement conceptuel qui permet de mieux aborder l'hypothèse principale de cet article. Un des employés de La Pause, qui est passé par toute sorte de cuisines profitables, s'enorgueillit de son efficacité dans cette cuisine charitable : « Ici, je suis bien efficace, ça aide vraiment beaucoup d'avoir travaillé dans un restaurant. ». Les professionnel·le·s du travail social qui gèrent La Pause font peu la comparaison, ou alors pour se dépeindre comme une cuisine profitable diminuée. « Ah c'est pas le Michelin ici ! ». Les cuisines profitables et les cuisines charitables, bien qu'elles empruntent en partie aux mêmes mondes sociaux et symboliques, n'ont ni les mêmes conditions de production ni les mêmes motivations et finalités.

Commandes, livraisons et thésaurisation : les contraintes et les incertitudes de l'économie du surplus

Dans cette seconde partie, je décris la prise de commande auprès de la banque alimentaire et comment l'association procède pour la récupérer. Ces produits sont principalement frais et périssables. Ils constituent un stock d'aliments à utiliser rapidement et sont ceux qui créent le plus d'incertitude. En plus de ces livraisons hebdomadaires, l'organisation récupère deux fois par an des denrées non périssables lors d'une collecte publique organisée par la banque alimentaire, ce qui permet à La Pause de se créer un stock de produits secs.

Commandes numérisées

Nous traversons le parc avec Aline, la travailleuse sociale en charge de l'organisation de La Pause, pour trouver le « QG de l'association ». C'est une belle maison, une sorte de villa, prêtée par la Ville pour quinze ans⁷. Aline s'excuse plusieurs fois du manque de place autour de son ordinateur. Nous lançons la page de commande depuis un fichier URL enregistré sur le bureau. C'est un formulaire de *login* classique, très sobre sur un fond gris anthracite. Elle a avec elle des papiers où l'on trouve trois procédures à suivre, pour trois commandes différentes : les trois lieux de distribution de nourriture de l'association. Elle trouve ça absurde : « c'est du contrôle. C'est absurde, il faut se déconnecter pour se reconnecter ». Il n'est pas possible de faire une commande groupée, alors même qu'ils ont leur propre logistique pour la réception des produits. La suite des opérations est tout aussi compliquée. Il faut donner une quantité souhaitée de chaque produit, alors même que la quantité allouée par la banque alimentaire est déjà choisie et renseignée. Aline est irritée par cette comptabilité forcée, « c'est vraiment une logique entrepreneuriale ». Elle me montre les chiffres qui représentent les kilos de nourritures sur l'écran : « en fait, eux ils considèrent que cette nourriture c'est de l'argent. Ils comptent plus en tonnes de produits, mais en francs suisses ». Dans la page permettant la commande :

Vous avez le droit à 3,27 kg de carottes pour cette commande

Combien de carottes : veuillez indiquer combien de kilos de carottes

[Aline précise, « *ici, il faut mettre le chiffre exact : 3,27* »]

Ce qui la fatigue le plus, c'est la répétition de ces commandes : tout retaper, tout vérifier, alors que système comptable semble déjà savoir ce qu'il est possible de donner. « En plus, les bons de commande ne sont jamais les mêmes et n'ont souvent aucun rapport avec les commandes passées ». Aline connaît bien les difficultés logistiques rencontrées par la banque alimentaire. Par ailleurs, beaucoup de ces erreurs sont en faveur de l'association. Elle n'a pas de solution à apporter dans l'immédiat, mais regrette la charge de travail que cela représente alors même

⁷ Voir Crettaz 2018 et Ossipow et al. 2020 sur l'investissement de la Ville de Genève dans le milieu associatif.

que le choix proposé n'en est pas un : « autant qu'on reçoive ce qu'ils peuvent donner », soufflette-elle, désabusée.

La susceptibilité d'un imprévu dans l'acheminement des produits alimentaires est un sujet bien connu des restaurateur·rice·s. Toutefois, les relations entre cuisinier·e·s et fournisseur·euse·s sont celles d'une neutralité professionnelle, parfois d'une sorte de relation à plaisanterie. En vertu de leur vieille relation de travail, mon maître d'apprentissage se contentait de blagues et de menues humiliations pour sanctionner un de ces fournisseurs dont la qualité des produits laissait à désirer. Le fossé est majeur avec la situation à La Pause. Les premier·e·s se trouvent dans une situation favorable par rapport à leurs fournisseur·euse·s. S'ils et elles doivent subir les incertitudes de la relation marchande, leur pouvoir d'achat leur offre une grande marge de négociation. Ce qui n'est pas le cas pour les cuisines charitables, pour qui il est difficile de peser directement dans ce rapport de production.

Livraisons hebdomadaires

Nous sommes trois hommes dans un camion utilitaire d'une grande marque française. J'étais un peu en retard, ayant mal compris le lieu de rendez-vous. Ce qui plait moyennement à l'équipe : « déjà qu'ils ne nous aiment pas trop à [la banque alimentaire], si en plus on est en retard... ». Le risque étant d'arriver après le créneau alloué à l'association et de devoir attendre qu'un nouveau se libère. Une poubelle se trouve devant « notre place ». « Je te jure ils font exprès [...] Bien sûr, c'est des petits trucs comme ça, ils rigolent, mais parfois c'est pour qu'on s'énerve ». Le camion garé, nous allons dire bonjour dans le hangar. L'ambiance est plutôt détendue, mais les places sont assez claires. Nous sommes en retard, ce n'est pas grave, toutefois, on fait bien de ne pas trop en faire. S'ensuit le chargement, qui doit être pensé par rapport à la tournée du camion. On se fait gentiment moquer sur notre lenteur. Nous échangeons les bons de commande, j'ai même l'honneur de les signer. Nous repartons, le bus chargé de plusieurs centaines de kilos d'invendus et de légumes fatigués. En arrivant à La Pause, nous faisons une chaîne humaine pour décharger toutes les caisses. Le chef d'équipe est très spécifique sur les endroits où il faut que nous laissions les différents produits. Il mâche le travail de la cuisine, « comme ça ils ne m'en veulent pas et on reste amis ».

Stocks extraordinaires

En arrivant à huit heures pour le premier jour de tri, suite à une des collectes bisannuelles organisées par la banque alimentaire dans les différents magasins du canton, je remarque que des bénévoles sont déjà au restaurant. Comme le responsable de la cuisine et la cheffe ne sont pas là, Éric, un ancien bénévole, supervise le tri pour le moment. L'utilitaire blanc de l'association se gare dans l'arrière-cour. Nous formons là encore une chaîne humaine, les centaines de kilos cumulés dans ces caisses grises sont plus faciles à transporter. Nous faisons un premier tri en rangeant dans des caisses vides les produits appartenant à la même « classe » de denrées (les pâtes avec les pâtes, le riz avec le riz, etc.). C'est un véritable ballet qui demande une grande

coopération, effectué dans une frénésie joyeuse. Il faut ensuite déplacer les caisses remplies dans les différents espaces de stockages du restaurant. Les volontaires ayant l'habitude aident Aline à organiser la nouvelle chaîne humaine qui permet de déplacer la nourriture dans les endroits appropriés. Une petite quinzaine de minutes passe et les chauffeurs-livreurs toquent à la porte. Rebelote, en file indienne nous déchargeons le camion une seconde fois. Nous faisons le décompte à midi : des centaines de kilos déjà triés. Certain·e·s expriment leurs inquiétudes quant au système de redistribution des dons récoltés par la banque alimentaire. Est-ce qu'elle a été juste ? Il y a moins que l'année dernière.

On voit comment se structure ici toute une économie du surplus (Caplan 2017 ; Tarasuk et Eakin 2005) ainsi que l'importance d'une forme de thésaurisation du stock de nourriture non périssable. Passer une commande à la Pause est un processus compliqué, qui a tous les atouts d'une relation bureaucratique où l'asymétrie repose sur l'accès à l'information (Jacoby 1973 ; Graeber 2015), ici la possibilité de comprendre et d'influer sur le processus de commande est non-existant pour La Pause. Si toute une part du travail en cuisine profitable doit passer par là, ces difficultés bureaucratiques sont en partie absentes (carte et queue prioritaire dans les magasins professionnels par exemple). Les deux relations à plaisanterie présentées plus haut donnent un aperçu des différences dans les relations de pouvoir dans ces communautés de travail. Une différence anecdotique qui cache une inégalité structurelle : comme les cuisines profitables sont insérées dans l'économie ordinaire, elles ne subissent pas les pressions et les aléas de l'économie du surplus et de l'inventu. La pandémie de Covid-19 a crûment éclairé cette fragilité. Les demandes d'aide alimentaire ont augmenté de manière significative pour 80 % des banques alimentaires européennes, quand les surplus liés aux circuits de la grande distribution ont chuté⁸. Les bénévoles ne pouvant plus venir, une grosse partie du travail est devenue extrêmement difficile à faire (Ossipow et al. 2020). La conjonction d'une baisse de la consommation (et donc du gaspillage) avec des achats de panique a réduit drastiquement la part des restes alloués à l'aide alimentaire. Au final, la différence la plus probante tient aux spécificités de l'économie marchande contre celles de l'économie du don. Bien que cela ne soit que la moitié du problème, l'échange monétaire a bien une fonction de rationalisation des échanges (Hart 1986). La fluidité de l'économie marchande permet des échanges univoques qui, tout au moins en apparence, nivellent les asymétries de pouvoir. C'est tout l'inverse dans le don, qui oblige et rend parfaitement claires les prescriptions morales des un·e·s et des autres (Mauss 2007 [1925]). La banque alimentaire, en donatrice, se trouve dans cette position de pouvoir. Quand pour les bénéficiaires venant profiter d'un repas gratuit, une part de honte, de culpabilité et de souillure est comprise dans l'échange (Caplan 2017), des dynamiques similaires sont à l'œuvre entre La Pause et la banque alimentaire. Le caractère hybride de leurs relations (un don qui mimique le fonctionnement de l'économie marchande) crée toute une série d'équivoques et de paradoxes ethnographiquement significatifs⁹.

Il y a bien des différences majeures dans le fonctionnement des deux communautés de travail, la principale étant la position des cuisines dans les rapports de pouvoir avec leurs four-

⁸ https://lp.eurofoodbank.org/wp-content/uploads/2020/04/Report_survey_FEBA_COVID19_FINAL.pdf consulté le 27.05.2020.

⁹ Le travestissement du don en un échange marchand est un enjeu important dans les économies charitables du XIX^e siècle (Lhuissier 2013).

nisseurs. Aussi, le système d'approvisionnement des cuisines charitables se trouve en bout de chaîne de celui qui fournit les cuisines profitables, toutes perturbations dans ce dernier se répercutent dans le premier. À plusieurs reprises, j'ai insisté sur la résilience des acteur·trice·s de l'aide alimentaire ainsi que sur les ressources stratégiques qu'il et elles déploient pour pallier cette insécurité. Mais de quel « système D » parle-t-on ?

Stratégie de résistance et de persistance dans la « mise en place » charitable

La consommation de « restes » par les classes sociales les plus défavorisées est constitutive du capitalisme (par exemple Bonneau 2013, Montanari 1995). Depuis les années 70, c'est un phénomène qui s'est cristallisé autour d'une équation rhétorique très efficace : nous avons deux problèmes, le gaspillage alimentaire et la précarité alimentaire. À La Pause, personne ne s'y trompe. Tous, des cuisinier·e·s aux bénéficiaires, ont la conscience aiguë d'être en « bout de chaîne » et de manger ou de faire-manger des restes¹⁰. Au-delà de la violence symbolique engendrée, l'angoisse de manquer et la dépendance de l'association envers la banque alimentaire se normalisent. Par ailleurs, l'alimentation des plus modestes est régulièrement décrite comme ingénieuse, « savant faire feux de tous bois ». Pour Bonneau, au XIX^e siècle en France « l'art d'accommoder les restes est une pratique presque spécifique aux milieux modestes » (Bonneau 2013, 110). À La Pause, c'est moins un quotidien que l'objet du travail tout entier. D'ailleurs, beaucoup sont fier·e·s de cette débrouillardise. En tentant de rendre compte des moyens d'actions politiques des subalternes, Scott montre comment toute une partie de leur subsistance repose sur des « stratégies de résistance » quasi clandestines. Synonymes, les « formes quotidiennes de résistance » sont des actes antagonistes, plus ou moins héroïques, dissimulés derrière un acquiescement public consensuel (Scott 1985, 33). Le caractère genré de cette définition – une résistance qui correspond aux stéréotypes de la masculinité héroïque, ainsi que l'insistance sur la clandestinité, ne permet pas de décrire « le système D » rencontré dans les cuisines charitables. Notamment parce que cette définition occulte tout ce qui rend ces résistances possibles, notamment, le travail invisible (Robert et Toupin 2018). Elle est aussi problématique parce qu'elle présume la conscience de la charge subversive de l'acte en question (Bourdieu 2003 ; 248, Lukes 2004, 131). Il s'agit ici moins de la part la plus apparente des luttes pour l'existence de ce lieu d'accueil, mais des actes invisibilisés qui le maintiennent à flot, au « coup par coup » et au grès des « occasions » (De Certeau 1980, 60). En donnant plusieurs exemples observés dans les cuisines de La Pause, j'aimerais décrire des formes quotidiennes de *persistances*. Ce sont des pratiques qui créent des possibilités dans des contextes distinctement précaires. Elles comprennent des débrouillardises, des astuces, mais aussi le travail émotionnel et social, souvent invisible, qui fluidifie les tensions structurelles que rencontrent les cuisines charitables.

Tous les exemples qui suivent prennent place pendant la « mise en place » de La Pause. Dans une cuisine profitable, la mise en place consiste en la transformation de produits pour le service

¹⁰ Cette conscience sociale s'accompagne de forte culpabilisation et de sentiment de souillure (Le Crom et Retière 2003, Tarasuk et Eakin 2005, Caplan 2016, 2017, Plancade 2013, Ossipow et al. 2020).

du midi ou du soir. Une partie de la mise en place est congelée ou réfrigérée. Celle des cuisines de La Pause fonctionne presque à l'envers. Tous les produits qui arrivent de la banque alimentaire sont stockés dans la chambre froide, et chaque jour une grande quantité est transformée, non pas directement pour le service, mais pour la congélation. Par défaut de place, je ne mentionnerai que trois stratégies, qui toutefois couvrent trois des aspects les plus importants du travail en cuisine : l'organisation de l'espace ; la transformation des produits ; la division du travail.

La première des stratégies est l'adaptation de l'espace de travail aux contraintes du travail en cuisine charitable. La mise en place d'une chaîne de froid et d'espaces de stockage différenciés est obligatoire dans la restauration. Toutefois, elle doit être accommodée à toutes les étapes de la production, pour pallier des difficultés que l'on aurait du mal à imaginer dans le contexte de la restauration classique. Un des exemples frappants à La Pause est celui de la chambre froide qui se trouve à la cave. Bien qu'elle soit parfaitement fonctionnelle, elle n'est accessible que par les anciens escaliers de l'immeuble. Un système de glissière en planche de coffrage a été très ingénieusement installé. Rétractable, il n'empêche pas l'utilisation des escaliers, mais facilite grandement le tri des produits les jours de livraison. Dans une cuisine profitable, des travaux auraient été entrepris, amortis par les profits générés par l'activité commerciale. C'est aussi pour cela qu'à La Pause, aucun espace n'est réservé à une seule activité. La salle à manger sert à la mise en place (impensable dans une cuisine profitable), le corridor pour les toilettes est un lieu de stockage de cartons, chaque surface plane peut servir à déposer et à trier les produits.

La seconde forme quotidienne de persistance se retrouve dans « l'art d'accommoder les restes » et pourrait-on ajouter, celui de transformer les produits transformés. Pendant que la cheffe et son second font des allers-retours à la cave pour ranger ce qui sera utilisé pendant la semaine et remonter ce qui va être préparé pour la congélation, Anna ouvre une centaine de paquets individuels de sauce à salade. Elle les vide dans une carafe que l'on utilisera pour distribuer la sauce. La cuisine des restes existe en parallèle de tout un répertoire de recettes et de contournements de produits transformés et ultra-transformés. La Pause a toujours à disposition un stock important de soupes lyophilisées. Elles sont aussi conditionnées en portions individuelles, qu'il faut péniblement ouvrir pour en obtenir une bonne quantité. Leur cuisson demande de l'attention, il ne faut pas les ajouter trop tôt ni ou trop tard, supportant mal l'ébullition et indigeste par manque de cuisson. Curieusement, le fait de mélanger toutes ces soupes lyophilisées ne pose pas de problème de goût. Constitué en grande partie de sucre, de sel, de gras et de monosodium glutamate, ce mélange bigarré de soupes est utilisé comme une sorte d'assaisonnement et excelle dans ce domaine. Il faut aussi rappeler que si la banque alimentaire a su s'imposer, médiatiquement et logistiquement, comme le partenaire principal de La Pause, la politique d'approvisionnement de cette cuisine charitable est bien plus diverse qu'il n'y paraît – achats auprès de commerces locaux, récupération de viande auprès de la boucherie du quartier, arrangements informels avec une boulangerie portugaise. Cette diversité rend possible de la nouveauté ou des repas de fêtes par exemple.

La troisième stratégie de persistance se trouve dans l'organisation du travail lui-même. La division du travail dans les restaurants gastronomiques contemporains fonctionne sur le modèle vertical et exclusif de la brigade, inventé par Escoffier au siècle dernier. Cet idéal hiérarchique de la brigade est parfois, si ce n'est souvent, bouleversé pour favoriser l'autonomie des cuisinier·e·s et leur égalité d'accès aux tâches de préparation des plats. C'est dû en partie à la phi-

losophie d'ouverture de l'association, bien que la nature du travail à La Pause semble jouer un rôle important dans l'organisation du travail. La soupe est bientôt prête. Les bénévoles sont supervisé·e·s par la cheffe. Derrière, Cabir s'affaire maintenant à suer des oignons. Anouch vient les remuer de temps en temps, et se réchauffe au-dessus du piano. Maryam demande à Cabir : « tu les as salés ? » Cabir a sorti hier du congélateur plusieurs sacs contenant un mélange de légumes de 5 kilos chacun, il les met à cuire et ajoute de l'eau à la casserole. Il ajoutera plus tard les légumes les plus fragiles, pour finalement mettre le chou-fleur, déjà précuit à la banque alimentaire et donc des plus sensibles. Parfois, Maryam ou Anouch, voyant que la casserole se remet à bouillir, décident d'y ajouter les derniers légumes. Elles goutent. Ils manquent de sel. La cheffe vient goûter derrière elles. Elle ajoute aussi du sel. Cabir propose que l'on rajoute encore un peu de tomate. Tout le monde est d'accord. Cette attention partagée du travail de cuisson n'est pas sans soulever des inégalités, notamment de genre, et des tensions. Un exemple frappant se trouve dans les mascarades de Cabir et de Maryam, qui miment le couple malheureux pour rassurer les spectateurs de leurs accrochages parfois violents au sujet de la cuisine. Toutefois, cette division du travail favorise une hiérarchie inclusive, ce qui facilite la répartition de la charge mentale et physique. La systématisation des chaînes humaine, tout comme les glissières installées sur les escaliers, participe de la même logique.

Conclusion : « faire avec » les assemblages ambigus des économies de marché et des économies du surplus

Qu'est-ce qui fait la particularité d'un restaurant social ? Dans le contexte décrit, peut-on vraiment penser leurs fonctionnements avec les lunettes de l'économie marchande ? Dans les cuisines de La Pause, le travail n'est cadré ni par le besoin de générer du bénéfice ni par des relations de salariat. Les distinctions entre restaurant et cuisine d'une part, et finalement entre cuisine charitable et cuisine profitable permettent la comparaison entre les économies marchande et charitable. Elles offrent surtout un meilleur moyen de décrire et de comprendre la place qu'occupent les cuisines charitables avec leurs fournisseurs et les autres organismes distribuant de l'aide alimentaire. Fine note avec hésitation que dans la hiérarchie des restaurants, ceux qui bénéficient du meilleur statut rencontrent le moins de tensions (Fine 2008, 360, il cite également Mars et Nicod 1984, 45–47). Comme je l'ai montré, les contraintes structurelles qui pèsent sur le travail dans les cuisines de La Pause tendent à confirmer ces hypothèses. L'exemple des commandes de nourriture le montre, la banque alimentaire qui tend à récolter les honneurs de la solidarité doit assumer une part de la volatilité de l'économie de la charité et du marché du surplus, toutefois, elle n'a pas à en assumer directement les conséquences sur le travail, ni celles, lourdes d'un point de vue humain, qui sont liées au service des plus précaires. Si les banques alimentaires et les associations qui en dépendent ont une histoire et une destinée commune avec la néolibéralisation de l'aide sociale (Riches 2002, Riches et Silvasti 2014, Lambie-Mumford 2013, Carson 2014, Tarasuk, Dachner et Loopstra 2014), cet article montre que les méthodes ethnographiques permettent d'approfondir et de complexifier cet argument. La conscience politique des associations est souvent analysée comme une résistance à la violence de l'austérité et à l'absence de système distributif et collectiviste d'état (Cloke, May et Williams 2017). J'ai

voulu montrer que tout un monde de pratiques soutient et permet ces formes conscientisées et organisées de résistance. Ces formes quotidiennes de persistance ont les caractéristiques du travail domestique, et en partage les problématiques politiques : elles sont à la fois indispensables à la reproduction sociale et largement invisibles (Robert et Toupin 2018). Depuis le matin, trois énormes casseroles chauffent de l'eau pour les pâtes, ou le riz. Pour le moment le choix n'est pas fait. Comme me le faisait remarquer Yvan, cuisiner avec des restes rend difficile la préparation d'un plat spécifique. D'ailleurs, il n'y a pas de nom pour le plat d'aujourd'hui, comme c'est assez souvent le cas. Polenta/bœuf ; Saucisse/patate. Cette incertitude linguistique et taxonomique (ragoût ou soupe de légume ?) rappelle bien que les cuisines charitables doivent « faire avec » les limitations et les contraintes de l'économie du surplus. Comme il faut cuisiner avec ce que l'on a, l'euphémisme de la description ménage les attentes.

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FACING SCARCITY IN A LAND GRAB CONTEXT IN CAMEROON

Residential multilocality and sorcery as resilience schemes among rural communities

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Abstract

This paper undertakes a critical exploration of the mechanisms via which communities cope with scarcity resulting from land grabs. It explores two ranges of practices – residential multilocality and sorcery – through the lens of resilience. Residential multilocality appears as a novel living arrangement dealing with resource scarcity, while sorcery is used as a tool for bolstering a policy of resource regeneration. Thus, instead of rushing to nearby cities as a response to scarcity, the communities observed reinstate two silenced dynamics. Firstly, they underscore the rise of inter, and intra-rural mobility entrenched in the paradigm of residential multilocality. The paradigm embodies a scarcity management strategy in the sense that the abundance of vital resources in one rural area attracts villagers from other communities struggling with scarcity. Secondly, sorcery is used as a strategy to command eco-friendly behavior of villagers in order to successfully achieve a resource regeneration policy.

Keywords: *scarcity, residential multilocality, resources, resiliency, sorcery*

Introduction

Recently intensified land grabs are highlighting a new phase of the *scramble for Africa* (Pakenham 1990). Multinational firms, local business tycoons, and other elites are rushing towards the fertile lands of rural areas to develop their activities. In Cameroon, the goal of such corporations is to encourage a “second generation agriculture”; a state-promoted policy with the objective is to lift up the local agriculture to an industrial level in order to value more of the country’s unexploited lands. Indeed, the country has around 9.2 million hectares of agricultural lands of which only 1.8 million are exploited in a strict economic sense. Thus, only 4 % in absolute value, from the 47 million hectares of physical land of the territory, are exploited (GCN 2010). In order to sustain this state-sponsored policy, land reforms have been passed to give full rights to individuals and companies who are able to shift to an industrial farming model. However, this policy was nothing less than a way to fuel and

encourage the private ownership of communities' land assets, to the detriment of such communities (Cotula 2011).

The dominant literature in sociology and economic geography is structured around the concept of land grabs. The literature's nexus underlines an important fact: individuals and firms are controlling huge lands whose surfaces are bigger than the average plot of lands exploited by a community for commercial agriculture (Hall 2011). Such a dynamic, endorsed by the State, shows how its judicial system is influenced by powerful supranational bodies, favoring multinationals firms over native communities (Polack, Cotula, and Cote 2013). Indeed, questionable transactions for foreigners to acquire plots of land take place without proper community consultations, valuation and compensation (Meliki 2021a). Thus, this article shifts the analysis to the negative impacts of these transactions on local communities. These negative impacts are due, on the one hand, to community properties turning into investor properties. On the other hand, diminishing land surface also poses a threat for communities' food production (hunting, harvesting of forestry products and fishing) as it contributes to food scarcity (Alden-Willy 2011; Shepard and Mittal 2009). This decrease in available arable lands and forests tends to push the communities to engage in an over-exploitation of previously saved plot of lands. Hence, it causes a drastic reduction of communities' previous arable surfaces where vital resources were collected (Meliki 2021a), which leads to the scarcity of wildlife and fish resources for the daily nutrition and economic activities of villagers. This is a key concern when considering the statistical indicators of rural poverty, which show that urban expenses, for each adult in a yearly basis, grew by 4.1 % between 1996 and 2001 while rural areas only displayed a growth of 1.7 % (PNUD 2006).¹

Given the scarcity and poverty issues emerging from land grabs, this paper, unlike the dominant literature, is interested in scrutinizing local strategies developed to face negative effects stemming from this narrowness of remaining lands. Such limits on the amount of land available deny communities any possibility of maintaining the scope of their agricultural activities or wildlife and fish resources. In this context, resilience is viewed as a set of practices through which rural communities organize themselves to cope and recover from land scarcity. Ecological and psychological perspectives of resilience, pointing toward a restoration of an environment after disturbances linked to scarcity, as well as an ability to adapt to trauma, is the basis for this conceptualization (Ionescu 2012). Theoretically, it is also useful to consider the economic prism of the concept, which is addressing the ability of a local economy to withstand exogenous shocks (Briguglio et al. 2008). With regard to those approaches, investigating communities' resilience involves two tasks: investigating into strategies which help to cope with scarcity, and analyzing initiatives whose objective is to eliminate the cause of this scarcity to establish a new balance within which the shocks can be dissipated (Lallau and Mbetid-Bessane 2010). Thus, this perspective admits a continuity between scarcity containment actions (residential multilocality) and endeavours to reverse

¹ With a national population of 19 406 100 inhabitants, for a demographic growth rate of 2,6 % (3° RGPH 2010), resources scarcity is critical for rural communities who count 9 314 928 inhabitants (3° RGPH 2010), among whom 5.3 million live under the poverty threshold set to 232 547 FCFA per adult in a year, meaning 637 FCFA per day (INS 2002).

and neutralize the roots of scarcity (sorcery practices): defensive, restorative, and preventive dynamics are thus interconnected (Béné et al. 2012; Rousseau 2005).

Such a lens is useful to scrutinize these two processes, whose practices suggest an economic knowledge: resources mobilization (residential multilocality) and resources regeneration schemes (sorcery practices). Indeed, multilocality arises as a change of residential patterns within observed communities. Living from forests and agriculture, those communities' lives were mostly sedentary, despite occasional sporadic individual mobility for various reasons. Economic, social, cultural life as well as livelihoods were anchored around a native place of residence. In this context, the change in locality is the adoption of second residency sites. These second places display the abundance of resources that lack in the native place of residence. Thus, they are at the center of a strategy seeking to counter the scarcity. These mobility trajectories highlight an inter, and intra-rural mobility scheme. As such, this questions the dominant idea that urban areas serve as the main escape for rural communities who grapple with scarcity (Barbier, Gubry, and Courade 1982; Ela 1982; Roquet 2008). This residential multilocality is a hybrid residential scheme. It functions both through nomadism, due to circular moves between stable residencies at a regular frequency, and sedentarism, because secondary residences are made into homes through symbols, objects, and given habits: villagers alternately live in two rural residencies (Urry 2000; Hannam, Sheller and Urry 2006). Mostly understood as an urban style of life, residential multilocality has only been accounted marginally as part of villagers' culture. Indeed, mobility historically emerged as a way of life for most African rural communities, not just in West Africa (Chapman and Prothero 1983). Theorized as seasonal circular migrations, forms of mobility sprout within communities, for example joining urban areas during droughts, conflicts, or religious awakening (De Bruijn, Van Dijk, and Foeken 2001). However, most of those seasonal migrations are distinctive from the residential multilocality in question, despite similarities in circularity and residential plurality. Firstly, seasonal migrations imply a lengthy immobility and thus no regular frequency of stay in the geographical spaces within the circular scheme (Boyer 2013). Secondly, the second residency is not as stable as in the observed residential multilocality. This is owing to the fact that there could be both a regular change of places depending on the availability of work and the level of incomes (Daum and Dougnon 2009). Thirdly, the dominant trend of mobility in this article suggests the strong dominance of a rural directionality, as opposed to an urban one, and highlights the existence of a stable second rural home owned by villagers (Meliki 2021b).

As defined, resilience is not only about containing the punctual negative effects of scarcity, as suggested by the concept of residential multilocality. Resilience also combines endeavours intended to reverse land scarcity effects by neutralizing its roots. Indeed, some communities attempted to regenerate resources in their villages as a lasting solution against scarcity. In doing so, sorcery found itself at the heart of this resource regeneration strategy. By ascribing occult power to certain wildlife species and placing fetishes on the communities' main rivers and forests for a given period during which any human activities are forbidden and punished, villagers are able to exert a control over the resources to allow them to develop again. Sorcery is thus at the core of a collective strategy dedicated to the regeneration of wildlife and fish resources. Sorcery, as a set of structured and shared beliefs in occult powers, explains the ori-

gins of misfortune, diseases, or deaths and related sanctions corresponding to those beliefs (Vallée 1985; Geschiere 2005). So, beyond its occult character (Rosny 1981; Clément 2003), sorcery influences the social space by conferring to some members of a group exceptional capacities to act on other members according to certain purposes like protecting the natural resources (Kamdem and Tedongmo Teko 2015). This perspective allows this analysis of resource regeneration attempts to mobilize invisible world categories and understand how villagers are able to impose an eco-friendly behavior on other people to achieve resource regeneration (Geschiere 2000). Hence, based on the aforementioned perspective of resilience, residential multilocality and sorcery, both as defensive and restorative practices (Rousseau 2005), appear as a collective response to the scarcity generated by land grab.

Fields and methodological approach

The paper's methodology follows an ethno-sociological prism. Data was gathered during a research funded by the CODESRIA² on "land grab and food sovereignty in Africa" from December 2014 to February 2016. An ethnographic survey was carried out for nine months in three rural communities, namely Abéssé, Bagofit, and Nanga-Eboko; respectively located in the East and Center regions of Cameroon from February to October 2014. Two investigators were paid to help during the data collection stage by taking notes and reporting interviews. Late in November 2017, a follow-up field trip was made.

Methodology of the study

This article's investigation tools consisted of both interviews and observations. Semi-structured interviews were conducted with 30 people equally distributed across the three communities. A snow-ball procedure (Combessie 1996) was used for a quick identification of specific actors dealing with an aspect of the research subject. Key actors were selected regarding residential multilocality practices, villages' chieftaincies, and persons directly deprived of land ownership. Using each informant to choose the next subject, we respectively asked for persons alternatively living either in a host village or in their native one; we also asked for members of the chieftaincy and villagers whose land were seized. Interviews with those categories of people sought to identify and comprehend the strategies that are used to face scarcity. Understanding the causes, forms, and individuals taking part in multi-residential practices, as well as locating chieftaincies' initiatives in relation with scarcity conjunctures was the objective. Interviews were carried out in houses and villages' public spaces. Direct observation helped to witness the scope of privatized lands and the demographic pressure exerted on the remaining land, wildlife and fishery resources of communities' traditional residential sites. In Abéssé, we went to two villages where multilocal residents were numerous, Dimako and Yelan, in order to observe coveted resources in the communities. Additionally, this

² Council for the Development of Social Science Research in Africa.

method also allowed for cross-checking data (Ferréol 1995). Lastly, a field journal was opened to record any information able to shed light on the topic, despite not being generated by the aforementioned data collection tools.

Brief description of the fields of study

Three communities are concerned by this study. The first is Diang, located in the Lom and Djerem subdivision in the East-Cameroon, which has 275 784 inhabitants (Bucrep 2005, 7). The community of Abéssé, in Diang, relies on family agriculture and fauna products. More than 50 000 hectares of Abéssé's lands are monopolized by Chinese who, through a deal with successors of SEITA³, acquired the lands. The second is Bagofit, which is a rural community located in Abong-Mbang, in the East Region. This area is subjected to land grabs by the then Deputy Chief Executive Officer of the civil cabinet of the Presidency of the Republic (Meliki 2018). Owner of the "Bagofit plantation", he controls most of the community's lands and does not provide statistics on this monopoly. Using these lands, he grows hybrid cocoa, corn, and plantain. The last site is Nanga-Eboko, in the Center region. In Nanga-Eboko, the land was seized by the Chinese capital group Iko, which received more than 10 000 hectares. Located ten kilometers (10 km) away from the city, its residents run farms of rice and cassava (Meliki 2018).

Scarcity and its manifestation under lands grab

In the villages described above, land is the main means of production. However, its concentration in the hands of few people and companies furthers scarcity. Two variables account for this.

Exiguity of farming lands and land conflicts

Privatized lands were reserves that communities used to mobilize once the "human carrying capacity" – the ability of a land to support a certain load of activities – was reached (Allan 1949). This issue leads to many palliative strategies, the objective being to increase farming surfaces. Indeed, the generalized dynamic of arable land control forces localities to engage in agriculture, hunting, and fishing activities on small and less productive lands. Furthermore, "the change is [not only] that people have to walk too far in the bush for new farming lands" (Sabel, Bagofit, 9 March 2015), but that the pressure of food demand on small existing stocks also forces villagers to extend ancestral land limits for food production. To do so, several strategies are observed. Some people use marital relationships to access new spaces of land from their in-laws. Others plead to work on a plot of land for a single

³ National company for industrial exploitation of tobaccos and matches.

production cycle. However, some individuals are not using those protocols and disregard lands limits, especially as there is often a lack of land registration within rural areas (Lavigne Delville 1988). Thus, lands' natural limits are often challenged, and conflict on land boundaries are addressed by traditional rulers. As this quote highlights, "there are sporadic fights between us just for a mere piece of land. We usually resort to the King before ending up in court (Jean-Jaurès, Bagofit, 15 March 2015). Indeed, in a context of a drastic reduction of community lands, there is "recognition of land value by people who are now ready to defend it at the price of their life" (Armand, Abéssé, 23 June 2015). Each square meter of secured land is vital, as the concentration of agricultural activities on such few plots of land destroyed their fertility and reduced harvest productions. An elder explains that: "I do not succeed any more in making a single attic of corn. Even when I try to widen the farm, we still lack corn to cover the dead period. Whereas, before, whatever the period of the year, I always had corn in abundance" (Ndongo, Abéssé, 21 June 2015).⁴ In the region, corn production is not taken home, it remains in the farms. If an attic protects the harvest from rodents, it also helps estimating one's production level. Therefore, attics, through their contents, are used as a concrete indicator of food scarcity.

The specter of hunger

The threat of hunger is a direct consequence of the aforementioned issues of food insecurity. In Bagofit, statements were quite striking, "we are having tougher moments in the village. The forest is empty. Working on the same plots of land every year, made it unproductive. The bush meat and fish are another matter" (Martine, Bagofit, 12 March 2015). As stated, there is uncertainty about stock and food insecurity. This means that there are difficulties in accessing food at the appropriate time and at a low cost with due respect to local preferences (Janin 2006). As aptly captured by a community member during an interview in Abéssé, food stock in rural areas is most reliant on the generosity of nature.

Just a few years after SEITA was settled, times got harder. We could not cultivate any more as before, due to the lack of lands. The river Abéssé became so poor, certainly due to manipulated chemicals; similar for bush meat. Famine was knocking at the door. For married people, it was pretty messy. (Doudoumi, Abéssé, 23 June 2015)

This statement and many more not directly quoted in the text clearly show that the communities are facing dire moments. Soil infertility – due to the lack of resting time for land plots – and the emptiness of bushes and rivers due to their overexploitation account for this threat of hunger. These food scarcity challenges are also reflected in price changes for basic foodstuffs. Table 1 displays two distinctive ranges of prices per item. Prices for the year 2014

⁴The attic is a measure unit for harvested corns in the East region. It refers to a stilt house made with six shrubs as the pillars, with smaller shrubs fastened to each other with a string to compose the floor. Walls, as well as the roof, are entirely made of raphia mats.

were directly gathered during the weekly market day, while those of 2002 were indicated by villagers after an explicit demand for comparison.

Table 1: Growth of basic foodstuff prices

Food items	Previous cost in FCFA* (2002)	Cost under lands grab in FCFA (2014)
A basin of cassava flour	800	5000
A basin of corns	1500	7000
Bunch of cassava	100	300
A partridge	300	1200
Plantain of average caliber	700	2000
Plantain of big caliber	1200	4000
A haze	1000	6000
A whole monkey meat	1000	6000
Kg of catfish	500	2000
Dish of mushrooms (500 g)	200	No more mushrooms

* FCFA: Franc of the African Financial Community

Prices have greatly increased, in a lot of cases they have more than doubled. Such an inflation reflects the level of food scarcity in the region. However, inflation cannot be solely explained by land grabs and the effects of food scarcity. In fact, with a growing rate of 2.6 %, the local demographic growth also exerts a high pressure on land resources (3^e RGPH 2010). Thus, even without issues of land grabs, inflation would still continue to pose an issue to villagers. Therefore, land scarcity (linked to land grabs) increases both inflation and food scarcity. Buying food to supply households, then, becomes quite challenging. Indeed, walking through the weekly local markets, food items like mushrooms for example, were barely available. Villagers' narratives highlighted their struggle:

It is a waste of time fishing in Abéssé river. You might fix more than a hundred fishhooks at nightfall and proceed to four visits at night, you will still return in the morning without half a kilogram. It is more painful for diurnal fishing. (Basile, Abéssé, 18 June 2015)

This statement reveals the extreme scarcity of fish in the villagers' main rivers, as well as the unproductivity of fishermen's efforts to remedy the situation. The same problem is encountered for wild animals, which are hunted for local consumption and restaurant commercialization. In Bagofit, people are not devoting time to hunting anymore: "it is unthinkable. I enter the bush at 5 pm with a box of cartridges and I quit at the early hours of the morning without firing the slightest blow at a hare or monkey" (Olinga, Bagofit, 5 March 2015). The aforementioned statements underline a dire conjuncture, one of limited access to land, its bareness, the drop in local agricultural production, and the rarefaction of wildlife and fish resources. This conjuncture, the article argues, is the active cause for individual and collective resiliency strategies partly expressed via a change of residential pattern.

Residential multilocality and resiliency: living both “here” and “there”

Contrary to the studied behavior of villagers fleeing to nearby cities to face the shocks of food and land scarcity (Roquet 2008), communities in our sample highlight both intra-rural and inter-rural migrations in which some individuals own a house in the host place. A villager, for example, acknowledges that, “for more than 15 years I am between Dimako village and here. There is no choice when you have a family like mine. You have to go to bush, otherwise they starve” (Samuel, Abéssé, 16 June 2015). In Bagofit, another one declares that, “when we began to seek in surrounding villages for another bush for traps and fishing, I used to sleep at my acquaintances. But, today, I own a house of two rooms there. When I’m at my own place, I lend it to people” (Mathieu, Bagofit, 22 April 2015).

Those statements of living intermittently in two rural places to feed households and owning a second stable house at the relocation place, like many other statements, introduce two central facets of this multilocality. The first facet underlines a scarcity context and the endeavors undertaken to face it. It speaks of a strategy whose aim is to counter the ongoing scarcity of vital resources, which leads some villagers to settle in other rural areas to stock up on resources their households, located in the ancestral villages, are lacking. Hence, there is a trend of relocation in the villages. Villagers are transforming surrounding rural areas, endowed with coveted resources, into relocation homes to face food scarcity. In doing so, they give into a mobility which does not imply a definitive settlement on the relocation sites. By intermittently living between their relocation sites and their own villages, these people live in between the spaces, as depicted by this villager “It’s been six years that I’m in Bamako. I hustle for my family. I send money to my wife and I go down there every two months to spend two weeks with them” (Jean Essono, 19 February 2015, Bagofit). As highlighted above, this residential pattern involves a circular mobility between two sites of the same administrative region. Hence, it is not a migration or a mere mobility, but a residential multilocality (Sheller and Urry 2006). It is a hybrid residential model occurring both through nomadism, due to circular moves between two stable residencies at a regular frequency, and sedentarism, because places of life are appropriated through stable activities, objects, and living habits: villagers alternately live in two rural residences (Urry 2000; Hannam, Sheller, and Urry 2006; Duchêne-Lacroix 2013). It is noteworthy that this living arrangement is not new. West Africa has historically been portrayed to embody a culture of mobility (Chapman and Prothero 1983). Indeed, circular migration was already expressing a multilocal residential pattern then, when it was undertaken to escape droughts, hunger, or conflicts by settling in cities (De Bruijn, Van Dijk, and Foeken 2001). However, this article’s case shows a shift, not only in a lessening of the dominant directionality of cities as a chosen point by villagers who are grappling with food and land scarcity (Barbier, Gubry, and Courade 1982; Ela 1982; Roquet 2008), but also in the growth of personal houses owned by villagers in their relocation place.

The second facet in villagers’ migration is that, in their ongoing residential multilocality, some individuals own houses both in native and relocation places. The frequent presence, over the years, in the same place for specific activities – hunting, fishing, and gathering – was prescriptive of an anchorage in the second residency place. As such, the multilocal resident

cannot be considered a foreigner in their second place of residency. Indeed, because villagers were embarrassed at having to use or lend their acquaintances' houses, owning a house came to be seen as a necessity. With regards to the homes themselves, they are built on the same architectural model as the primary residence. Rural houses are simply made of wall pieces composed of small shrubs on which palm nervures are transversally fastened and holes are filled with mud, with a roof made with raphia mats. However, the secondary home is not as furnished as the one in the native village, and has only simple bamboo beds for bedrooms, a rustic low table which is cut from a big tree trunk, some bamboo chairs and two pots for kitchen as the main furniture. Residency time in both spaces depends on the activities that are carried out. In the case of the native residence, since it experiences a scarcity of vital resources for households, there the time of residence corresponds to the months dedicated to clearing and sowing the farms. It is the space of socio-cultural life, family, self-identification. It justifies a long residential time compared to relocation sites. The relocation site, as a second residential place, is a site where scarcity experienced in the native residence is challenged. These second residential places share the same features: low demography, exuberant forest, weak anthropogenic activities in the natural environment, as well as an abundance of wildlife, fish, and floristic resources. As mentioned before, the villagers choose to move to these second residences in order to stock up on food items they may be lacking in their native residence. Hence, this multilocal strategy is established to make use of those advantages (Weichhart 2015). The time of residency in the second residence corresponds to the free periods of the agricultural calendar of the native residence. Two periods define this time of residency: the beginning of the main rainy season, for setting traps, and the middle of the dry season, for fishing activities. In this context, secondary residences are a place for producing and collecting vital resources in order to fight against food insecurity. Such is the matrix of the multilocal residential scheme for villagers.

In this regard, residential multilocality patterns appear as an economic solution for villagers. It is a strategy to deal with land and food scarcity by producing and finding vital resources lacking in the traditional unit of residency in secondary residences (Ember and Ember 1972; Weichhart 2015). However, it is important to note that even if the majority of villagers chose neighboring rural territories for this economic strategy, some individuals do head to nearby urban cities to counter the effects of such scarcity. This dualism in their choice – urban or rural – leads to questions surrounding individuals' competencies and skills linked to the specific resources they seek for their households.⁵

⁵ Being educated or illiterate entails distinctive skills and knowledge leading villagers to choose either urban areas or rural zones for mobilizing resources. Cities mostly attract those who went to school or possess vocational competencies they can use to access the informal job market, whereas villages are preferred by those who master hunting and fishing techniques.

Residential multilocality and scarcity management: listening to multilocal residents

Residential multilocality is a collective economic resolution whose objective is to produce either vital resources – disappearing due to land scarcity – or substitutive products (Roquet 2008).

Relocation sites and resources abundance for a punctual containment of scarcity

Communities depend on bush generosity for meat, fish, and starchy roots, all of which are used for daily dishes. The scarcity in the native villages, as mentioned above, is visible in the villagers' difficulties in accessing food at a reasonable cost and within a reasonable time frame (Janin 2006). This multilocal mobility, as a responsive strategy, in addition to the individual skills considered above, involves geographic areas with key features. Indeed, the mobility observed implies neighboring villages and cities. In Abéssé, two villages appear as relocation residencies, for the majority of people heading to rural areas: Dimako and Yelan. Situated on the same trajectory, on the West side of Abéssé, these areas are respectively 15 km and 30 km away.

The place seems better for me. Dimako is not that far, more or less than 15 km; it means only 3 walking hours from the village. With a bicycle it is even faster. From there, I can send off my news home every day and a part of what I collected in the bush. (Adrien, Abéssé, 11 July 2015)

The closeness of the relocation areas emerges as a central facet to this migration. Indeed, that closeness, in a context of a severe lack of intra-rural means of mobility, underlines a necessity for villagers: the ability to cover the distance by feet, bicycle, or by using passing-by people who will cross ones' village as messengers. Those relocation sites are chosen because they are tiny villages of less than 20 households with unlimited forests. Because of their low population, these villages have no impact on biotopes and wildlife, floristic and fish resources. Subsequently,

Once you are over there [in Yelan], you just wonder whether it is wild or domestic animals you are seeing! In the evening, from the porch, I use to observe monkeys coming for fun on big trees. They sometimes get down, up to the roof of the house. (Ndongo, Abéssé, 21 June 2015)

This statement describes the particularities of all rural relocation territories: a good preservation of animals' biotopes, both for the nearby and distant forests of the village, and an abundance of wildlife resources. Besides these reasons, the villagers' choice to move also depends on the extent to which settling down and carrying predation activities are made easier. For the secondary residence sites investigated, there appears to be no structured tra-

ditional authority. Where it exists, the chieftainship, which is a component of the administrative organization of a village, represents centralized power and ensures that a territory remains well-defined with regards to hunting activities. In such communities, settling down for hunting and fishing, as well as for other activities, is subjected to complex procedures. However, the rural relocation sites investigated showed no sign of structured power, outside of an elder acting as a judge in case of a dispute. Although respected for his age, the elder, when he does not have the attributes of the chief, fulfills a simple consultative role. His authority, although important, is not irrevocable. Therefore, entering and living on the secondary sites is less regulated since there is no land rights transfer. Consequently, regardless of the cumulated time spent by a multilocal resident on a plot of land in secondary residences, neither he nor his siblings can claim any rights on a secondary piece of land. This may explain why tutoring relationships, as a strategy to settle in a village (Chauveau 2007), have not been emphasized by the individuals interviewed. It could also explain why building a house, in Yelan for instance, is reported to be easy and appreciated. In fact, because secondary villages have on average less than 20 households, each new house built there is seen positively as contributing to the growth of the village. Hence, all it takes to establish a secondary residence is to gain the elder's sympathy by offering him goods (wines, soap, and cartridge) while maintaining the harmony of the village and avoiding hunting where natives set their own traps. When all is settled with the village elder, the daily life of the multilocal resident is made of activities related to hunting, fishing and the harvest of natural products (mushrooms and roots) that they can send back to their households. Consequently, since multilocal residents stay out of any native agricultural activities, serious conflicts are not reported because they do not have an impact on existing land systems.

Managing the daily needs “there” while being “here”

Contrary to the classic residential multilocality, here the observed practice of mobility in secondary residences does not affect the resident's life in his native village. Settling down in the second residency does not sever ties, even temporally, with the household left at the traditional home (Pulliat 2013). Because the presence of a villager in his native home is important for managing the needs of the household, a broad range of practices are undertaken to maintain the multilocal resident's presence in the family.

On the one hand, there are “word” and “parcel” practices. A central reason explaining the choice of a secondary residence site is its closeness. The distance between both sites should allow villagers to cover it by foot or by bicycle. This emphasis on the required transport modality that can connect both homes highlights the mobile villagers' will to provide food and news for their native households as frequently as possible. The *word* includes views and directives for important family issues arising during the absence. The *parcel* includes stocks of meat, fish and other foodstuffs to be sent whenever needed. This pattern also applies to the individuals who chose to relocate to urban areas:

Alfred is the person in charge of the family. He takes care of everything. Because of his brothers and problems here, when there is a situation, I send a letter or phone him. He then indicates what I have to do or he quickly makes a roundtrip if we cannot wait for the period during which he usually comes to the village. (Vincent, Nanga-Eboko, 7 January 2015)

Hence, in a context of a mobility erected as a resilience scheme, there is a will of multilocal residents and their families to maintain connections. This means that there is no split between the city or the rural relocation site and the traditional residence. The villager whose choice is “to go” does not leave the village, rather he is in search for additional means to improve the living standard of his household (Azuka 2014). So, the word delivered via diverse channels (letter or word of mouth through persons travelling to the village) and the parcel (foodstuffs, manufactured goods, or money) sent frequently by an intermediary, symbolically perpetuate the villager’s presence within the domestic unit.

The “quick journey” is another modality of perpetuating one’s presence as well as managing the daily needs of the traditional residence. Indeed, the closeness of the native site, which is a central element in the mobility decision, also reveals the need for personal intervention within one’s family, if need be.

Since the bush [relocation site] I always keep one foot there. There are delicate cases that cannot accommodate with a distant management. When such a situation arrives, I make a quick journey. In a few hours, I am home, I solve the problem and I’m back. (Etienne, Bagofit, 22 April 2015)

Both for rural and urban mobility, individuals who undertake the journey are highly focused on the need of a permanent travel to better the traditional residence. In fact, it is this lack of those resources that triggered their mobility decision. Additionally, the frequent trips also help these individuals maintain their presence within their family, despite their absence. As a matter of fact, narratives of urban and rural multilocal residents show that both frequency of visits and the number of parcels sent are higher for multilocal residents that have ties to a rural traditional residence. Despite a slight difference in distance between native villages and urban relocation sites, both frequency of visits and the number of parcels sent are lower than for rural relocation sites, mainly because it is more expensive to undertake such activities from urban settings for multilocal residents. This financial issue is not the case for rural multilocal residents who pick from bush and can travel by feet. This is why, coping with land and food scarcity through residential multilocality, as a punctual measure, is seen as a transitional solution expressing the containment side of resilience schemes (Rousseau 2005). Indeed, resilience encompasses both actions: containing the issue of scarcity, and undertaking initiatives to reverse the scarcity by neutralizing its root (Béné et al. 2012). This is the restorative aspect of resilience as embodied in sorcery for communities who choose to regenerate their own resources.

Sorcery as a restorative tool: mystical practices for resources regeneration policy

Previously rejected by scholars, sorcery is an important variable through which development and individual behaviors can be understood (Fisiy and Geschiere 1991; Esse 2010). Indeed, sorcery in Africa is mobilized not only to create wealth (Geschiere 2000), but also to face societal challenges like scarcity and questions linked to nature conservation (Sousa, Ainslie and Hill 2017).

Chieftaincy and the mobilization of witchcraft for a coercive resolution

Residential multilocality has a structural negative effect: a sporadic devitalization of native villages which leaves them empty. Indeed, the multilocal mobility process intermittently alters the demographic structure of native communities. Sex, age, and knowledge of fishing and hunting techniques are mostly a privilege reserved for adult men. Bamvelé, the local vernacular language in Abéssé, says *ngolok*, meaning adult above 30, to refer to those involved in the residential multilocality. Because of this impact on native villages, traditional 3rd class chieftainship wished to stop it.⁶ Antoine, the then former chief, underlined that the main reason for such high levels of resident multilocality was an acute consciousness of resources rarefaction. Vain hunting and fishing parties were pointed out as concrete factors for the observed multilocality trend. This diagnosis was thus indicative of measures to be undertaken in native villages: a regeneration of fish and wildlife species on the available land of the community. Hence, a meeting was subsequently set to determine the basis of a resource regeneration policy.

After an agreement with the head of families, we decided that the river will rest at first for two consecutive years without anyone carrying fishing activity there, whatever its form. We also forbade hunting with rifles in the adjacent forests. The gun decimates all it points at and its noise scares and sends remaining animals far away. (Antoine, Abéssé, 13 July 2015)

For the former chieftainship, the chosen option was a policy to allow the river and neighboring forests rest from human activities.⁷ The objective was to allow the rare remaining species to reach maturity, mate and reproduce. Hence, villagers forbade access to fish and wildlife ecosystems, as a prerequisite for the regeneration process. The measure was also backed

⁶ A chieftainship is an administrative component. It represents the State and applies its prescription within a defined territory. There are three types of chieftainship: first class, second class, and third class. Each of them controls and exerts power over a subsequent territory. The third class is the one reigning over the smaller circumscription (a village, a block of houses in urban or rural areas).

⁷ Regeneration of resources is a set of articulated human and technical capacities helping to stop the excessive exploitation of – endangered – species for repopulation aims.

with the temporary ban of fishing activities in the main river, Abéssé, as well as the ban of hunting with rifles in the neighboring forest. Because the community could not precisely estimate the mating periods of such species and the environmental conditions required to stimulate their reproduction, the rigid prescription of the resting time was meant to fulfill at least three goals:

- enabling ecosystems to self-repair the biotopes of desired species, to create ideal conditions for their return and reproduction;
- not disrupting the species during their reproduction period to avoid their migration;
- guaranteeing the maturation of the species' young, so that they can reach their reproduction stage and repopulate the species more quickly.

However, as one elder stated, “after the meeting that decided to restraint hunting and fishing periods in the village, some people expressed their disagreement. Dissent was looming” (Louis, Abéssé, 13 July 2015). The unprecedented character of the policy, putting an end to the unregulated exploitation of resources within a community whose food base mainly came from fish and wild animals, was generating disagreements. In the case of such disagreements, traditional chieftaincies are perceived by locals as the hand of administration and State power. Subsequently, even when involved, villagers often see a chieftainship's decisions as a State diktat; hence, they subtly boycott chieftainship's decisions using creative actions, invisible resistance and selective compliance, all of which constitute a hidden transcript (Scott 2008). This is why the partial disagreement context in Abéssé needed a collective contract and a larger enforcement tool, in this case: sorcery and fetishism.

Sorcery and fetishism for resources regeneration

A rising literature is showing how sorcery is being used to succeed in diverse initiatives (Fisiy and Geschiere 1991; Comaroff and Comaroff 1999). In Cameroon, from the 1990s, sorcery for wealth practices and capital accumulation has been invasive (Austen 1993; Geschiere 2013). Individuals and communities are resorting to various forms of occult powers to face challenges, as witnessed in the field. Because the excessive and uncontrolled exploitation of wildlife and fish species contributed to their extinction, these species were defined as resources to be protected using both a collective agreement and a dissuasive mean by the chieftaincy. Hence, fighting threats of extinction of natural species through the ban of their exploitation, as concluded above, gave a way to an unprecedented local experience.

At Abéssé, a set of heterogeneous objects endowed with supposed mystical powers were installed on the eponymous protected river and forest areas. For the case of the river Abéssé, each bank villagers stepped on when crossing displayed particular materials. These objects were composed of a ribbon with red and black bands, strewed with snail shells and small packages wrapped in pieces of black cloth. Individually taken, each component of the whole object, before being united with others, was powerless and insignificant. However, once assembled, those components came together to form a new identity (Pietz 1985; MacGaffey 1994). When these objects were installed by a procession of men and women led by patriarchs and the Chief, Antoine, they were subsequently endowed with ritual power and

thus turned into a fetish. According to a villager, “anyone who would defy the regulations exposes himself to blindness or horrible bloody death. Going beyond the ribbon and initiate fishing activities will end, for most unfortunate, in a bloody death caused by the mystical snake, *ingokdom* (Mekinda, Abéssé, 24 July 2015). Hence, the role of these objects was to scare villagers into following the resource regeneration policy. Here, the role of the fetish is to watch over and protect things or species from being harmed or misused. Academic analyses also conceive the fetish as building a bridge between the human world and the invisible one where powers and metasocial entities can be mobilized through certain processes to produce specific results for their users. Thus, a fetish connects men to a spiritual energy made accessible through the intermediation of objects that materialize fetishes themselves (Surgy 1994). Resorting to a fetish is justified by its “relation with, an exerted power over, the desires, actions and self-identity of individuals” (MacGaffey 1994). Hence, the fetish used by the chieftainship was materializing a collective contract whose terms and intelligibility will be considered below along with diverse uses of supernatural powers.

There is a second aspect to consider about the fetish: the mystical snake, *ingokdom*. Indeed, occult power was also embodied in wildlife species to enforce the regeneration policy. However, transferring power to animals to mutilate or kill people who were not complying with the rules underscored what the local language, Bamvelé, named *mgbwë* to differentiate it from *tāh*. *Mgbwë* slightly differs from *tāh*, the sorcery, in the extent that, it is not a mere invocation and use of supernatural power for controlling events and people. While doing all these, *mgbwë* adds a compulsive punctual and active destruction as well as killings of people; it is literally translated as witchcraft. In practice, villagers report attacks by a mystical snake, *ingokdom*, who actively punishes infringers. Due to its mythical size, strength and unknown whereabouts, it is believed that *ingokdom* is in fact the product of some villagers who use supernatural powers to shape-shift into a snake (Sousa, Ainslie, and Hill 2017). Furthermore, interviewees report several scenes and accidents encountered by infringers: getting lost in the bush, an encounter with mystical beings like unknown horrible animals and deceased persons of the community, firing whole cartridges on illusory animals or being shot at by another hunter. These narratives are, clearly an expression of the chieftaincy’s warnings. Anyone who will go against the rifle ban will face the consequences. This use of sorcery to get villagers to comply with the policy was decided during the meeting and everyone agreed (Norbert, Abéssé, 24 July 2015). This statement, along with villagers’ declarations and stress, show an interplay of sorcery, witchcraft, and fetish in the implementation of this resource regeneration policy. Embodying occult power in certain wildlife species and placing fetishes on the communities’ main river and forest fulfilled at least two roles.

On the one hand, it materialized the community’s agreement in turning a part of the forest and river into an untouchable sacred zone. Indeed, the meeting process and decision-making are descriptive of a collective agreement. The meeting was convened by rulers on a Saturday evening, which is a resting day and meant that most of the villagers would attend. The event, as all those convened by rulers, was held in the public shed built near the royal house. Once the terms were introduced by the chief, the debate was opened to everyone and the dominant opinion was accepted. Thus, there was a collective agreement on the use of such unusual measures as sorcery and fetishes, along with a collective procession to the river and

ritual accomplishment. As such, it was not less than taking a collective oath in favor of a nature conservation policy. The principle of a public discussion and proceeding of rites to embody ritual power on a fetish suggests a form of social contract regarding responsibilities of resource management (Graeber 2005). In this case, we see occult powers and invisible entities been used to help the repopulation of resources (Surgy 1994).

In fact, attributing ritual power to fetishes to protect rivers and forests is exerting control over resources. Hence, practicing fetishism, sorcery, and witchcraft introduces three realities enabling a new resource management scheme in line with the regeneration of species:

- They generate a unique calendar for resources exploitation. Practically, resources can only be exploited when the chieftainship believes that species have had enough time to properly mature and reproduce;
- They have a dissuasive role. These fetishes help the reproduction of species by preventing offenders who would dread the sinister effect of occult powers from damaging their living environments;
- Finally, they generate protected areas.

On the other hand, fetishes and sorcery are instruments of power. Indeed, they enforce this collective agreement on resource regeneration by threatening potential infringers into compliance (as seen with the examples of the *ingokdom* and other fear narratives). Occult powers are mandatorily requesting obedience towards the resource regeneration policy and the nature conservation by punishing dissidents (Graeber 2005). Hence, fetish, sorcery, and witchcraft end up regulating resource exploitation. Summing up, it appears that witchcraft and fetish are used to generate phenomena which are not ordinary. For the chieftainship, they are a means of action, distinctive from ordinary power means, which aim to use the invisible world in order to achieve conservation results sought by the community. Thus, community members, feeling threatened by witchcraft and fetishes, are forced to respect the resource regeneration policy, which they might not do otherwise.

Conclusion

Land grabs drastically reduce communities' livelihood resources. This land scarcity exposes these individuals to various shocks, notably food scarcity, which they have to grapple with. Indeed, after a land grab, the limited available arable land and associated natural resources is often insufficient to maintain a sufficient scope of agricultural activities and guarantee stocks of wildlife and fish resources to feed a community. Hence, this scarcity pushes community members to engage in strategies of resilience, namely residential multilocality and sorcery practices, to face and remedy this issue. On the one hand, residential multilocality, as shown above, helps provide vital resources to native households by allowing certain individuals to travel to a secondary residence in order to find the necessary resources and share them with their original community. On the other hand, occult practices were undertaken to allow for a successful local policy of resource regeneration. Two hallmarks of power, sorcery and fetishes, were turned into policy enforcement tools to impose eco-friendly behavior on members of the community by using their fear of fetishes to ensure their compliance with the pol-

icy. Hence, as articulated, the paper suggests a critical revisiting of the cause-effect assumptions often establishing rural exodus as the major response of villagers grappling with land and food scarcity. Data also calls for a thorough analysis of the role sorcery and fetishes can play in current endeavors to neutralize hunger and recover from issues of resource scarcity.

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SPECTRES DE L'ANTHROPOLOGUE

Les images numériques d'un rituel en différé

Caroline Déodat

Résumé

Landslides est un essai/poème cinématographique où les images de fiction sont issues d'une recherche autour des mémoires d'une danse de l'île Maurice née pendant l'esclavagisme colonial. Le danseur contemporain mauricien Jean-Renat Anamah traverse des paysages mythiques du séga qui se confondent avec des territoires intimes. Depuis les pixels de l'image numérique et les signaux de la musique électronique, ce film exhume dans des couches de paysages les spectres d'un rituel effacé par l'histoire à travers une généalogie personnelle : entre mémoire hantologique et archive en différé.

Mots-clés : *essai cinématographique, fiction, archive en différé, spectres, séga, île Maurice*

SPECTRES OF THE ANTHROPOLOGIST: THE DIGITAL IMAGES OF A DELAYED RITUAL

Abstract

Landslides is a cinematographic essay/poem where fictional images are created from a research about a Mauritian ritual born during the slavery period. The contemporary Mauritian dancer Jean-Renat Anamah crosses mythical territories of Segga which combine with intimate places of my own story. From the pixel of digital image and the shadow of electronic rhythm, this film exhumes in layers of landscapes the spectrum of a ritual erased by History through a personal genealogy: between hauntological memory and delayed archive.

Keywords: *cinematographic essay, fiction, delayed archive, spectrum, Segga, Mauritius*

Prolégomènes

Je voulais voir un film sur le séga mauricien – ce rituel de poésie chantée et dansée né de l'esclavagisme colonial – auquel j'avais consacré ma thèse de doctorat. Or, je le savais, l'archivage colonial, puis le grand récit national mauricien ont peu à peu imposé un unique récit patrimonial postcolonial qui, avec lui, a dissipé le souffle des voix de ségatières et de ségatières. Ce qui survit aujourd'hui est ce qui est visible. Le privilège de voir reste celui des touristes. Les soirs d'été de novembre, eux, regardent ce qu'il y a sur les scènes de spectacle d'hôtels : « le folklore

créole», nous dit-on. Cette dialectique du « voir » et de « ne pas se laisser voir » est historiquement inscrite dans la pratique du séga¹. Alors quel besoin de vouloir voir un film ?

Dès le départ, il était clair que ce film se situait en dehors des préoccupations assumées de la chercheuse en sciences sociales, c'est-à-dire, de ce qui relève de la médiation entre le terrain et moi-même, et donc de ce qui constitue en propre le savoir anthropologique. Jusque-là, dans le cadre de mes recherches, la connaissance que j'ai pu produire est née d'un processus lent au cours duquel s'imposait à moi une forme d'errance. L'expérience du terrain, pour beaucoup d'entre nous, c'est celle d'une fêlure, celle de l'espace-temps d'un trou qui se remplit du langage de l'autre, avec sans cesse un va-et-vient entre deux échelles : la proximité du regard ethnographique et la distance de l'échafaudage du savoir. Pour le dire autrement, c'est une expérience du dédoublement où la flambée des sensations devient presque le motif de la méthode. J'ai vécu les trois terrains que j'ai réalisés pendant mes recherches doctorales comme un rituel d'initiation, non pas vers la société que j'étudiais alors – celle de l'île Maurice – mais vers celle de l'institution académique (Caratini 2012). Or, après le rite de la soutenance en 2016, par lequel j'intégrai alors la société de mes pairs, je constatai un manque. Je ressentis l'envie d'intégrer dans le champ de mes travaux un hors-champ, jusque-là toujours laissé en réserve. Ce hors-champ – envisagé comme étant l'absence de ce qui est montré – s'apparente à quelque chose qui ne se laisse pas voir et qui parfois, échappe à toute explication. Ma propre histoire a toujours résonné avec mon objet d'étude, au point que je me suis confondue avec le séga mauricien. Je n'ai jamais su si je m'étais mise à l'écoute de l'histoire de ces chants, de ces rythmes et de cette danse de par ma généalogie personnelle, ou si au contraire, je me suis mise en quête du récit familial avec l'appel du séga. De la même manière, je n'ai jamais su si j'étais devenue anthropologue parce que depuis enfant, je m'amusais à consigner chacune de mes observations dans des cahiers de recherche, ou bien si j'observais obsessivement chaque détail de ma propre vie parce que j'étais devenue aujourd'hui anthropologue. En revanche, je sais que j'ai voulu un instant regarder cette frontière, celle entre l'anthropologue et son « objet d'étude », précisément quand le rapport entre les deux s'efface et devient fluide ; quand « regarder faire », « écrire sur » s'adjoint au rythme de « se regarder faire » et « écrire sur soi ». J'ai voulu voir la cohabitation du champ et du hors-champ de l'anthropologue, quand la porosité des affects l'emporte sur les échafaudages. J'ai aussi voulu considérer le brouillage entre cette part unique en moi-même qui, travaillant sur le réel, l'observant, l'enregistrant, et celle qui, se l'appropriant, finit par se fondre avec sa propre quête. J'ai donc voulu voir, avec ce film, affleurer les spectres de l'anthropologue² en posant la question suivante : la création de données ethnographiques ne serait-elle pas toujours déjà celle d'œuvres hantologiques ?

¹ Sur les absences, les invisibilisations et les densités archivistiques du séga mauricien, je renvoie à mon article : « Les métamorphoses du pouvoir dans le séga mauricien : de la « danse des Nègres » au patrimoine « créole national » », (Déodat 2015).

² Je me réfère ici bien évidemment au texte de Jacques Derrida, *Spectres de Marx*, mais aussi plus précisément au mouvement artistique contemporain de l'hantologie pour articuler ces questionnements (Derrida 1993).

Paysages-mémoires et images orales

Le point de départ de mon film était celui d'une recherche consciente à éviter tout soupçon d'un regard exotique. Voulant m'extraire de ce regard supérieur et assuré de sa supériorité, celui qui se pose sur les corps noirs et qui perçoit ces corps comme des territoires à conquérir, à nommer et à encadrer, j'ai expérimenté une narration et une dramaturgie qui privilégiaient la fluidité. *Landslides* met en scène des paysages-mémoires qui ne se laissent pas tout à fait encadrer³. Entre plans-larges et gros-plans, les paysages apparaissent à la façon d'une mémoire, par soubresauts, retours, répétitions et glissements. Les paysages filmés, convoqués comme on convoque des esprits, sont traversés par un danseur qui les relie les uns aux autres. Ils s'articulent en strates successives pour assembler des mémoires du séga qui se conjuguent avec des souvenirs de ma propre histoire. Mais ce cheminement, engagé par le danseur, ne fait pas remonter le temps. Il permet davantage de mettre à jour une sédimentation de temporalités. Ces paysages contemporains révèlent différentes traces, qui auraient toutes la même matrice historique, celle de la blessure esclavagiste. Ainsi, le film s'ouvre sur une citation du philosophe Édouard Glissant qui illustre cette intention de considérer les paysages d'aujourd'hui comme des entités animistes capables de témoigner sur le passé esclavagiste (**photogramme 1**).

Le danseur-interprète du film est le chorégraphe mauricien Jean-Renat Anamah. Dans cette histoire, Jean-Renat Anamah conjugue le végétal, le minéral et l'aquatique. Il est feuillage parmi les arbres, sable au-dessus de l'eau et fantôme dans la nuit. Il est aussi le narrateur, l'esclave marron, l'ancêtre et le danseur contemporain. Il figure une apparition à suivre parmi ces paysages-mémoires.

Le film s'ouvre sur la montagne du Morne qui renvoie dans l'imaginaire collectif mauricien à un lieu mythique (**photogrammes 2, 3 et 4**). La légende raconte que des centaines d'esclaves marrons y auraient trouvé refuge, mais que, pris en embuscade par leurs anciens maîtres, se seraient jetés du haut des cimes pour leur échapper, choisissant la libération par la mort à l'asservissement.

D'abord au pied de cette montagne, le danseur poursuit ensuite sa déambulation dans les chemins boisés et de manière simultanée, dans les chemins d'un cimetière (**photogrammes 5, 6 et 7**). Les paysages du cimetière ont été envisagés comme un envers symbolique, topographique et intime de la montagne du Morne. Symbolique, car les rites mortuaires du catholicisme ont été imposés puis pratiqués par les descendants d'esclaves ; topographique, car le cimetière ici filmé – celui de St Georges à Port-Louis ; intime, car ce cimetière abrite les tombes de membres de ma propre famille. Comme une errance entre les mondes, le danseur arpente tantôt ce cimetière peuplé de croix, tantôt ce bois rempli d'arbres aux allures de tombes. Il entend le bruit du vent et des vagues, et continue sa marche vers une croix. Il la touche, et au même moment, touche aussi un tronc d'arbre (**photogrammes 8 et 9**). Face à lui, une lumière éblouissante le conduit à une embouchure. Il s'accroupit, procède à quelques ablutions, les

³ Je renvoie aux travaux de Teresa Castro qui observe les rapports entre animisme et pratiques cinématographiques, et plus précisément à son article « Contre le paysage. Cinéma, anthropologie et raison écologique ». Elle y rappelle notamment que la tradition occidentale du paysage consiste en la domestication de la nature. À ce titre, elle souligne que « l'étymologie du mot *landscape* évoque lui aussi l'action humaine de donner forme au pays (le suffixe «scape» renvoie à «schap», *shape*, la forme), c'est-à-dire, de le *domestiquer*. » (Castro 2020).

mains dans l'eau (**photogrammes 10 et 11**). De là, allongé sur une plage, les yeux clos, il s'éveille dans une arrière-cour, au milieu d'une nuit sombre (**photogramme 12**). Puis, accroché du regard par un petit autel situé au pied d'un arbre à tamarins, il se lève et entame une danse circulaire (**photogrammes 13 à 15**). Cette arrière-cour est le lieu des offrandes. Historiquement, cet espace renvoie à l'imaginaire spatial des ségas qui se dansaient dans les arrière-cours, en marge des lieux officiels. Mais il dit aussi quelque chose de l'intime : cette cour, cet autel appartiennent à ma famille. Ils exécutaient des rituels et faisaient des offrandes au pied du tamarinier, tout comme la danse de Jean-Renat Anamah qui s'offre à ces mêmes ancêtres.

Le montage des images qui met l'accent sur des entorses, des ruptures et des distorsions se conjugue avec la poésie orale. Il reprend un principe de composition courant de la poésie orale du séga, qui est l'anadiplose (la reprise du dernier mot d'une proposition à l'initiale de la suivante pour créer une liaison entre les deux, et s'illustrant comme suit : ____D / D____). Dans le film, la liaison entre les plans est créée par des faux-raccords permettant de rendre cohérente l'unité d'action, mais incohérente l'unité de lieu. Avec la pulsation d'un rythme lent, le danseur semble ainsi franchir des seuils. Les passages d'un espace à l'autre, ou plutôt d'un imaginaire à l'autre sont rendus accessibles par des portes fluides – celle de la croix du cimetière puis celle de l'eau de l'océan. Alors, le danseur atteint des états indéterminés. Est-ce le passage du sommeil au rêve ou de la mort à l'éveil ?

S'il est question du temps dans *Landslides*, il faudrait l'envisager hétérogène, survivant. Le refuge dans une temporalité – passé, présent ou futur – est contrarié par des référentiels brouillés. La composition sonore et la musique agissent elles aussi comme des ombres. La mélodie et le rythme du séga apparaissent comme des spectres au milieu de nappes et de drones lancinants. La bande sonore est constituée de sons concrets et organiques à la vue du vent dans les herbes, des vagues de la mer, des mains sur la roche et d'une musique électronique créée spécialement par le compositeur et musicien électroacoustique, Lorenzo Pagliei.

Travaillant toujours sur la polytemporalité, Lorenzo Pagliei a créé une musique qui ne soit ni illustrative, ni référentielle. Il a travaillé à partir de matériaux musicaux de la ségatière Josiane Cassambo enregistrés dans les années 1970. Pour les premières secondes du film, il a créé une ouverture qui contient tous les éléments – chœurs, rythme et basse – qui se retrouveront ensuite au moment final du film lors de la performance dansée.

Dans cette partie finale, assez pleine, Lorenzo Pagliei a beaucoup joué avec les filtrages. Les chants de la ségatière arrivent au loin comme des apparitions. Le rythme sort petit à petit. D'abord ce rythme apparaît comme synthétique, puis, surgit l'écho du rythme acoustique des tambours. Parfois, des ombres des instruments synthétiques apparaissent au même moment que celles des instruments réels. Sur ces moments précis, un grand travail a été élaboré au niveau du timbre. La basse est maintenue de manière continue tout en étant modulée. Mais, une minute et demie avant la fin, il se produit un glissement, une surprise harmonique. L'élément qui persistait jusqu'alors sur un temps long est plié dans une autre note pour ouvrir vers un autre monde. Et c'est précisément à ce moment-là qu'entre le rythme plus acoustique du séga. Le paysage sonore et musical du film qui renvoie autant à un espace mental qu'à une trame liée à l'environnement invite à la surface du rêve, des souvenirs et de la mémoire du rituel.

Interlude

Il suffit d'un rêve pour se lancer sur sa propre trace.

C'est en songeant aux rituels effacés par l'histoire que les souvenirs jamais vécus apparaissent. jaillissent avec le bruit du vent et des vagues, caressent les lieux les plus familiers, glissent dans les bois, dans la mer, dans les cimetières et dans les arrière-cours.

Je voulais que Jean-Renat les suive pas à pas.

Je voulais que sa danse brille comme une bougie de camphre.

Je voulais que ces images clignotent comme des lucioles.

Épilogue : la création d'un film-artefact

«*Landslides*» qui signifie «glissements de terrains» pourrait être métaphorique de mon propre glissement, de l'anthropologie à la création, ou mieux, pourrait rendre manifeste le glissement entre la création de données ethnographiques et celle d'une œuvre hantologique. une œuvre hantologique. Où se situe ce glissement ? Précisément dans le rapport illusionniste que j'ai créé entre le film et l'*artefact*.

Investissant la part la plus fantomatique du medium de l'image numérique, j'ai tenté de créer un matériau ethnographique en tant que ce film puisse aussi figurer une archive en différencié. Si l'apparition du numérique à la fin du siècle dernier affecte bel et bien nos perceptions, il implique un nouveau rapport aux images dont les questionnements se situent bien souvent sur la frontière entre la réalité et l'imaginaire. Partant de ce constat, j'ai cherché à explorer avec ce film comment brouiller cette frontière. Le film que je voulais voir, j'ai donc fini par le faire moi-même. Ce que je voulais voir avant tout, c'était un film sur le séga, alors j'en ai montré les spectres.

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Auteure

Caroline Déodat  Docteure en anthropologie de l'EHESS et cinéaste, Caroline Déodat « explore la fictionnalité de l'archive » et les dimensions spectrales inhérentes à l'image en mouvement. Elle s'intéresse à la fabrication de l'archivage colonial à travers des historiographies invisibilisées, en interrogeant les dispositifs de pouvoir tels que la race, le genre, la sexualité, et la manière dont ils peuvent être subvertis ou détournés. Elle travaille

actuellement à un essai sur le séga mauricien en liant les discours coloniaux sur la race et leurs incorporations dans les pratiques de poésie orale, ainsi que l'imaginaire *queer* de la créolité. Son premier court-métrage *Landslides* a été sélectionné au Jumping Frames International Dance Video de Hong Kong (2020).

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Centre Georg Simmel (EHESS/CNRS)

Nous nous arrêtons, ne devinant pas ce qui nous alourdit là d'une gêne innombrable.
Ces plages sont à l'encan. Les touristes les réclament.
Frontière ultime, où sont visibles nos errances d'hier et nos pertitions d'aujourd'hui.
Il y a ainsi des temps qui s'échelonnent sous nos apparences, des Hauts à la mer, du Nord au Sud,
de la forêt aux sables. Le marronnage et le refus, l'ancrage et l'endurance, l'Ailleurs et le rêve.

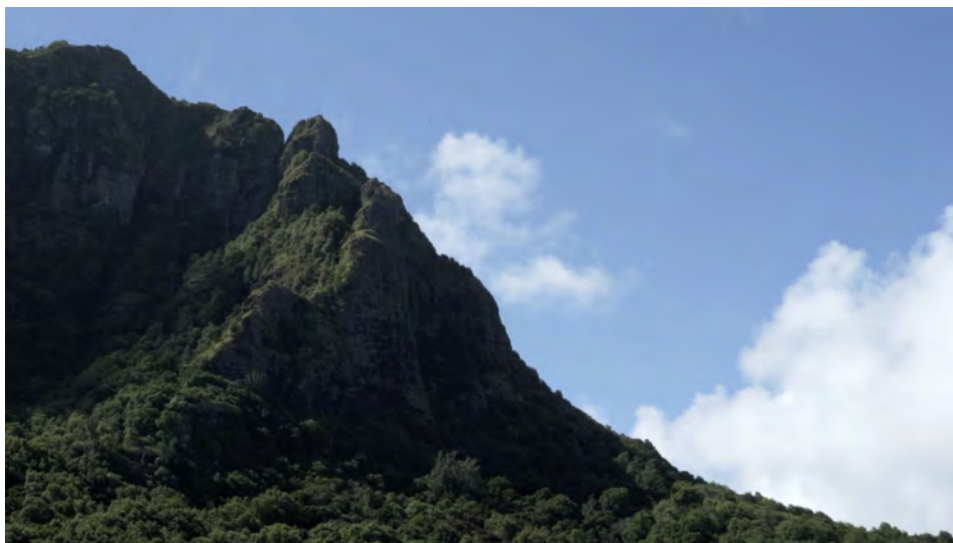
(Notre paysage est son propre monument :
la trace qu'il signifie est repérable par-dessous. C'est tout l'histoire.)

Édouard Glissant, *Le Discours antillais*, 1981

*(Our landscape is its own monument : its meaning can only
be traced on the underside. It is all history.)*



photogrammes 1 et 2



photogrammes 3 et 4



photogrammes 5, 6 et 7

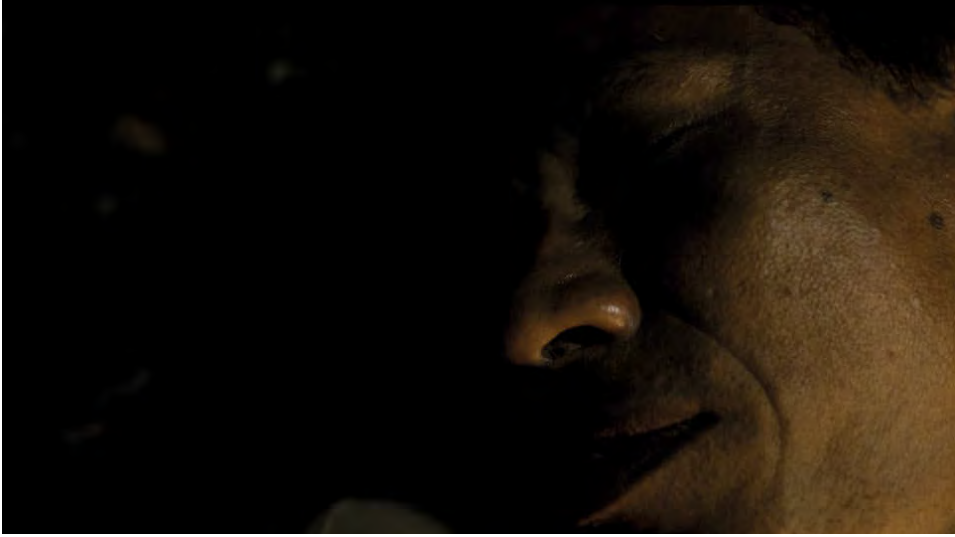




photogrammes 8 et 9



photogrammes 10 et 11



photogrammes 12 et 13



photogrammes 14 et 15

NAVIGATING THE FIELD

Exploring Gendered Dimensions of Fieldwork

Meenakshi Nair Ambujam

Abstract

This essay seeks to explore the complexities inherent in fieldwork as a method. Drawing attention to its gendered dimension, I focus on the vulnerabilities researchers face – most notably sexualized harassment – that do not always feature in the discussion of fieldwork as a method. I argue that the ethnographic standards we ascribe to, often reify particular notions of *good fieldwork* – which obliterate the risks and unpleasant experiences researchers encounter. This is not to suggest that *all* fieldworkers experience vulnerabilities or are placed in positions of distress. As Kloß (2016) puts it, fieldwork is an exceptionally valuable methodology that allows us to learn and unlearn. That being said, there is an imminent need to unpack fieldwork and look at it from a non-male perspective. I situate the essay in this space, where I do not necessarily explore the contents of my research in particular, but shed light on the layered nature of fieldwork.

Keywords: *fieldwork, gender, sexualized harassment, ethnographic fixations*

Introduction

Fieldwork occupies a prominent place in anthropology.¹ It is, in many ways, considered “a rite of passage” (Pollard 2009). Moser (2007, 243) describes fieldwork as the “basic constituting experience not only for anthropological knowledge, but of anthropologists themselves.” Therefore, examining the complexities inherent in the *act of doing fieldwork* is crucial. Though anthropology has done well to complicate notions of positionality, reflexivity, and the inherent power relations in the narratives we produce, there is also an acknowledged silence while discussing fieldwork-associated vulnerabilities that researchers face. Consequently, this results in a tendency to invisibilize the experiences of trauma, violence, or risks that scholars encounter whilst conducting fieldwork (Berry et al. 2017). Berry et al. (2017, 537) further suggest that such tendencies obscure “the constitute and interlocking racial and gender hierarchies” within fieldwork. In doing so, they join other scholars (Hanson and Richards 2019; Johansson 2015; Kloß 2016) in contending that the dominant perception of fieldwork is still masculinist, which not only associates the ability to maneuver vulnerabili-

¹ I would like to acknowledge that the fieldwork, which forms the basis of this article, was funded by the Wenner-Gren Foundation.

ties with a certain grit of character and endurance, but also constructs the fieldworker as a gender-neutral subject. These perceptions obfuscate the experiences of researchers who identify as BIPOC², LGBTQI+³, women, etc., and the variegated range of vulnerabilities they experience. As such, the capacity to endure and navigate the difficulties and vulnerabilities associated with fieldwork – whether physical, emotional, psychological – is considered an important aspect of *mastering* fieldwork. In turn, they inform ethnographic standards which shape our imaginations of what it means to do fieldwork, and what it means to do it well (Kloß 2016; Hanson and Richards 2019).

Hanson and Richards (2019) coin the term “ethnographic fixations” to elucidate why and how researchers’ experiences of harassment and gender-based violence are prominently left out of ethnographies. Ethnographic fixations, they suggest, are norms which researchers perceive as important while making choices regarding censoring uncomfortable encounters in the field (Hanson and Richards 2019, 25). For instance, the perceived negative impact researchers have of writing about experiences of gender-based violence and sexualized harassment in the field inform practices of self-censoring (Kloß 2016; Hanson and Richards 2019). These conversations are relegated to the margins perhaps because we are uncomfortable addressing such issues or because we mobilize certain tropes of “doing good fieldwork” which force us to edit experiences of gendered and sexual harassment from our vignettes. These conscious decisions, which are not necessarily “ethnographic refusals” (Ortner 1995), reify specific ethnographic standards about what it means to do fieldwork successfully. Relatedly, Berry et al. argue how “women-identified researchers [...] feel that these incidents [gender and sexual violence] reveal [...] [their] shortcomings as activist anthropologists” (2017: 535).

It is in this context that I locate this article: what quality does fieldwork assume for a woman-identifying researcher who is single and childfree in a region that has strong patriarchal gender norms? My doctoral fieldwork forced me to confront my own internalized notions of fieldwork and how they informed the ways in which I had come to make sense of the sexualized violence I experienced in the field. Further, it allowed me to think more critically not only about fieldwork as an episteme but also as a practice. The aim of this article, therefore, is to render visible the embodied nature of fieldwork and how the practice of fieldwork is often punctuated by gendered vulnerabilities that are usually invisibilized.

Drawing on my lived experiences, I reflect on an incident of sexualized violence I experienced during my 13-month-long fieldwork in Telangana, India⁴, where I engaged with the adivasi⁵ or tribal community to explore the conditions of landlessness they were experiencing. In retrospect, this incident helped me ascertain how overlapping layers of gender and

² Black, Indigenous, People of Color.

³ Lesbian, Gay, Bisexual, Transgender, Queer, and Intersex.

⁴ I must clarify that this essay will not draw on the contents of my doctoral project, but will exclusively focus on an encounter I faced in the field. For ethical reasons, I use pseudonyms for different areas in Telangana and for all individuals. These are conscious choices so as to not aid the mobilization of stereotypes that may disadvantage communities and regions that are already facing marginalization.

⁵ Adivasi is the term used by the community members. I would like to specifically clarify, that in this piece, I do not identify the specific adivasi communities I worked with, for ethical purposes.

power interpellated me as a researcher (Miller 2015), and how they contributed to my experiences of vulnerability and fragility (Kuijpers 2015).

At this juncture, I find it pertinent to clarify my positionality. Though I am an Indian national who belongs to the south and whose fieldwork was also situated in Southern India, I do not hail from Telangana. Further, though I did speak the regional language, my accent distinguished me as an outsider. Moreover, I am not an adivasi, and occupy a privileged position in India with respect to caste and class. At the time of my fieldwork, I was a 26-year-old unmarried and child-free woman – an anomaly in my fieldsite, where women my age were married. In this way, I occupied “multiple planes of identification” (Narayan 1993, 676), thus straddling between insider/outsider statuses. Since a rich discussion already exists in anthropology about the insider/outsider statuses, I will not delve into it (Abu-Lughod 1988, 1996; Narayan 1993). Nevertheless, I believe clarifying my positionality will help foreground the discussion below effectively.

Grappling with violation

The first phase of my ethnographic fieldwork commenced in early 2019, and was located in Mistur, a village comprising of several adivasi hamlets. As part of my fieldwork, I would go to the hamlets I had selected for my research, where I would interact with adivasis to discern how and why they continued to remain landless. While some of these hamlets were located near my accommodation, others were situated farther away. This required me to rely on public transport to reach the village-center, Mallipur, located no less than forty minutes away from where I stayed. From Mallipur, I would board a share-auto⁶ to travel to the hamlets located in the interiors. The lack of proper roads also meant that many of these hamlets were connected to Mallipur only by means of share-autos and auto-rickshaws. Access to public transportation was only possible from Mallipur.

Throughout my stay in Mistur, I made it a point to wrap-up my fieldwork and return to Mallipur before sunset so that I would be able to board a bus back home. Light has always been associated with safety. Whether it was the risk assessment form I had to submit before embarking on my fieldwork, or societal norms, nighttime has been associated with heightened risk – be it sexual violence or other physical attacks. This perception, however, is not unique to my fieldsite. Exploring the impact of inadequate sanitation facilities in the lives of women living in urban slums of Uganda and India, Massey (2011) outlines how women experienced increased fear of sexual violence at night. The gender norms of Mistur were clear: women are more susceptible to violence after sunset. There was an unsaid consensus that nothing untoward would happen in broad daylight. Wrapping-up my fieldwork by sunset, therefore, was a safety strategy.

One day, in February 2019, during my visit to Bandalpettai, a hamlet located thirty kilometers away from Mallipur, I was unable to return before sunset. My adivasi interlocutors

⁶ A share-auto is an autorickshaw where multiple passengers, heading towards the same direction, are transported. The cost of the trip is shared by all the passengers, thereby reducing cost.

began opening up to me, and I did not feel like leaving conversations unfinished because of sunlight. Having been to Bandalpettai several times before, I was comfortable extending my stay for another 45 minutes. Moreover, in previous interactions, my interlocutors had remarked how state officials were not always willing to spend “extra time” with them and how they were in a “hurry to get things done.” I did not want to be like a state official. Being aware of anthropology’s colonial past, it was important to me that I did not merely collect data and stories for advancing my career (Burman 2018; Smith 2012), but curated a relationship of reciprocity and mutuality (Sanjek 2015) – in this case, by staying and spending time. In my view, time opens avenues through which one can recalibrate relations of power with our interlocutors to build horizontal alliances. That is, since I, as a fieldworker relied on my interlocutors’ generosity with their time for interviews and participant-observation, I only saw it fit that they could also lay claims to my time.

It was twilight by the time my research assistant, Jangu, and I exited the hamlet. Jangu, who accompanied me to various hamlets to help me navigate relations of gender and caste, was hopeful that we would find a ride back to Mallipur. However, we were unsuccessful: no rickshaws were available. We decided to walk in the hope of finding a ride. After nearly an hour of walking, we spotted a vehicle. We convinced the driver to give us a ride and agreed to pay him twice as much. Since I was unsure if Jangu would be able to return home safely, I felt it was my responsibility to drop him first. By the time I reached Mallipur, it was already 7:35 pm. I asked the driver if he would consider taking me to Mistur. He said he could not, and reassured me that I would find a bus or a share-auto soon. I noticed, immediately, that I was the only woman on the road. A vital norm was broken. Women were not expected to be outside after sunset. A violation of this norm was almost always perceived as good reason for any violence one may encounter. This norm was not unique to Mallipur, Mistur, or Bandalpettai. Having been able to spot neither buses nor rickshaws, I was overcome by a certain uneasiness.

I was worried of not only breaking the norm of being outside after sunset but also of being perceived as someone who did not care for these unsaid, unspoken rules. Since in many ways I did not conform to the gendered norms in my field – I was an unmarried woman who was seen *wandering* in the region – I did not want to break any other norm that could draw more attention to me.

Finally, at 8 pm, I found a share-auto that was going to Mistur. The driver asked me to hop in and wait for a few minutes. He told me that his other passengers had stepped out to get a few things from a nearby store. I got inside the auto, because I was not sure when I would be able to find a bus. As soon as I got in, I seated myself near the aisle. I have always preferred the aisle seats because they allow you to jump out of a moving vehicle if need be. The auto-driver, however, insisted that I sit at the center. I was too tired to argue, and I just wanted to get back home. About 10 minutes later, 6 men joined the autorickshaw. Two seated themselves near the driver. Two were seated behind me, and two beside me. As soon as the vehicle started moving, I began feeling hands brush against my body. Before I knew it, I was being groped and molested. The fact that the road back home was through a forest, with limited streetlights in some places and none in others, did not help. I froze. I rationalized that if I screamed or yelled, I was likely to be raped and/or killed. I let myself be violated, for I

thought resisting would result in consequences much more severe. When I was dropped at my destination, I took out the money I had agreed to pay, and I was told, “thank you, you have done enough.” Those words stayed with me for a long time.

Making sense of violation

I went back home, unable to process what had happened, and wondered if this incident reflected on my skills as an ethnographer. Doing good fieldwork and being able to produce a good thesis was so important that I went back to the field the next day, the day after, and for several months. I did not speak to anyone about the incident that day. Like others (Pollard 2009), I was reticent because I believed this would affect my career as a researcher. Other considerations informed my initial silence: one, I wondered if this would be considered a failing on my part; two, I wondered if talking about this incident would produce and perpetuate stereotypes about Mistur;⁷ three, I did not want to cause harm to my interlocutors who had only been kind to me.

Adivasis have faced a history of marginalization (Bijoy 2007; Louis 2000). Moreover, specific stereotypes are frequently mobilized whilst talking about them which often results in further oppression and marginalization. Though my fieldwork was conducted in adivasi hamlets, it is also true that a sizeable population of non-adivasi resided in Mistur. The reason I highlight this is because I do not want to, in any way, suggest that I was assaulted by adivasi or contribute, knowingly or unknowingly, to their marginalization. Unlike the experiences outlined by Johansson (2015) and Kloß (2016), I was not harmed by my interlocutors or the adivasi family with whom I developed a close relationship. Perhaps some of my actions of “minimizing my power in social interactions” (Johansson 2015, 60), in retrospect, may have been incompatible with the prevalent gendered norms. My ethnographic fixation, thus, was related to power relations. Being cognizant of anthropology’s troubled past, I strived not to replicate similar power relations—i. e., the *powerful* researcher and the *powerless* researched. With the researcher being able to *construct* narratives, *control* their fields, and *produce* ethnographic truths that were partial and biased (Clifford and Marcus 1986), I wanted to make sure that I did not reproduce an unequal power differential. My decision to stay an extra 45 minutes in Bandalpettai could be seen as my way of not exercising control over time. What I had overlooked was how my actions to curate horizontal alliances with my interlocutors were, potentially, in conflict with the patriarchal gender norms of my field. This event exposed me to the fragility of the researcher (Kuijpers 2015). Fieldwork reveals and unsettles many assumptions related to power and power relations in the field because the underlying image of the fieldworker is masculinist (Berry et al. 2017; Johansson 2015). This image obscures experiences of “relational vulnerabilities” which are “embedded in highly asymmetrical social relations and the associated dependencies” (Kabeer 2014, 1). Thinking of

⁷ For instance, several bureaucrats and social activists I interacted with had often characterized Mistur as an “underdeveloped place where nothing good can happen” (Fieldnotes, 2019).

fieldwork in terms of relational vulnerabilities helps us better understand the embodied experiences of fieldworkers, particularly along the lines of gender and race.

In this context, I view the sexual assault also as a form of disciplining (Berry et al. 2017). By breaking a sacred norm of staying outside past sunset, I was also *shown my place*, so to speak, through the assault. It was perhaps my *relative privilege* as a researcher which made me feel that not abiding the norm of returning by sunset would not result in serious ramifications. However, that privilege was corrected, and my *indiscretion* punished through the assault. It was a manifestation of power relations, which inverted the position of the researcher, and subjected them to the same disciplining that was, perhaps, also meted out to the others inhabiting this place.

Fieldwork presents a liminal space where the personal and professional collapse. It is also a space where one makes decisions that one would perhaps make differently in other circumstances. For instance, outside the field, I would not talk to strangers, exchange numbers, or accept an invitation to walk with a stranger. In the field, these become encounters brimming with possibilities and potential. While pursuing these possibilities certainly helped me build enduring bonds and relationships in the field, I struggled to negotiate overlapping complexities of gender and power that stemmed from patriarchal norms, which rendered me vulnerable.

Notions of how *good anthropologists* try to recalibrate and remove inequalities in the field that emerge from their positionality and partake in reciprocal relationships tend to overlook how relational vulnerabilities unravel in the field. While it is extremely important to reciprocate and be mindful of the inequalities and hierarchies entrenched in fieldwork vis-à-vis our interlocutors, a discussion of this method without situating the researcher and their body within the process will necessarily obfuscate experiences of sexualized harassment in the field. Moreover, ignoring these relational vulnerabilities also have the consequence of constructing the fieldworker as a gender-neutral subject and overlooking the underlying racialized and gendered inequities that undergird fieldwork. To elucidate, Berry et al. write, “entrenched patriarchy limits women’s forms of socialization and defines access to the places we can inhabit as researchers” (2017, 552). In doing so, I agree with Berry et al. in the need for deconstructing the “performance of gender neutrality in preparing students for fieldwork, encouraging intersectionality as both analytic and embodied praxis” (2017, 558).

Conclusion

As a female researcher, my doctoral fieldwork was peppered with several instances of sexualized harassment which ranged from bodily harm to suggestive remarks. While I eventually learned I was not alone in facing such experiences, what surprised me was how little of these make it to the works we produce, or to the discussions revolving around fieldwork as a method. Experiences of sexualized harassment (Berry et al. 2017; Johansson 2015; Kloß 2016; Kuijpers 2015) and rape in the field (Moreno 1995) have been documented by several scholars. Pollard (2009) extensively details the range of vulnerabilities that fieldworkers face – from fear to shame. The rejoinder to Pollard’s essay, however, underscores why dis-

cussions around the underlying complexities of fieldwork are still difficult. In her rejoinder, Delamont (2009) not only suggests that Pollard's interlocutors may not have prepared themselves by reading classical anthropological texts but also goes on to highlight that "the discipline of anthropology relies on a widespread agreement that not everyone can be an anthropologist, and the survival of the misery and bafflement of fieldwork is the best way to see who is, and who is not fit to join the culture" (2009:1). Such opinions contribute to reifying notions of fieldwork that obscure relational vulnerabilities that are experienced by diverse scholars who identify as indigenous, women, BIPOC, and LGBTQI+. Moreover, this in turn perpetuates ethnographic fixations, which discount these diverse and asymmetrical experiences in conversations about fieldwork both as an episteme and a method.

To be clear, I am not arguing for a disavowal of the method. I agree with Kloß (2016) that fieldwork is an extremely valuable method that allows us to learn and unlearn. Nevertheless, a discussion of fieldwork without adequately taking into consideration the relational vulnerabilities that underpin it, reinforce a partial truth. A partial truth that sustains masculinist perceptions of fieldwork: be it about grit or the ability to endure. In doing so, considerations about how to situate the body of the researcher and their embodied experiences during fieldwork often escape. By not engaging in an ongoing conversation about the risks integral to fieldwork, particularly to women, BIPOC and LGBTQI+ persons, we run the risk of sanitizing fieldwork experiences. This, I would assume, is a significant risk to the method and the discipline. In doing so, we continue to ignore the very real vulnerabilities they face in the field – be it sexualized harassment or other forms of violence. Moreover, this has resulted in these experiences, particularly gendered and sexualized harassment, being obliterated not only from the dissertations, books, and articles we produce, but also from the discussions on the methodological aspects of fieldwork – say, alongside positionality and ethics. As a result, we continue to sustain a peculiar notion of *good fieldwork*, one in which the researcher emerges unscathed in the face of difficulties.

While universities and institutions across the world ask researchers to assess the risks in the field, these risks are almost always considered external – theft, robbery, illness. Gender and sexualized harassment that researchers may experience because of the relational vulnerabilities that underpin their identities are barely addressed when we talk about fieldwork. Consequently, such experiences are considered *personal* or *one-off* events without adequately acknowledging how endemic these might be. Anthropology will certainly do well to have a conversation centered around gender and sexualized harassment in the field – a conversation, which in its current form, is conspicuous for being in the margins.

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LES FAMILLES ISSUES DE LA MIGRATION DANS LES AUDIENCES DE PROTECTION DE L'ENFANT EN SUISSE

Entre universalisme et psychologisation

Aude Saugy, Gaëlle Aeby

Résumé

La rencontre entre le droit et la diversité socioculturelle, qui est de plus en plus présente dans nos sociétés mondialisées, entraîne régulièrement des débats publics et une remise en question des pratiques judiciaires. Cependant, malgré le nombre important de recherches autour du droit des personnes issues de la migration, la gestion de cette diversité socioculturelle dans les procédures en protection de l'enfant en Suisse reste une problématique très peu conceptualisée. Ainsi, au travers d'une analyse de huit observations d'audiences menées dans deux Autorités de Protection de l'Enfant et de l'Adulte (APEA) en Suisse romande, nous mettons en avant le fait qu'il existe une certaine difficulté à intégrer les différences socioculturelles dans les échanges entre professionnel-le-s et familles issues de la migration. Cela est notamment dû à une forte psychologisation des comportements des familles et à l'adoption d'une approche universaliste de la culture par les membres des APEA.

Mots clés: *familles issues de la migration, différence socioculturelle, protection de l'enfant, audiences judiciaires*

MIGRANT FAMILIES IN CHILD PROTECTION HEARINGS IN SWITZERLAND BETWEEN UNIVERSALISM AND PSYCHOLOGIZATION

Abstract

The encounter between law and socio-cultural diversity, which is increasingly present in our globalised societies, regularly leads to public debates and questioning of judicial practices. However, despite the significant amount of research on the rights of migrant people, the management of this socio-cultural diversity in child protection proceedings in Switzerland remains an issue that is hardly conceptualised. Thus, based on an analysis of eight hearing observations carried out in two Child and Adult Protection Authorities (CAPA) in French-speaking Switzerland, we highlight that there is a certain difficulty in integrating socio-cultural differences in the exchanges between professionals and migrant families. This is in particular due to a strong psychologisation of families' behaviour and the adoption of a universalist approach to culture by the CAPA's members.

Keywords: *migrant families, sociocultural difference, child protection, hearings*

La mondialisation actuelle influence les pratiques des professionnel-le-s de tous bords qui sont de plus en plus appelé-e-s à travailler avec des personnes d'horizons religieux, linguistiques et culturels variés (Ogay et Edelmann 2011). Ainsi, en Suisse, les membres des Autorités de Protection de l'Enfant et de l'Adulte (APEA) – autorités centrales en matière de protection de l'enfant – se retrouvent confronté-e-s à des familles caractérisées par une multiplicité de référentiels socioculturels qui remettent leur pratique professionnelle en question. Or, actuellement, bien que les défis rencontrés par les personnes issues de la migration dans leurs rapports aux institutions aient fait l'objet de nombreux débats et études, notamment dans le domaine de l'éducation (Mottet 2020), la question de la gestion de cette diversité socioculturelle lors de procédures judiciaires civiles reste une thématique très peu abordée et conceptualisée (Simon, Truffin et Wyvekens 2019), en particulier dans la littérature francophone (Wyvekens 2012). Ainsi, dans le cadre des APEA, très peu d'informations sont disponibles sur la manière dont les divers-e-s acteur-trice-s s'approprient ou non les différences socioculturelles. Ce manque d'informations empiriques et théoriques nous a amenées à nous interroger sur la façon dont est abordée la question des appartenances socioculturelles au cours d'audiences impliquant des familles issues de la migration menées dans des APEA en Suisse romande.

Les réflexions détaillées dans cet article s'appuient sur le concept d'ethnicité que nous définissons comme « [...] un phénomène social et la mobilisation de certains traits culturels propres à un groupe ethnique et supposés venir de l'origine commune réelle ou fictive [qui] permet le maintien de la frontière entre « nous » et « eux », entre membres et non-membres » (Becker 2014, 291). En d'autres termes, la rencontre avec un « autre » ne se résume pas à une simple confrontation entre deux « cultures » ; mais, la « culture » et l'identité de chacun-e vont se construire dans cette rencontre interculturelle, et c'est cela que le concept d'ethnicité met en lumière (Cohen-Emerique 2015). Enfin, la notion de frontière est essentielle, car celle-ci se construit par un processus d'auto- et d'hétéro-désignation qui permet de distinguer le « nous » du « eux » (Poutignat et Streiff-Fénart 2015). De ce fait, l'identité culturelle, ethnique, sociale et individuelle de chacune des parties va être mobilisée et se construire au cours des audiences à l'APEA. Par ailleurs, le modèle de la sensibilité interculturelle développé par Bennett (2004) – modèle qui propose un continuum de stades allant de la négation de la différence à l'intégration de celle-ci – nous permet de comprendre le degré d'ouverture et la prise en considération des aspects culturels exprimés par les différentes parties présentes aux audiences.

Observations d'audiences dans les APEA

Les résultats présentés dans cet article sont issus d'une analyse, réalisée pour un mémoire de master (Saugy 2020), de huit observations menées dans deux APEA romandes¹. Ces observations ont été réalisées en 2019 dans le cadre d'un projet de recherche encore en cours interrogeant la participation des familles dans les procédures des APEA².

¹ Etant donné la taille de l'échantillon considéré ici et par souci d'anonymat, nous avons décidé de ne pas traiter des différences cantonales dans cet article et de mettre l'accent sur les interactions.

² Dirigé par Michelle Cottier, Kay Biesel, Philip D. Jaffé et Stefan Schnurr, le projet s'intitule *Integrity, autonomy and participation in child protection: How do children and parents experience the proceedings of Child and*

Nos observations ont été menées dans le cadre de la première rencontre entre les membres des APEA et les parents suite à un signalement de mise en danger. Les données ont été récoltées à l'aide d'une grille d'observation qui a permis de reporter les propos des différentes personnes présentes durant l'audience, mais aussi les échanges qui ont directement précédé ou suivi la séance. Ces premières entrevues avaient principalement pour but de déterminer la situation familiale ainsi que l'éventuelle présence de maltraitance intrafamiliale et, le cas échéant, de prendre des décisions concernant les mesures appropriées (ex. : placement, curatelle d'assistance éducative, etc.). Nous avons assisté à sept audiences auxquelles les deux parents étaient présents (trois couples de parents mariés et quatre couples de parents séparés ou divorcés) et une audience avec une mère seule³. Par l'expression de « familles issues de la migration », nous entendons ici les familles dont au moins l'un des parents est soit étranger, soit suisse naturalisé. Dans notre échantillon, onze parents peuvent être considérés comme issus de la migration, car étant soit de nationalité étrangère soit binational. L'âge des enfants allait de 1 à 14 ans avec une moyenne à 9,5 ans. Ces enfants ont fait l'objet d'un signalement pour des motifs variés tels qu'une inquiétude sur les compétences parentales, des soupçons de maltraitance psychologique et/ou physique, ou encore de l'exposition à de la violence domestique. Concernant les APEA, quatre membres ont généralement assisté aux audiences : le/la magistrat·e principal·e assisté·e de deux membres assesseur·e·s issu·e·s de la société civile (un trio interdisciplinaire⁴), et d'un/une greffier·ère qui rédigeait le procès-verbal. Dans trois cas, des professionnel·le·s externes (interprète, avocat·e, représentant·e des services sociaux) étaient également présent·e·s. Nous n'avons pas récolté d'informations sur les origines de ces professionnel·le·s étant donné qu'il n'en a pas été fait mention durant les audiences. À cet égard, il est intéressant de noter que la trajectoire des professionnel·le·s peut certes influencer leur perception, comme l'a montré Serre (2010) avec les assistantes familiales, mais que celle-ci n'influence pas toujours leurs actions étant donné la force des injonctions institutionnelles. Les professionnel·le·s issu·e·s de la migration peuvent se retrouver tout autant dans l'embarras lorsqu'il s'agit de mobiliser ces catégories (Mottet 2020).

Portrait d'audiences : l'invisibilité des éléments socioculturels

À partir de l'analyse de nos données empiriques, nous avons pu identifier trois catégories d'auto- et d'hétéro-désignation mobilisées durant les audiences à l'APEA tant par les professionnel·le·s que par les familles.

Premièrement, nous nous sommes rendu compte que l'appartenance socioculturelle est un élément peu abordé par les parents et les membres de l'APEA dans la désignation de soi ou

Adult Protection Authorities? et fait partie du Programme National de Recherche 76 « Assistance et coercition » (2018–2022), Fonds national suisse de la recherche scientifique.

³ Le projet de recherche inclut des audiences et des entretiens avec des enfants. Cependant, leur nombre étant restreint, cet article se limite aux observations d'audiences avec des parents.

⁴ Dans la majorité des cas, le/la magistrat·e a une formation juridique et les deux membres assesseur·e·s ont une expertise dans d'autres domaines jugés pertinents (ex. : psychologie, travail social, assurances sociales, etc.). Le/La greffier·ère a souvent également une formation juridique.

de l'autre. Du côté des professionnel-le-s, il n'y a aucune référence faite à cette appartenance de façon spontanée et explicite durant les audiences. Cependant, en amont, des dispositions peuvent être prises comme lorsqu'un-e interprète est engagé-e pour l'occasion (deux observations) ce qui montre qu'il y a bien une réflexion sur l'intégration des personnes issues de la migration. De même, lorsque les familles abordent des éléments liés à leur appartenance socioculturelle, les professionnel-le-s la reconnaissent. Ainsi, lorsqu'une mère justifie la correction physique donnée à son fils par le fait d'avoir appris des méthodes éducatives différentes, la magistrate lui déclare qu'« *il y a de la compréhension pour ça, mais il faut s'adapter à ici* ». Toutefois, cela ne semble pas donner lieu à des approfondissements sur la marge acceptée⁵. Les familles, elles, se décrivent très peu par cette appartenance socioculturelle : il n'y a que trois mentions explicites faites par les parents sur une appartenance à une communauté ethnique. Il s'agit notamment du cas de la mère mentionnée précédemment qui explique « *que les méthodes éducatives sont différentes en Afrique et qu'ils ont appris différemment* ». Dans un autre cas, les parents ont revendiqué leur religion pour justifier leur rejet de l'homosexualité de leur enfant – « *chez nous, ça ne se fait pas* » – ce qui a généré un débat entre les professionnel-le-s et les parents sur le droit suisse et international.

Deuxièmement, le statut familial est un élément très présent dans la désignation des membres de la famille. Ainsi, lors de plusieurs observations, les membres des APEA rappelaient aux pères et aux mères leur statut de parents. Par exemple, une magistrate dira : « *vous êtes père de famille, vous avez des responsabilités* ». Ainsi, comme le montre cette citation, le rappel d'un statut s'accompagne généralement d'une explication sur les comportements et les devoirs attendus en lien avec celui-ci. Il en est de même pour les enfants qui sont également souvent désignés par leur statut d'enfant et les comportements associés à ce statut social spécifique. Les professionnel-le-s, quant à eux, ne font pas référence à leur propre situation familiale. En effet, nous avons observé une seule mention de ce statut de parent par les magistrat-e-s afin de souligner l'expérience commune de tout parent de ne pas pouvoir décider à la place de ses enfants malgré son envie de le faire. C'est plutôt leur statut professionnel qui ressort au travers leur fonction de « magistrat-e ». Par contre, le statut professionnel des parents ne semble pas central, sauf pour évaluer la prise en charge des enfants, par exemple.

Enfin, les membres des familles sont principalement auto- ou hétéro-désignés par des éléments de l'ordre de la personnalité et de l'état psychologique. C'est la catégorie la plus mobilisée pour désigner les parents et les enfants : il y a plus de trente références dans cette catégorie. Par exemple, les professionnel-le-s diront pour un père qu'il est « *froid* », qu'une mère est « *tempétueuse* » et qu'un enfant a un « *manque de confiance en soi* ». Les références d'ordre psychologique sont également mobilisées par les parents pour se décrire et décrire les autres membres de leur famille ; c'est notamment le cas lorsqu'une mère décrit son enfant par son haut potentiel. Cette forme de désignation ne concerne pas uniquement les familles issues de la migration, mais elle est également présente chez les familles suisses.

⁵ Le Code civil suisse n'interdit pas explicitement le recours aux châtimements corporels à l'encontre de l'enfant, ce qui n'est pas conforme à la Convention relative aux droits des enfants, entrée en vigueur en Suisse le 26 mars 1997.

Psychologisation des comportements familiaux pour cacher les différences socioculturelles

Cette prédominance dans la désignation des familles d'éléments psychologiques pourrait être due à une certaine psychologisation opérant depuis plus de trente ans dans le champ du travail social (Raveneau 2009). Ainsi, les comportements ou les conduites des membres de la famille, perçus comme socialement « inadaptés », vont principalement être attribués à des éléments d'ordre psychologique, alors que ceux-ci peuvent avoir pour origine des difficultés socioéconomiques ; il s'agit donc d'une disparition « des réalités sociales [...] au profit d'une responsabilité individuelle » (Boutanquoi 2004, 76). Ainsi, dans une des observations menées, les difficultés rencontrées par la famille étaient principalement expliquées par les membres de l'APEA en termes de troubles psychologiques de la mère alors que les difficultés financières de la famille semblaient également avoir un impact important sur l'organisation de celle-ci. Pour Raveneau (2009), cette prédominance de ces aspects dans les discours des travailleurs-euses sociaux-les peut être une stratégie utilisée par les professionnel-le-s pour cacher leur manque d'investissement, leur difficulté à faire face à la situation ou pour se défendre dans des situations d'incertitude. Ce qui surprend l'observateur-trice, c'est la prépondérance de ces dispositions psychologiques dans le discours des familles elles-mêmes. En effet, ces dernières sont tout autant enclines que les membres de l'APEA à définir leur situation familiale par ces caractéristiques psychologiques. Cela semble indiquer que certaines familles auraient en partie intériorisé les discours des professionnel-le-s mobilisant la vulgate psychologique. Cette similitude de discours pourrait aussi provenir d'une volonté pour les familles de rejoindre les professionnel-le-s dans la construction d'une réalité qui se veut socialement et culturellement « neutre » et donc moins sujette à controverse.

Professionnel-le-s face aux différences socioculturelles : un malaise

Les membres des APEA se présentent principalement au travers d'éléments reposant sur leur statut professionnel et leur fonction juridique, bien qu'ils/elles appartiennent aussi à un certain groupe socioculturel. Mais il y a des exceptions comme ce magistrat qui se positionne en disant : « *c'est une question de religion, je ne connais pas la vôtre, je ne suis pas musulman* ». Les membres des APEA adoptent donc une démarche plutôt universaliste, c'est-à-dire qu'ils vont minimiser l'impact des différences socioculturelles (Gulfi 2015). Ainsi, en reprenant le modèle de la sensibilité interculturelle (Bennett 2004), il est possible d'estimer que les membres des APEA oscillent entre le stade de minimisation et celui d'acceptation. En effet, les professionnel-le-s ne nient pas l'existence des différences socioculturelles, mais tendent à ne pas intégrer ces aspects dans leurs propres discours. Néanmoins, il est fondamental de relever que les membres de l'APEA peuvent avoir une ouverture plus ou moins grande en fonction de leur propre sensibilité à l'interculturalité. Cette difficulté à aborder ces questions de différences socioculturelles peut s'expliquer, d'une part, par le fait que certain-e-s professionnel-le-s ne se sentent pas assez compétent-e-s pour aborder cette thématique avec les familles et pourraient, de ce fait, éprouver un sentiment d'impuissance (Cohen-Emerique 2015). Cette forme d'évi-

tement provient probablement aussi d'un manque de formations adaptées qui permettraient d'accompagner ces professionnel·le·s dans une démarche d'interculturalité (Simon, Truffin et Wyvekens 2019), démarche qui améliorerait les interactions entre les professionnel·le·s et les familles (Cohen-Emerique 2015). Si le rôle de la formation est crucial, il est également intéressant de noter que cela peut aussi contribuer à une réification des différences socioculturelles et à un renforcement des frontières entre « eux » et « nous » (Serre 2010). D'autre part, il est aussi possible que certain·e·s professionnel·le·s n'en voient pas la pertinence pour l'accomplissement de leur mandat. Cela peut également s'expliquer par un cadre juridique assez rigide qui met au centre la notion du bien de l'enfant sans la définir clairement et sans réussir à expliciter son ancrage culturel comme le montre Sheriff (2000) au Québec. Par ailleurs, il est essentiel de rappeler que le contexte judiciaire dans lequel se déroulent ces audiences tend à favoriser une certaine lecture de la réalité par les membres des APEA.

Opposition sur les statuts sociaux : la construction du « nous » et du « eux »

Dans nos données, l'ethnicité ou la construction de la différence entre « eux » et « nous » repose très peu sur des références à la différence socioculturelle entre les acteur·trice·s. Cela est également le cas en France et en Belgique où les magistrat·e·s des affaires familiales et les familles font très peu référence à la « culture » dans leurs propos (Wyvekens 2012). Cependant, hors audience, nous avons observé deux cas où l'utilisation d'éléments socioculturels a servi à décrire des caractéristiques péjoratives, une fois pour qualifier un père jugé machiste et une autre fois pour qualifier de « rétrogrades » les opinions de parents. Ainsi, comme l'ont constaté Križ et Skivenes (2012), les considérations ethniques des familles issues de la migration sont souvent examinées comme une barrière et non comme un facteur de résilience. Ce même constat avait déjà été fait dans le domaine scolaire où les élèves issu·e·s de la migration qui réussissent sont perçu·e·s comme des « surprises », puisque que la majorité de ces dernier·ère·s sont considéré·e·s comme « cumulant des handicaps » (Mottet 2020).

Cependant, bien que la « frontière » entre familles et professionnel·le·s ne repose pas directement sur des références aux différences socioculturelles, nous observons qu'il existe bien une distinction qui se crée entre ces acteur·trice·s à travers l'évocation des statuts de parents et d'enfants. En effet, tout·e·s les professionnel·le·s sont porteurs·euses de certaines normes familiales et scolaires représentant l'idéologie dominante⁶ (Boutanquoi 2004) qu'ils/elles vont valoriser au cours de leurs échanges. Par exemple, ils/elles vont souligner que, en tant que parents, les pères et les mères doivent se partager les tâches éducatives et domestiques de manière égalitaire alors que certaines familles peuvent concevoir que l'éducation des enfants et les tâches domestiques soient principalement du ressort de la mère. Or, cette définition du « bon parent » n'est pas culturellement et socialement neutre, mais elle correspond à des éléments des classes

⁶ En Suisse, si les discours sur l'égalité entre femmes et hommes semblent faire consensus, dans les pratiques, la transition à la parentalité tend à éloigner les femmes du monde du travail (retrait complet ou partiel, haute prévalence du temps partiel) et à les renvoyer à un rôle plus traditionnel centré autour de l'éducation des enfants (Le Goff et Levy 2016).

dominantes présentes dans une société donnée (Schultheis 2006). Les discours tenus par les membres de ces autorités sont donc porteurs d'une certaine normalité, certes juridique, mais aussi socioculturelle et de genre.

Conclusion

À travers cette analyse, nous avons cherché à mieux comprendre la manière dont les différences socioculturelles sont prises en compte dans les APEA. Les résultats préliminaires soulignent qu'il existe une certaine difficulté à intégrer ces éléments dans les échanges entre les professionnel-le-s et les familles, et cela notamment du fait d'une forte psychologisation des comportements familiaux et de l'approche universaliste de la culture adoptée par les membres des APEA. Or, le fait de ne pas considérer les différences socioculturelles comporte le risque d'accentuer la responsabilité individuelle des membres de la famille (Raveneau 2009), de masquer certaines dominations sociales (Boutanquoi 2004) et de ne pas reconnaître une partie des propos tenus par les familles (Juteau 1996). Néanmoins, il est essentiel de souligner que les observations menées ici étaient limitées aux audiences entre les professionnel-le-s et les familles ce qui ne permettait pas d'appréhender la vision subjective des membres des APEA et des familles sur ces aspects socioculturels ; en effet, seules les interactions entre ces acteur-trice-s ont fait l'objet d'une analyse. De plus, nos données montrent que les membres des APEA font un travail en amont (ex. : engagement d'interprètes) et collaborent avec d'autres organismes tels que l'école, les services sociaux ou les centres hospitaliers ; ainsi, il est possible que ces co-acteur-trice-s soient plus sensibilisé-e-s aux différences socioculturelles et que ces questions soient abordées lors de rencontres de réseau par exemple. Mais, comme le soulignent Tilbury et Ramsay (2018), les opinions des parents issus de la migration restent souvent peu intégrées dans les procédures en protection de l'enfant. C'est pourquoi la suite de cette recherche se concentrera essentiellement sur une évaluation globale de la participation des familles au sein des APEA, ce qui permettra sûrement de mieux comprendre la place de la parole de ces familles et la manière dont celles-ci sont considérées par les membres APEA.

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SOZIALFIRMEN UND IHRE BEZIEHUNGEN ZU POTENZIELLEN ARBEITGEBER·INNEN

Praktiken und Handlungslogiken der Stellenvermittler·innen

Mélanie Pitteloud

Zusammenfassung

Ein seit Oktober 2019 laufendes Forschungsprojekt geht der Frage nach, wie Sozialfirmen ihre Teilnehmenden in den ersten Arbeitsmarkt vermitteln. Handlungspraktiken und -logiken des Fachpersonals sind beeinflusst von den verschiedenen «Schnittstellen», die für Sozialfirmen typisch sind: Dazu gehören die Sozialwerke (Sozialversicherungen und Sozialhilfe), die Klient·innen zuweisen, und der reguläre Arbeitsmarkt, auf dem zukünftige Arbeitgeber·innen für die Klient·innen gesucht werden. Dieser Artikel fokussiert auf die Schnittstelle zwischen den Sozialfirmen und dem regulären Arbeitsmarkt und untersucht die Beziehung zwischen den Fachpersonen der Sozialfirma und potenziellen Arbeitgeber·innen.

Schlagwörter: *Sozialfirmen, Arbeitsmarktintegration, Stellenvermittlung, Arbeitslosigkeit, Schweiz*

SOCIAL ENTERPRISES AND THEIR RELATIONSHIP WITH POTENTIAL EMPLOYERS: PRACTICES AND LOGICS OF ACTION OF THE PROFESSIONAL STAFF RESPONSIBLE FOR JOB PLACEMENT

Abstract

In our research project, running since October 2019, we study how social enterprises place their participants in the primary labour market. The practices of the social enterprise's specialists are shaped by the complex relationship between social enterprises, social services that assign their clients to the social enterprises, and the regular labour market, where the enterprises find potential employers for their clients. This paper deals with the relationship between the social enterprises and the regular labour market. In particular, it examines the relationship between the professional staff responsible for job placement and potential employers in the primary labour market.

Keywords: *social enterprises, labour market integration, job placement, unemployment, Switzerland*

Einleitung

In der Schweiz gibt es schätzungsweise 495 bis 521 sogenannte Sozialfirmen (Ferrari et al. 2016, XI) – Unternehmen, die sich «à mi-chemin entre les entreprises traditionnelles et le monde des projets sociaux» befinden (Avilés und Ferrari 2014, 47). Die Schweizer Sozialfirmen-Landschaft zeichnet sich durch eine grosse Heterogenität aus, was eine eindeutige und allgemeingültige Definition von «Sozialfirma» praktisch unmöglich macht (BSV 2016, I).

Dank einer grösseren vom Bund beauftragten quantitativen Studie von Ferrari et al. (2016) liegen uns unter anderem Daten zu der Verbreitung und Finanzierung sowie zu den Hauptmerkmalen von Sozialfirmen in der Schweiz vor. Die explorative Untersuchung von Adam et al. (2016) eruierte zudem die Erfolgsfaktoren solcher Unternehmen – aus Sicht der Sozialwerke, der Klient:innen und der Sozialfirmen selbst.¹

Wir wissen jedoch wenig über die Handlungspraktiken und -logiken des in Sozialfirmen tätigen Fachpersonals. Darauf fokussiert das im Folgenden vorgestellte und vom Schweizerischen Nationalfonds geförderte Forschungsprojekt.² Unser spezifisches Erkenntnisinteresse gilt dabei der internen Stellenvermittlungstätigkeit, das heisst der Frage: Wie werden erwerbslose, in Sozialfirmen beschäftigte Menschen (nachfolgend «Teilnehmende» genannt) in den regulären Arbeitsmarkt vermittelt? Und: Wie wird diese Tätigkeit, nebst «internen» Faktoren (Organisations- und Führungsstruktur), vom «äusseren», für Sozialfirmen typischen Kontext (mit) beeinflusst? Dazu gehören die Sozialwerke, die Teilnehmende zuweisen, sowie der reguläre Arbeitsmarkt, auf dem potenzielle Arbeitgebende für die Teilnehmenden gesucht werden.³

Im vorliegenden Text werden wir uns auf den letztgenannten Aspekt konzentrieren, genauer gesagt auf die Beziehung zwischen den Sozialfirmen und (potenziellen) Arbeitgebern. Dabei handelt es sich um erste Einblicke in unsere seit Oktober 2019 laufende Forschung. Das bedeutet, dass unsere Aussagen zu einem späteren Zeitpunkt noch ergänzt, revidiert und nuanciert werden.

Methodisches Vorgehen und Stand unserer Forschung

Die semistrukturierten Interviews machen den überwiegenden Teil unserer Datenerhebung aus. Dokumentenanalysen, Beobachtungen vor Ort sowie Fokusgruppengespräche ergänzen diese und dienen der Präzisierung.⁴

Insgesamt berücksichtigen wir 25 Sozialfirmen aus vier Schweizer Kantonen.⁵ Pro Firma interviewen wir jeweils eine:n Geschäfts- oder Bereichsleiter:in sowie, in einem separaten

¹ Die Autor:innen der Studie bevorzugen den Ausdruck «Unternehmen sozialer und beruflicher Integration».

² Der französische Originaltitel unseres Forschungsprojektes lautet «Activités de placement de bénéficiaires sur le marché du travail par les entreprises sociales d'insertion en Suisse» (SNF Nr. 10001A_184904, Leitung Dr. Véronique Antonin-Tattini).

³ Auf die Rolle der Leistungsvereinbarungen in diesem Kontext hat Antonin-Tattini (2020) hingewiesen.

⁴ Wir beobachteten zum Beispiel während Bewerbungscoachings das konkrete Vorgehen der Fachperson, das Setting und die Interaktion und Kommunikation mit der Teilnehmer:in.

⁵ Die vier untersuchten Kantone unserer Forschung sind das Wallis, Zürich, Neuenburg und Genf.

Gespräch, eine für die Stellenvermittlung verantwortliche Fachperson. Im Ganzen werden demnach 50 Interviews durchgeführt. Diese dauern in der Regel zwischen 60 und 90 Minuten.

Die Auswahl der Kantone erfolgte aufgrund ihrer Unterschiede hinsichtlich Sprache, Eingliederungspolitik und Vorhandensein (oder nicht) von grossen städtischen Zentren.⁶

Zum jetzigen Stand der Forschung haben wir 16 leitfadengestützte Interviews durchgeführt, in acht verschiedenen Sozialfirmen, die sich im Kanton Wallis, Zürich oder Neuenburg befinden. Auch wurden diverse Dokumente wie Rechtsgrundlagen oder Geschäftsberichte von Sozialfirmen analysiert.

«Sozialfirma» – ein vager Begriff in der Schweiz

Was eine «Sozialfirma» genau ist, wirft nicht bloss in der Fachliteratur Fragen auf, sondern auch im Feld. Teils waren sich unsere Interviewpartner:innen selbst nicht sicher, ob ihr Unternehmen als eine solche überhaupt angesehen werden kann: «Also, genau, ob wir die Kriterien erfüllen, da müsstest du mir sagen, welches die Kriterien auf dem Markt sind», antwortete zum Beispiel eine von uns befragte Geschäftsleiterin.

Diese Unsicherheit im Umgang mit dem Begriff «Sozialfirma» dürfte unter anderem damit zusammenhängen, dass es in der Schweiz «[i]m Gegensatz zu verschiedenen europäischen Staaten [...] keine spezifischen rechtlichen Rahmenbedingungen oder Rechtsformen für Sozialfirmen» gibt (BSV 2016, 9).⁷

Dass es kein leichtes Unterfangen ist, den Begriff «Sozialfirma» zu definieren, sodass dieser der heterogenen Schweizer Sozialfirmen-Landschaft gerecht wird, wurde bereits 2012 anlässlich einer Tagung zu diesem Thema, an der Fachverbände wie CRIEC, SVOAM, Assof und FUGS vertreten waren, deutlich:⁸ «Versuche zur Definition von exakten Unterscheidungskriterien der Sozialfirmen sind allesamt zum Scheitern verurteilt» (Dunand und Rey 2013, 3–4), schlussfolgerte man. Dennoch konnte ein kleinster gemeinsamer Nenner formuliert werden:

Die Schweizer Sozialfirmen zeichnen sich wie ihre europäischen Schwestern durch drei starke gemeinsame Charakteristiken aus: Sie sind private Unternehmen mit dem spezifischen Ziel der Arbeitsintegration und mit einem unternehmerischen Risiko. [...] Die Sozialfirmen umfassen folglich Organisationen, deren oberstes Ziel darin besteht, einen Übergang zum Arbeitsmarkt oder aber angepasste Arbeitsplätze zu bieten. (Dunand und Rey 2013, 3)

⁶ Die kantonale Eingliederungspolitik wirkt sich sowohl auf die Umsetzung der Sozialversicherungsgesetze (Bundesgesetz zur Arbeitslosen- und Invalidenversicherung) aus, bei der die Kantone über einen gewissen Handlungsspielraum verfügen, als auch auf die Organisation der Sozialhilfe.

⁷ Bestimmte Kantone haben eigene Kriterien festgelegt: im Wallis beispielsweise muss sich eine Sozialfirma zu mindestens 60 % selbstfinanzieren, um als solche – zwecks finanzieller Starthilfe – anerkannt zu werden.

⁸ Conseil romand de l'insertion par l'économie CRIEC, Schweizerischer Verband der Organisatoren von Arbeitsmarktmassnahmen SVOAM; Arbeitsgemeinschaft Schweizer Sozialfirmen Assof; Fachverband unternehmerisch geführter Sozialfirmen FUGS.

Um eine möglichst reichhaltige Palette solcher Organisationen erfassen zu können, haben auch wir den Begriff «Sozialfirma» bewusst breit definiert, und zwar wie folgt:

Sozialfirmen bieten produktive, arbeitsmarktnahe Stellen zwecks (Wieder-)Eingliederung von Menschen, die auf dem ersten Arbeitsmarkt benachteiligt sind.⁹ Dazu gehören Menschen mit Behinderung oder mit Migrationshintergrund, Erwerbslose, Sozialhilfeempfänger:innen ohne Arbeit und Jugendliche ohne Ausbildung. Dank der Produktion und des Verkaufs von Gütern und/oder Dienstleistungen am Markt finanzieren sich diese Firmen bis zu einem gewissen Grad selbst.

Sozialfirmen als Stellenvermittlerinnen

Nebst dem Charakteristikum, dass Sozialfirmen ihre Teilnehmenden bei der Stellensuche mit Massnahmen wie (Bewerbungs-)Coachings oder Stellenwerkstätten unterstützen, können sie noch einen anderen, proaktiveren Weg gehen: sie machen (potenzielle) Arbeitgeber:innen ausfindig, gehen auf sie zu und handeln Praktika oder feste Arbeitsstellen für ihre Teilnehmenden aus. Sie versuchen somit, Letztere direkt in den regulären Arbeitsmarkt zu vermitteln.

In gewissen Sozialfirmen laufen die sogenannten Akquisitionen von Arbeitgebenden eher informell ab, bei anderen gibt es spezifisch dafür verantwortliches Fachpersonal. Sozialfirmen vermitteln ihre Teilnehmenden höchst selten direkt in eine Feststelle, fast immer werden zuerst Praktika organisiert (wobei unsere Interviewpartner:innen auch hier teils von «Vermittlung» sprechen). Das Probearbeiten bringt aus Sicht der von uns befragten Sozialfirmen folgende Vorteile: man bekommt ein Feedback zum Arbeits- und Sozialverhalten der Teilnehmenden, direkt aus der Arbeitswelt (zur Bestätigung oder Widerlegung der Einschätzungen durch die Sozialfirma); die Teilnehmenden können einen Beruf ausprobieren und herausfinden, ob sie sich wirklich dafür begeistern können und über die dazu erforderlichen Kompetenzen verfügen. Und nicht zuletzt kann ein Praktikum Türöffner für eine Feststelle sein.

Bei den bis jetzt von uns befragten Sozialfirmen dauern solche externen Praktika in der Regel höchstens zwei Wochen – «nicht, dass man uns unterstellen kann, dass wir da billige Temporärkräfte vermitteln», meint ein Akquisitionsverantwortlicher dazu.

Hiermit ist das Problem der «billige[n] Temporärkräfte» unserer Einschätzung nach jedoch noch nicht aus der Welt geschafft: es kann durchaus vorkommen, dass Teilnehmer:innen mehrere Praktika absolvieren müssen, bevor sie eine reguläre Stelle finden. In dem Fall multiplizieren sich diese «zwei Wochen». Umgekehrt kann es vorkommen, dass es die Arbeitgebenden sind, welche die Praktika kumulieren: zwar sind sie bereit, immer wieder neue Praktikant:innen bei sich aufzunehmen, stellen aber nur selten jemanden ein.

⁹ Nicht berücksichtigt werden in dieser Definition unter anderem sogenannte Trainingsfirmen. Die Stellen innerhalb der Sozialfirma können befristet oder unbefristet sein, und den Teilnehmenden kann ein Lohn, kein Lohn oder ein Teillohn ausbezahlt werden.

Die Angst, potenzielle Arbeitgeber·innen zu verärgern

Die von uns befragten Sozialfirmen scheinen sehr darauf bedacht zu sein, potenzielle Arbeitgeber·innen nicht zu verärgern – unter anderem aus Angst, zukünftig in dem betreffenden Unternehmen niemanden mehr platzieren zu können (selbst, wenn es sich lediglich um ein Praktikum handelt). Ein Atelier-Verantwortlicher formuliert es so:

À un moment donné on doit quand même faire attention. Si moi je recommande des personnes en sachant que ces personnes ne vont pas s'adapter aux entreprises, c'est quand même nous qu'on va se scier un petit peu.

Überdies zeigt diese Aussage deutlich, wer sich aus Sicht der hier zitierten Fachperson wem anzupassen hat. Bereits Bonvin und Moachon (2010) hatten in Zusammenhang mit der öffentlichen Arbeitsvermittlung darauf hingewiesen, dass in der Schweiz der Fokus meist auf der erwerbslosen Person liegt, die der Realität des gegenwärtigen Arbeitsmarktes anzupassen ist, jedoch selten versucht wird, auf den Arbeitsmarkt selbst einzuwirken und diesen zu verändern.

Auf die Frage, ab wann ein·e Teilnehmer·in vermittelt werde, antworteten unsere Interviewpartner·innen oft: sobald jene·r für den regulären Arbeitsmarkt «bereit sei». Dies bezieht sich allerdings weniger auf Fachkompetenzen, sondern vielmehr auf ihr/sein Verhalten und auf die sogenannten Soft Skills, wie folgende Aussage illustriert:

C'est-à-dire qu'il n'y a pas eu des absences déjà pour maladie, pétage de plomb, ou problèmes privés [...] qui est à l'heure, qui a la ponctualité, qui a une autonomie [...], qui fait les choses demandées, les tâches demandées, qui a une fiabilité, qui a la prise de responsabilité, voilà, qui a beaucoup d'éléments que moi je dis: je sais que je peux conseiller les yeux fermés.
(Eingliederungsverantwortliche einer Sozialfirma)

Für Teilnehmende, die wegen mangelnder Sprachkompetenz, oder wie im folgenden Beispiel wegen ihres Alters, aus Sicht des regulären Arbeitsmarkts weniger «attraktiv» erscheinen, sind Sozialfirmen durchaus bereit, bei potenziellen Arbeitgeber·innen Überzeugungsarbeit zu leisten – wiederum mittels des Arguments der vorbildlichen (fast schon idealen) Mitarbeiter·in:

Une fois j'ai dit à un employeur: «Ecoutez voir», bon ils [...] l'avaient engagé, [...] «je suis d'accord, vous voulez peut-être un jeune qui coûte moins cher mais le jeune il sera plus souvent malade, il n'aura pas le même rendement, il n'aura pas la même capacité à comprendre les trucs. Lui, il est dans le métier, il est beaucoup plus âgé, oui, il a 58 ans mais vous savez que quand vous l'engagez demain vous n'avez pas besoin de le former et tout ça. Oui, vous allez payer un peu plus cher mais vous n'aurez pas d'embrouilles. (Eingliederungsverantwortliche einer Sozialfirma)

In diesem Beispiel wird also nicht zuletzt mit der Produktivität des Teilnehmenden geworben, die das Alter (und die damit verbundenen höheren Lohnkosten) wettmachen soll. Überdies ist hier die stereotype Gegenüberstellung von jungen versus älteren Mitarbeiter_innen, wobei Erstere pauschal als «problembringend» dargestellt werden, unserer Ansicht nach heikel, da selbst erneut ausgrenzend.

Fitmachen für die Arbeitswelt und das Problem des «Creaming off»

Obwohl sich die von uns befragten Sozialfirmen zur wettbewerbsorientierteren und gewisse Menschen ausgrenzenden Arbeitswelt durchaus kritisch äusserten, scheinen sich die meisten von ihnen in der Praxis darauf zu konzentrieren, ihre Teilnehmer_innen für die Arbeitswelt fit zu machen. Dabei kann erneut eine Selektion stattfinden: man wählt die aus, die noch fit gemacht werden können. Dieses Problems sind sich gewisse Interviewpartner_innen durchaus bewusst, wie die folgende Aussage eines Akquisitionsverantwortlichen zeigt:

Die, die bei [Name der Sozialfirma] sind, also das sind schon die Stärkeren, muss man schon sehen. [...] Wir sind] eben schon, wie soll ich sagen, nicht gerade ein niederschwelliges Programm. Das muss man, glaube ich, wirklich sehen. Darum sind wir auch so nahe oder können so nahe an der ersten Arbeitswelt sein und haben von daher eigentlich auch gute Vermittlungsquoten.

Gute Vermittlungsquoten zu haben hilft zudem dem Image gegenüber den Sozialwerken, die Teilnehmende (und somit auch Arbeitskräfte) zuweisen und für deren Begleitung bezahlen. Allerdings führt dies je nach Druck und Erwartungen seitens der Sozialwerke zu einem mehr oder weniger starken *Creaming off*, wie es im Fachjargon genannt wird: «Schwierige Fälle bleiben auf der Strecke» und es werden «vorzugsweise jene Personen [ausgewählt], die auch den grössten Erfolg versprechen» (Binswanger 2020, 238–239). Das *Creaming off*-Problem betrifft nicht nur private Firmen, sondern auch die unter Erfolgsdruck stehenden Regionalen Arbeitsvermittlungen RAV oder die Sozialhilfe (ebd.).

Für das *Creaming off* kann auch der marktwirtschaftliche Druck verantwortlich sein: wird dieser zu gross, kann es sich eine Firma nicht mehr leisten, (zu) unproduktive Mitarbeitende in die Firma aufzunehmen.¹⁰ Dieser Druck kann noch ein weiteres Problem mit sich bringen, wie Avilés und Ferrari verdeutlichen: er kann dazu führen, dass Sozialfirmen ihre besten Mitarbeitenden für sich behalten, «ce qui pourrait entraver le retour de ceux-ci sur le marché régulier de l'emploi» (2014, 44–45). Mit anderen Worten: die «Fittesten» werden hier Opfer ihres eigenen Erfolges.

¹⁰ Avilés und Ferrari (2014) haben darauf hingewiesen, dass dieser Druck durch das Festlegen eines Selbstfinanzierungsgrades noch erhöht werden kann.

Sozialfirmen werden zu regulären Arbeitgeberinnen

Nebst Sozialfirmen, in denen das «Fit-Machen» ihrer Teilnehmenden im Vordergrund steht, begegneten wir auch solchen mit einem anderen Ansatz. Jenen Unternehmen geht es nicht primär um die (gemäss dem Aktivierungsparadigma der Sozialpolitik möglichst schnelle) Wiedereingliederung in den Arbeitsmarkt, sondern um Integration in einem breiteren Sinne (vgl. auch Rosenstein 2020). Dabei, so die Worte der Geschäftsleiterin eines Unternehmens, dem es in erster Linie um die Bekämpfung von Ausgrenzung, sozialer Ungleichheit und Armut geht, «solidarisiert [man] sich mit diesen Menschen, setzt sich auch für sie ein, dass die auch wirklich einen Platz haben in der Gesellschaft», denn:

Egal, woher sie kommen, was sie erlebt haben in ihrem Leben – alle haben einen Platz verdient und können auch etwas beitragen. Und es geht auch darum, das wie nach aussen zu zeigen, dass wir das wirklich möchten, dass das auch das Ziel ist. Und aber auch, dass wir [...] die Missstände aufzeigen. (Geschäftsleiterin)

Die Verknüpfung zwischen «einen Arbeitsplatz haben» und «einen Platz in der Gesellschaft haben» wurde von unseren Interviewpartner:innen in verschiedenster Weise explizit oder implizit formuliert. Demnach ist es nicht erstaunlich, dass gewisse Firmen (wie die oben zitierte) teils selbst feststellen mit branchen- und ortsüblichen Löhnen für sonst vom ersten Arbeitsmarkt ausgeschlossene Menschen anbieten und damit zu regulären Arbeitgeberinnen werden.

Zwei weitere von uns befragte Unternehmen bieten ebenfalls reguläre Festanstellungen an. Diese waren ursprünglich als Sprungbrett hin zu einer Feststelle auf dem ersten Arbeitsmarkt gedacht. Die Idee war, dass die Mitarbeiter:innen in der Sozialfirma ihre ersten Erfahrungen auf dem regulären Arbeitsmarkt sammeln, um anschliessend extern eine andere (meist auch besser bezahlte) Stelle anzutreten und die Stelle in der Sozialfirma erneut für eine vom Arbeitsmarkt benachteiligte Person frei wird. In der Praxis geht dieses Konzept jedoch nicht immer auf: einerseits musste man einsehen, dass Mitarbeiter:innen anderenorts auf dem ersten Arbeitsmarkt dennoch keine realen Chancen hatten, andererseits bestand für die Firmen selbst wenig Anreiz, diese Mitarbeiter:innen weiterziehen zu lassen, da sie mittlerweile betriebswirtschaftlich interessant geworden waren. Das führt zu einem ähnlichen Effekt, wie wir ihn weiter oben im Kontext des ergänzenden Arbeitsmarktes und des *Creaming off* beschrieben haben.

Abschliessender Gedanke und Ausblick

Gemäss unseren ersten vorläufigen Erkenntnissen scheinen Sozialfirmen bei ihrer Vermittlungstätigkeit stark von der Logik und den Erwartungen des regulären Arbeitsmarktes geleitet zu sein: Es geht darum, zukünftige Arbeitgeber:innen nicht zu enttäuschen und ihnen zu beweisen, dass die Teilnehmer:innen «zu arbeiten wissen», «sich zu benehmen wissen» und daher eine Arbeitsstelle verdient haben. Die von uns befragten Fachpersonen sind sich durchaus bewusst, dass es dabei wiederum zu einer Selektion kommen mag, indem vermittelt wird, wer den Kriterien des regulären Arbeitsmarktes am ehesten entspricht. Obwohl sich viele durchaus

kritisch äusserten über eine Arbeitswelt, die gewisse Menschen ausgrenzt und diskriminiert, versuchten sie nur selten, dies zu verändern.

In der sehr heterogenen Schweizer Sozialfirmen-Landschaft sind wir zudem Unternehmen mit einem anderen Ansatz begegnet: bei diesen Firmen liegt der Fokus nicht auf den fit zu machenden Teilnehmer*innen, sondern auf der Verknüpfung zwischen Arbeitswelt und Gesellschaft, wobei sich erstere dahingehend zu verändern hat, dass alle ihren Platz haben. Da «einen Platz in der Gesellschaft haben» meist als «eine Arbeitsstelle haben» aufgefasst wird – ein Zusammenhang, der im Übrigen auch eine kritische Beurteilung verdient hätte, hier aber den Rahmen sprengen würde –, werden solche Firmen manchmal selbst zur Arbeitgeberin des ersten Arbeitsmarktes. Das heisst, sie bieten intern reguläre Festanstellungen für sonst vom ersten Arbeitsmarkt benachteiligte Menschen an.

Wie eingangs erwähnt konzentrierten wir uns in diesem Artikel auf die «Schnittstelle» von Sozialfirmen und regulärem Arbeitsmarkt. Andere Faktoren, die ebenfalls auf die Handlungspraxis des Fachpersonals einwirken und daher für unsere Studie von Interesse sein werden, sind die Sozialwerke, das heisst die zuweisenden Stellen, sowie die interne Organisationsstruktur und das Leitbild/die Philosophie der Sozialfirma selbst.

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LA PARTICIPATION POLITIQUE EN ÉTABLISSEMENT MÉDICO-SOCIAL

Ethnographie d'un objet difficilement saisissable

Maëlle Meigniez, Barbara Lucas, Lea Sgier

Résumé

L'objectif de cet article est de montrer l'utilité d'une approche ethnographique pour saisir le rapport des personnes âgées institutionnalisées au vote et à la participation politique. Au travers d'un travail de terrain dans six établissements médico-sociaux (EMS) en Suisse romande, nous montrons comment, derrière un apparent manque d'intérêt pour la politique et un désengagement du vote, sommeille parfois un vif intérêt qui ne demande qu'à être entendu. Cela nous amène à un double constat : d'une part la « mort civique » souvent constatée chez les personnes âgées institutionnalisées n'est pas une fatalité inhérente à l'âge, mais aussi l'effet d'un (évitable) évitement du politique par le contexte institutionnel lui-même ; et d'autre part ce n'est que par une approche de terrain que le rapport des personnes âgées à la politique, souvent enseveli sous des normes sociales ou des sentiments d'incompétence, ou invisibilisé au quotidien, peut être saisi.

Mots-clés : *participation politique, personnes âgées, institution, ethnographie, établissements médico-sociaux*

POLITICAL PARTICIPATION IN NURSING HOMES: ETHNOGRAPHY OF AN ELUSIVE OBJECT

Abstract

This article aims to illustrate the usefulness of an ethnographic approach for the understanding of how institutionalised older people relate to voting and political participation. Based on fieldwork in six nursing homes in French speaking Switzerland, we show how behind an apparent lack of interest in politics and a disengagement from voting, there is sometimes a strong interest that just needs to be heard. This leads us to a twofold conclusion: that the "civic death" that often comes with institutionalisation is not an age-related fatality, but (partly at least) the effect of an (evitable) institutional "avoidance" of politics by the institutional context itself; and that an ethnographic approach is key to uncover the relationship of older people to politics, often buried under social norms or feelings of incompetence, or made invisible in everyday life.

Keywords: *political participation, older people, institution, ethnography, nursing home*

Introduction¹

Dans un article paru dans la revue de science politique française *Politix*, Nicolas Mariot (2010) s'étonnait de la quasi-inexistence d'une ethnographie de la citoyenneté – à savoir des « rapports ordinaires à la politique » – autrement qu'auprès de personnes militantes ou citoyennes particulièrement engagées². L'objectif de la présente contribution est de montrer l'utilité d'une telle approche dans un contexte rarement étudié: les *homes* pour personnes âgées (appelés par la suite EMS – établissements médico-sociaux)³. L'entrée en institution des personnes âgées semble souvent associée à une « mort civique » (Thomas 1996), c'est-à-dire leur renoncement à la participation électorale, même lorsque celle-ci était importante à leurs yeux auparavant et alors même que leur intérêt pour l'actualité politique reste intact. Partant de ce constat, ainsi que de nos propres observations de terrain dans le cadre d'un précédent projet (Lucas et Lloren 2008, Lucas et Sgier 2012, Sgier et Lucas 2018), nous avons mené une recherche ethnographique dans six EMS en Suisse romande. Notre principale intention était de chercher à saisir le rapport des résident·e·s au *vote* (dans le contexte de la démocratie directe suisse) et de situer ce rapport dans le contexte des établissements. Notre hypothèse, inspirée d'une perspective goffmanienne sur les « institutions totales », était que le retrait civique des personnes institutionnalisées est – partiellement en tout cas – l'*effet* de l'institutionnalisation elle-même et non une fatalité inhérente au grand âge. Nous avons alors opté pour une ethnographie exploratoire alliant des phases d'observation relativement courtes, et des entretiens informels et formels (enregistrés) avec des résident·e·s et des membres du personnel de six établissements dans les cantons de Fribourg, Genève, Jura, Neuchâtel Valais et Vaud⁴.

Dans cette contribution, nous rendons compte de quelques résultats préliminaires issus de ce travail de terrain. La littérature sur le rapport des « gens ordinaires » à la politique institutionnelle (élections, votations, institutions et partis politiques), essentiellement fondée sur des entretiens qualitatifs, a beaucoup mis l'accent sur la multiplicité des significations du vote et

¹ Cet article est issu du projet de recherche « La citoyenneté politique comme dimension de la qualité de vie. Une enquête dans 6 EMS romands », financée par la Fondation Leenaards (Lausanne). La recherche comporte trois volets : une analyse du contexte juridique cadrant l'exercice du droit de vote en EMS dans les cantons ; une enquête par questionnaire auprès de tous les EMS de Suisse romande et un volet ethnographique autour de 6 études de cas (voir Lucas et al., 2021 à paraître). Nous remercions les éditeurs-trices de la revue ainsi que les relecteurs-trices anonymes pour leurs commentaires constructifs sur les premières versions de cet article.

² Par là, Mariot entend les rapports de gens « ordinaires » (profanes, sans compétences particulières) à la politique « sous forme de liens [...] que chacun de nous entretiendrait [...] avec ce qui est désigné comme nos modes, locaux et nationaux, d'être ensemble » (Mariot 2010, 173).

³ S'il existe quelques travaux ethnographiques sur la citoyenneté politique en général (Eliasoph 2010, voir aussi Mariot 2010), il n'en existe pas, à notre connaissance, sur la citoyenneté politique dans les institutions pour personnes âgées.

⁴ La sélection des six établissements s'est effectuée en fonction de différentes caractéristiques : taille de l'institution (nombre de lits), cantons, environnement géographique (ville / campagne), statut (public, subventionné, privé), distribution du matériel de vote et présence ou non d'activités en lien avec les votations. Au total, nous avons effectué une immersion de 4 à 8 journées dans chaque établissement, comportant des moments d'observation de la vie quotidienne (dans les espaces communs), des entretiens formels et informels (55 personnes âgées et 29 membres du personnel) et des observations d'animations.

de la politique du point de vue des individus (Gaxie 2002, Thomas 1993). Elle a aussi traité de la question connexe de ce qui fait la « compétence » politique (Gaxie 2007, Blondiaux 2007). En revanche, cette littérature n'évoque que très peu la difficulté qu'il y a à saisir les « rapports ordinaires » à la politique. Gaxie (2007) mentionne certes le problème des répondant-e-s qui « s'auto-déshabillent » à avoir des opinions politiques au-delà des sujets qui les concernent le plus concrètement et immédiatement (par manque de connaissances, sentiment d'illégitimité etc.) – et qui sont, du coup, difficiles à motiver pour des entretiens de recherche. Mais comme notre travail de terrain ethnographique l'a montré, ce n'est pas la seule difficulté qui se présente quand on cherche à saisir le rapport au vote de personnes âgées institutionnalisées. Ce qui nous a frappées avant tout en effet, c'est la nature *difficilement saisissable* du rapport au vote et à la participation politique. Sur le terrain ethnographique, cet objet peut se décliner en une pluralité de dimensions, qui toutes semblent se dérober à l'attention des chercheuses. Nous les illustrerons dans les pages qui suivent.

Enquêter sur la vie politique en EMS : des difficultés d'accès révélatrices

Saisir le rapport des personnes âgées au vote et situer ce rapport dans le contexte institutionnel de chaque EMS a été d'emblée compliqué par le fait que ces établissements, bien que se présentant comme des « lieux de vie » ouverts sur l'extérieur, s'apparentent par certains aspects à des « institutions totales » au sens de Goffman (1968) : des endroits où toutes les sphères d'activités des résident-e-s sont réunies dans un seul et même espace physique et social; où l'on ne choisit pas ses co-résident-e-s; et où, même avant les mesures de restriction d'accès liées la pandémie de Covid-19, de nombreux résident-e-s expérimentaient une forme de vie relativement recluse. Ce contexte institutionnel particulier nous a confrontées à deux difficultés méthodologiques qui mettent en lumière la manière dont la vie politique et la vie quotidienne en institution médico-sociale sont construites comme des « sphères séparées », voire des « mondes hostiles », pour reprendre les termes de Viviana Zelizer⁵.

La première difficulté a été pour nous de parvenir à *occuper une place* (Favret-Saada 1977) dans cet environnement institutionnel, qui nous permette de mener des observations et d'échanger avec les résident-e-s. Or, cette place s'est avérée délicate à négocier dans la mesure où l'objet même de la recherche – les droits politiques et leur usage – est souvent perçu comme étranger à la mission de l'établissement⁶. L'évocation de notre objet de recherche suscitait en effet à la fois de l'intérêt et une forme de méfiance de la part des responsables contactés, comme si l'intrusion de la « question politique » dans l'établissement était susceptible de perturber son fonctionnement.

⁵ Zelizer (2005) fait référence par ces termes à l'une des manières d'analyser les relations entre les transactions économiques et la sphère intime.

⁶ 40% des EMS qui ont répondu à notre enquête par questionnaire auprès de tous les EMS romands ont estimé que l'information politique et le soutien à la participation politique des résident-e-s ne font *pas* partie de leur mission.

Dans ce contexte, c'est d'abord la position d'*observatrices* externes que nous avons pu négocier avec la direction et le personnel, et ce en contrepartie du respect de deux clauses (plus ou moins formalisées) : l'absence d'évaluation de leur travail de notre part et la production de résultats directement utiles à leurs pratiques. Une fois passée la porte des EMS, la place de *visiteuses* nous a été assignée : nous étions libres de nous déplacer au sein des espaces collectifs et de « rendre visite » aux résident·e·s dans leur chambre. Toutefois, nous avons laissé le personnel choisir les personnes susceptibles d'être d'accord de nous rencontrer et aptes à mener une conversation. Cette procédure a eu plusieurs avantages : d'un point de vue éthique, elle a assuré que les chercheuses respectent les limites des pratiques de l'institution ; d'un point de vue pratique, elle a clairement facilité notre entrée en contact avec les résident·e·s. En effet, il s'est aussi avéré difficile d'établir un lien de *confiance* avec les personnes âgées en un temps restreint. Notre présence dans chaque établissement ne pouvant être que de courte durée, nous nous sommes reposées sur les liens existants entre les résident·e·s et le personnel.

De manière générale, cette implication du personnel a donc grandement facilité l'entrée en contact avec des interlocutrices et interlocuteurs potentiels. En même temps, elle a sans doute contribué à maintenir dans l'obscurité le rapport au vote des résident·e·s que le personnel n'a pas pu ou voulu approcher, que ce soit par volonté de protéger les personnes les plus vulnérables ou parce que les critères du « bon répondant » (selon les critères implicites du personnel d'un·e résident·e « intéressé par la politique » ou « en état de parler politique ») n'étaient selon eux pas remplis.

Une voix politique affaiblie

Une fois entrées en contact avec les résident·e·s s'est présentée une nouvelle difficulté : celle d'engager une conversation sur le vote et la participation politique. En premier lieu, il n'a pas été aisé d'établir une *relation suffisamment stable* pour nous permettre de nous entretenir de façon approfondie sur ce sujet. Cette difficulté est directement liée à l'état de santé de nos interlocuteurs et interlocutrices : difficulté à se déplacer, à s'exprimer, troubles cognitifs, fortes douleurs – des problèmes de santé qui parfois évoluaient d'heure en heure, nous conduisant alors à devoir annuler les entretiens prévus ou à les écourter.

Par ailleurs, il n'a pas été évident de *construire un dialogue significatif* avec les personnes âgées rencontrées. La politique est de manière générale un sujet abstrait, qui suscite des sentiments d'incompétence ou d'infériorité, ou par lequel beaucoup de gens ne se sentent pas concernés (cf. Blondiaux 2007, 764) – qui, donc, ne fait pas facilement « parler ». Les troubles cognitifs et les déficits sensoriels d'une partie de nos interlocuteurs et interlocutrices ont encore compliqué la tâche en ajoutant des barrières à la communication que nous avons dû apprendre à apprivoiser en ajustant notre manière d'interagir (parler plus lentement et plus fort, beaucoup user de la reformulation par exemple).

Enfin, *la question de la validité à accorder au discours* d'une personne mentalement diminuée s'est posée. De forts préjugés tendent en effet à décrédibiliser d'emblée la voix de celles et ceux qui montrent des signes de troubles cognitifs, d'autant plus lorsque cette voix porte des idées politiques. Or, dans certains cas, le trouble lui-même est un indice de la pertinence des propos. À titre

d'exemple, un ancien postier jurassien répétait en boucle comment il avait appris à se taire et à ne *jamais* parler politique avec quiconque. À première vue « déliant », son point de vue s'est révélé particulièrement heuristique, car représentatif du rapport au politique des personnes de son âge dans ce canton, à savoir un rapport marqué – voir traumatisé – par la violence et les tensions liées à la création du canton en 1979.

Un évitement du politique au sein des établissements

Plus largement, nos observations lors des moments de vie quotidienne et lors des animations semblent indiquer que les établissements médico-sociaux se caractérisent par ce qu'Eliasoph (2010) nomme un « évitement du politique ». Ainsi, dans les espaces et moments communs au sein de l'EMS, nous avons fait l'observation récurrente que tant le personnel que les résident·e·s n'abordent quasiment jamais des sujets politiques. Plus généralement, elles et ils semblent aussi éviter toute discussion ou situation qui pourrait devenir conflictuelle. Les entretiens avec les personnes âgées confirment, presque à l'unanimité, que les résident·e·s non seulement parlent très peu entre eux, mais évitent les « sujets qui fâchent » – la politique et la religion particulièrement. La réticence à exprimer des désaccords se présente comme une tentative de préserver des liens sociaux pacifiques au quotidien, avec des gens avec lesquels on n'a pas choisi de vivre, mais avec lesquels on se trouve néanmoins dans une communauté étroite et relativement recluse.

Par ailleurs, au-delà de cette dynamique d'interaction entre des personnes en présence, nous avons constaté que, même lorsque la politique est formellement intégrée à la vie de l'institution – sous forme d'animations politiques notamment – un certain évitement se rejoue néanmoins : sous forme d'un évitement d'un véritable débat (Eliasoph 2010) Cet évitement se lisait tant dans le dispositif lui-même que dans le contenu des échanges. Ainsi, nos observations des animations organisées autour des votations fédérales dans les quatre EMS de notre échantillon qui les proposent ont mis en évidence le caractère plus *pédagogique* que *politique* de ces animations : la disposition des tables, le discours de l'intervenant·e et la structure des échanges relevaient le plus souvent d'un dispositif destiné à expliquer les enjeux aux résident·e·s, tout en évitant soigneusement (et parfois explicitement) les discussions de fond⁷. De nos entretiens avec le personnel et de notre enquête par questionnaire, on peut comprendre qu'il s'agit là surtout d'un souci de ne pas influencer, ni perturber les résident·e·s en suscitant controverses ou conflits.

Cet évitement du débat contraste avec ce que nous avons pu constater « en coulisses » (Goffman 1973), c'est-à-dire lors de nos entretiens en privé avec les résident·e·s. Dans cet espace protégé et confidentiel, nombre de nos interlocuteurs et interlocutrices ont investi la discussion autour de la politique – avec bonheur semble-t-il – et se sont montré·e·s attaché·e·s au débat d'idées. Parfois, l'intérêt pour la politique exprimé allait bien au-delà des votations : luttes ouvrières, conflits partisans, place des femmes dans la société, politique internationale. Ainsi, au fur et à mesure du déroulement de notre enquête, nous avons constaté un véri-

⁷ Notons que ce type de dispositif semblait apprécié par les résident·e·s – satisfait·e·s d'avoir ainsi mieux compris les enjeux et sensibles à la « neutralité » des présentations et des intervenant·e·s, qui n'ont ainsi pas cherché à les « influencer ».

table hiatus entre l'invisibilité de la/du politique⁸ dans la vie quotidienne des institutions et la présence d'un intérêt pour la/le politique chez une partie des résident·e·s lorsqu'on s'entretient avec eux « en privé »⁹.

Un intérêt latent pour la politique

Cet intérêt pour la politique toutefois ne s'est pas toujours déclaré facilement ou d'entrée de jeu. Au contraire, c'est bien souvent au travers d'un patient travail d'écoute dans une atmosphère de bienveillance que les personnes âgées dévoilent leur attrait pour la chose publique. Nombreuses sont les personnes âgées interviewées qui, pour commencer, ont affirmé ne pas – ou ne plus – s'intéresser à la politique ou aux votations. Les problèmes de santé ont souvent été invoqués (« Quand on est malade, on ne s'intéresse plus... », EMS Genève), ou l'âge (« Vous savez, quand on a un certain âge... on laisse couler », EMS Valais). Ces réactions semblent aller dans le sens de notre enquête par questionnaire auprès de tous les EMS romands, à savoir que selon l'estimation des EMS, environ 15 % des résident·e·s seulement continueraient de participer aux votations.

Or, ces réponses initiales semblent, dans bien des cas, relever davantage d'une tendance à « l'auto-déshabilitation » (Gaxie 2007) de ces résident·e·s plutôt que d'un *authentique* manque d'intérêt pour la politique. En effet, notre travail de terrain nous pousse à l'hypothèse qu'une partie des résident·e·s a d'abord *minimisé* son intérêt pour la politique, mais que derrière une attitude d'apparente indifférence, on trouve parfois des traces d'un intérêt vivace. Dans certains cas, la minimisation de l'intérêt a semblé liée au contexte de l'entretien lui-même. Ainsi, on a parfois pu observer une forme de timidité, voire d'inquiétude de « ne pas savoir » ou d'avoir l'air incompetent, au moment de nous rencontrer pour « parler des votations », probablement renforcée par le fait que nous soyons des universitaires : il a parfois fallu rassurer encore et encore pour que l'ambiance se détende et que les personnes finissent par exprimer le fond de leur pensée.

Chez les femmes en particulier, nous avons constaté une tendance plus générale à dissimuler leurs opinions politiques et à réfréner leur envie de s'impliquer : vis-à-vis de nous lors des entretiens, tout comme auparavant vis-à-vis de leur père, puis de leur mari. Par exemple, plusieurs récits évoquaient un couple allant voter le dimanche après avoir discuté harmonieusement des enjeux ; or en creusant un peu, nous avons constaté que certaines de ces femmes avaient en réalité des opinions personnelles bien différentes de celles de leur mari, ainsi qu'une frustration d'avoir dû s'effacer derrière les hommes plutôt que de pouvoir s'affirmer, voire s'engager, politiquement. L'ombre de l'introduction tardive du droit de vote des femmes en Suisse en 1971 a manifestement plané sur leurs vies.

⁸ Alors que le terme « la » politique fait généralement référence à la politique institutionnelle, le terme « du » politique renvoie à tout sujet qui concerne « l'organisation institutionnelle, l'action publique, les pratiques sociales et les significations culturelles dans la mesure où elles sont potentiellement sujettes à une évaluation ou décision collective » (Young 1991, 9, notre traduction).

⁹ Nous avons à cet égard observé de rares exceptions où des animateurs ou animatrices s'attachent elles et eux aussi à développer des espaces privilégiés et protégés où l'expression de la voix politique des résident·e·s est possible.

Ces divers éléments pointent donc vers l'existence d'un intérêt latent pour la politique chez certaines personnes âgées, qui risque d'être pris pour une absence d'intérêt, alors qu'il s'agit simplement d'un intérêt *en creux* (Mariot 2010) ou en tout cas d'un intérêt ambivalent, pris entre envie de participer et sentiment d'illégitimité ou d'incompétence. On entrevoit alors comment les entretiens ont ouvert une brèche vers un possible (ré)investissement du vote. Comme l'a exprimé une résidente d'un EMS valaisan:

*Disons, je suis comme en religion, je suis concernée, mais pas pratiquante ! (rire).
Mais maintenant qu'on en parle [des votations], ça m'intéresse à nouveau. [...]. Je crois
que je vais commencer à voter. Oui, ça me tente. Par correspondance, ça me tente !*
(Femme, sommelière, 70 ans)

Cet intérêt latent d'une partie des résident·e·s pour la politique et pour une participation politique se devine d'ailleurs aussi à travers l'extrême signification que beaucoup de personnes âgées rencontrées accordent à l'actualité politique et plus particulièrement à la lecture des journaux¹⁰. « *Je serai morte quand je ne pourrai plus lire le journal* » affirmait ainsi cette Jurassienne de 98 ans. Or, cet attrait pour l'actualité se manifeste indépendamment de l'intérêt ouvertement affiché pour la politique, et indépendamment du fait de voter ou non. Ainsi, plusieurs personnes âgées nous ont dit qu'elles ne votaient plus, mais que la lecture des journaux gardait une grande importance pour elles. Enfin, nous avons constaté que les réactions des résident·e·s aux animations en lien avec les votations sont souvent différentes de celles réservées à d'autres types d'animations: l'intervenant·e était parfois applaudi·e et tout particulièrement remercié·e.¹¹

Conclusion

Arrivées au terme de notre recherche, nous pouvons faire les constats suivants. Tout d'abord, une ethnographie de la participation politique des personnes âgées en institution est possible et pertinente. Elle exige du temps, une capacité d'adaptation aux réalités quotidiennes des institutions et une souplesse méthodologique et humaine. A ce prix, elle permet de déceler les traces d'un « rapport ordinaire à la politique » (Mariot 2010) au sein d'une population qu'on suspecte souvent, *a priori*, de connaître une « mort civique » naturelle et acceptée, voire choisie. Notre recherche a montré que, pour une partie des résident·e·s des EMS du moins, il n'en est rien: l'intérêt pour l'actualité reste vif; des opinions politiques fermes « sommeillent » parfois sous la surface; et l'envie de participer politiquement peut être présente, mais se trouve contrariée. Par-là, notre recherche amène de l'eau au moulin de celles et ceux qui estiment que la mort civique des personnes âgées en institution n'est pas une fatalité et s'explique en partie, lorsqu'elle survient, par le contexte institutionnel lui-même.

Ensuite, nous avons mis en évidence les obstacles qu'il s'agit de dépasser par l'enquête ethnographique pour accéder à cette vie politique dans le contexte des EMS. Ainsi, les premières

¹⁰ Hélène Thomas (1996) dans une grande recherche sur les EMS en France avait fait le même constat.

¹¹ Sur la fonction de reconnaissance de la citoyenneté politique pour cette catégorie de personnes, voir Sgier et Lucas 2018.

barrières sont liées aux *crain*tes et aux *a priori* suscités par l'idée de « parler de politique » dans un tel lieu et avec des personnes si vulnérables. Or, nous avons montré qu'il est non seulement possible, mais souvent fructueux de parler politique avec des résident·e·s, y compris atteint·e·s de troubles cognitifs. Par ailleurs, nous avons mis à jour des mécanismes *d'évitement du politique* au sein des établissements – qui rendent invisible notre objet au premier regard – même si des échanges avec « l'esprit public » (Eliasoph 2010) se manifestent néanmoins en coulisses. Enfin, si des résident·e·s affirment tout d'abord se désintéresser de la politique, les analyses approfondies d'entretiens confirment l'existence, chez certain·e·s, d'un *intérêt latent* pour la politique.

Ces résultats offrent autant de pistes pour repenser l'exercice de la citoyenneté en institution. Les barrières d'accès ou l'évitement du politique s'expliquent par la crainte des professionnel·le·s et des directions de ne pas gérer les conflits, ou par celle d'être accusés d'influencer les résident·e·s. La législation cadrant leurs droits et obligations en matière d'accès au vote se révèle en effet particulièrement complexe et mal connue. Dans ce sens, *informer* les établissements sur ce cadre légal pourrait contribuer à réintroduire – sereinement – la possibilité d'une « vie politique » en institution.


Par ailleurs, les moments d'échanges autour de thèmes politiques (en entretien ou dans le cadre d'animations) indiquent que moyennant des *mesures appropriées*, garantissant des espaces de parole respectueux de l'intégrité des personnes âgées et des limites de leurs capacités cognitives et physiques, il est possible de maintenir, activer ou réactiver un lien citoyen – y compris chez des personnes qui semblent s'être déjà « retirées » de la vie civique. Il ne s'agit en aucun cas, sur la base de ces résultats, de plaider en faveur d'une activation des personnes âgées institutionnalisées, les poussant à voter ou à participer à des animations politiques. Notre recherche invite simplement à réfléchir davantage aux conditions qui permettraient aux personnes âgées qui le souhaitent de rester (ou devenir) politiquement impliquées, et au personnel des EMS de se sentir plus confiant et à l'aise pour accompagner les résident·e·s en tant que citoyennes et citoyens.


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ENDANGERMENT REFRAMED

Portrait of a Contested Migration

Tobias Marschall

Abstract

Spectacular images of the Afghan Pamirs tend to convey an impression of extreme remoteness and to conflate endangerment in perceptions of Afghan Kyrgyz migrations. But how can endangerment sensibilities meet the aesthetics of strategic mobilizations without downplaying contestation? In mobilizing text and images, this essay intends to conciliate an aesthetic practice with analytical considerations.

Keywords: *migration, remoteness, endangerment, photography, storytelling*

Introduction

On the edge of Central and South Asia, surrounded by Chinese, Pakistani, and Tajik international borders, formed by two plateaus higher than 4,200 meters above sea level and marked by even higher mountain ridges alongside, the Afghan Pamirs appear on the map as an extraordinarily difficult-to-reach borderland. Perhaps a lasting outcome of their colonial delineation, remoteness and endangerment inform perceptions despite a long history of exchanges and concomitant military and humanitarian interventions – including a 1982 migration to Turkey. The Afghan Pamirs resemble colonial “anomalies”, they are contemporary leftovers from the original designs of a buffer zone between Tsarist and British empires. The climatic and political pressures that people face throughout the year are extreme and by memory of earlier migration patterns, the place was not considered proper to year-round residence. Winters are marked with lows easily reaching -40°C while high mountains failed to shield the region from war and the series of conflicts that have now raged in Afghanistan for more than forty years. Still, people have attended upland pastures to date – despite military occupation, opium addiction, occasional drought, and the collapse of international trade.

Endangerment sensibilities

Central to a variety of projections, the image of “endangered” Kyrgyz nomads trapped by modernity’s vicissitudes on “the Roof of the World” (*Bam e Dunya* in Persian) is not only the stuff of local legend but also a powerful trope that moves beyond global magazines in which

spectacular images of their fragile but resilient existence in an extreme environment figure repeatedly (Anderson 2005; Callahan 2009; Finkel 2013; Leithead 2007). The threat of the group's imminent dissolution imaged by the looming prospect of a "last migration" informs endangerment sensibilities and subsequent salvage inclinations (Vidal and Dias 2016) in the academic literature (Callahan 2013; Dor and Naumann 1978; Kreutzmann 2003; Levi-Sanchez 2017; Shahrani 2002), in the words of Afghan Kyrgyz leaders, and in a contested "repatriation" program ratified by the Kyrgyz Republic in 2006 (Isabaeva 2018).

"Endangerment" not only hides a more complex reality, but it also constitutes a strategic resource conveyed through shared images. In this regard, J. T. Demos warns against "the risk of proclaiming truthful depictions of a 'reality' of authentic subjects living beneath a spectacle of stereotypes" (2013, 36). Moving away from a distinction between real or stereotypical representations, I suggest rather that my own images and research interests became progressively entangled with the images and concerns of the persons I met over time. Noting with Kirin Narayan that "stories are incipiently analytic, and in the sequence, analysis has a narrative form" (2012, 8), the sequence of this visual essay, as well as each photograph's accompanying caption and text, contest a strict distinction between analysis and narration, real and imaginary representation. This visual essay reveals how affective and moral investments inform the aesthetics of strategic mobilizations both during the ethnographic inquiry and in writing.

How to give a sense of the important pressures and uncertainties, affects and moral imperatives that run throughout Afghan Kyrgyz migrations while at the same time reflecting the aesthetics of their representation, including my own as a researcher? In mobilizing the different meanings of an understanding of images in movement and of movements set forth by images, or "images that move" (Spyer and Steedly 2013, 8; see also Demos 2013; Steyerl 2009), this visual essay points to the progressive entanglement of interests along ethnographic encounters. Portraits became particularly relevant in this regard, considering with Ariella Azoulay that they "are always the photograph of the encounter between who looked at someone and the way this someone wanted to present in the photograph, for the photographer or others who would eventually view the portrait" (2015, 219). Hence, I turn my attention to strategic ways of "mobilizing images and imaging mobilities" (Demos 2013, xv).

A "postcard ethnic group"

The exceptional attention directed to a relatively small group of about twelve hundred people and their relative success in securing humanitarian support motivated anthropologist Ted Callahan to label Afghan Kyrgyz as "a postcard ethnic group" (2013, 18). Indeed, an important number of films, magazine articles and ethnographic publications (Breitenbach 1979; De Grancy and Kostka 1978; Dor 1975, 1982, 1987; Dor and Naumann 1978; Michaud and Michaud 1972; Paley and Paley 2012; Petocz 1978; Shahrani 1976; Shor and Shor 1950; Shor 1955) partly shaped the nature of prompts and expectations directed towards my camera and person as a researcher. The label aptly catches the aesthetic appeal and leverage of an "exotic" imaginary featuring "remote" and "endangered" societies in colorful, eye-attracting attires (Lutz and Collins 1993). But it also participates of a misleading distinction

in genre where the styles, tones and colors of ethnicity are solely addressed analytically at the expense of the mobilization of their aesthetic dimensions that feature otherwise in rather spectacular publications.

In conceiving with Ariella Azoulay that photographs are the product of an encounter between the photographer, subjects, and the publics created through the circulation of the images (2010), my photographs mediate a relation whose significance and meaning cannot be exhausted nor determined once and for all. In difficult parts of our journeys, my travel companions insistently asked me to “photograph our plights, show them to the world” (*bizdin kiinchilik tart, düinögö körsötüü* in Kyrgyz). Following prompts to draw public attention, I published images and interviews in regional news outlets (Marschall 2019, 2018a, 2018b, 2018c). These publications widely moved, breaking view records on the media websites and affecting the “repatriation” program to Kyrgyzstan (as journalists and the program director maintained). Meanwhile, the subjects of my photographic portraits as well as research interviewees remained wary of state interference and the effects of the circulation of their images as they sought support within the ethnic terms stipulated by the government program. While repeatedly speaking out for humanitarian support and a “repatriation” to Kyrgyzstan as “endangered” Kyrgyz subjects, Mullah Abdylhak, the eminent speaker who featured in my interviews, eloquently explained to me, “if we were living elsewhere like in China or in the United States, governments (*ökmöt* in Kyrgyz) would already have made a museum out of us.”

Contested perspectives

In walking the Afghan Pamirs for about eleven months in separate journeys from 2015 to 2019, I felt comforted in my ethnographic endeavor by the surprise to see my photographs hanging inside the homes of the subjects of my photographic portraits along with other time-keepers. With the migration of a dozen families to Kyrgyzstan in 2017, we started exchanging photographs online via mainstream social media (Facebook and Instagram). Portraits of certain leaders were reframed and posted in popular threads, extending online common practices of hanging framed portraits on house walls. The computer I gave to Afghan Kyrgyz “returnees” (*kairylymandar*) in Kyrgyzstan to support their online participation and pursue our exchanges was adorned with colorful stickers. I continue to run these social media accounts and to post captioned images in a documentary fashion (alternating portraits, details, interactions, and contexts). They convey often-unexpected exchanges between me, as a photographer, the subjects of the photographs, and the publics that are created through the circulation of these images.

The migrant images that we produced, as photographer/researcher, portrait subjects, and interviewees, were interpreted, appropriated, and endorsed in different, often contradictory, ways. From a Kyrgyz governmental perspective, landscapes indisputably spoke for an endangered nomadic life in a harsh environment while portraits of wealthy leaders (*bai* in Kyrgyz) stood as exemplars of a backward feudal societal organization remote from the modernization policies that ethnic Kyrgyz experienced in proximate countries (China, Kyrgyzstan,

and Tajikistan). Public reactions moved between indifference, pledges for humanitarian support, and contestation. In a print shop in the center of Bishkek, Kyrgyzstan's capital city, clients exclaimed at the sight of the photographs that I intended to bring back to the Afghan Pamirs. Moved by the images, their comments centered on the humanitarian imperative to support Afghan Kyrgyz in particular, invoking strong kinship, ethnic, and religious ties. The shop owner intervened, "I will tell you the true story, those people were *bai*, they left with the wealth of our ancestors when the Bolsheviks arrived, they do not deserve any support."

Seen from the Afghan Pamirs' perspective, migration and humanitarian support were not perceived in alignment with the expected improvements proclaimed, although both the Afghan and Kyrgyz governments see this differently (Isabaeva 2018, 4). Many herders complained that wealthy leaders appropriated provisions and the costly migration opportunities. Sultan, an important *bai*, was opposed to seeing only the wealthiest leave for Kyrgyzstan. "What will we earn then?" he asked, "look at Rakhman Kul Khan's son (whose father initiated the 1982 migration to Turkey). Now in Bishkek, he is expected since years to be nominated as professor, instead, he is only teaching. Once in Kyrgyzstan, they will not see Kyrgyz, only Afghans, Afghans!"


If indeed analysis and storytelling are mutually constitutive in writing ethnography, the entanglement of affective and moral investments with the aesthetics of strategic mobilizations does not necessarily imply congruence, but also drives contestation. In mobilizing images, this essay shows how analysis and narration, research and aesthetic dispositions can meet and constitute each other.

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Winter in the Little Pamir

A Pamir is a wide and open valley ideal for grazing. Seen from above with topographic perspective, the Pamirian Knot denotes the Massif at the north-western end of the Himalaya.

Errand Lines

Walking upland, our yak opened the way, carving paths in the fresh snow cracking under our feet. Every hundred steps into deep snow, we stopped to empty our boots. Each evening we dried our socks and pants in the smoke of the open fire. With morning, we packed again for another day of unknown progression.



Paced Solitude

After a day spent in the pastures, snow melted,
hiding behind stones, hanging on sheep's hair.
Small provisions stuffed in a plastic bag, a radio,

dogs and occasional meetings along the way pace
a herder's time of constant watch.





Addiction

A small rope bathes in melted yak grease. Hands adjust the melting resin over the lamp. The substance is rapidly inhaled, held, and quickly released. We chat over the decreasing price and growing spread of the “black drug” (*kara dawa* in Kyrgyz) in the Afghan Pamirs

Heat

Pieces of yak dung piled upon each other in rows – a fire done “the Kyrgyz way” (*Kyrghyzcha*) in a Wakhi camp. Feet rest in the yurt after a day spent in the dry and cold pastures. Smoke stacks inside while bodies cough and sweat, warmed and hydrated with countless cups of tea.



Young Commandant*

*Here I choose to highlight the military status of the subject of my portrait, rather than his name. Every subject of my portrait photographs has agreed to their publication and with their identification. This also applies to the persons named in the accompanying text. Regarding ethical concerns

more broadly, I am careful not to shoot or publish images that could potentially harm the subjects. The relation we share, which I intend to keep in the long run, prevails over other interests. I return images and publications whenever possible, and online when afforded, too.



Labor

The early morning sound of Buturna's stove pike rattling against the oven grabbed us from the dreams we would share with each other while sipping tea. Keeping the room warm during

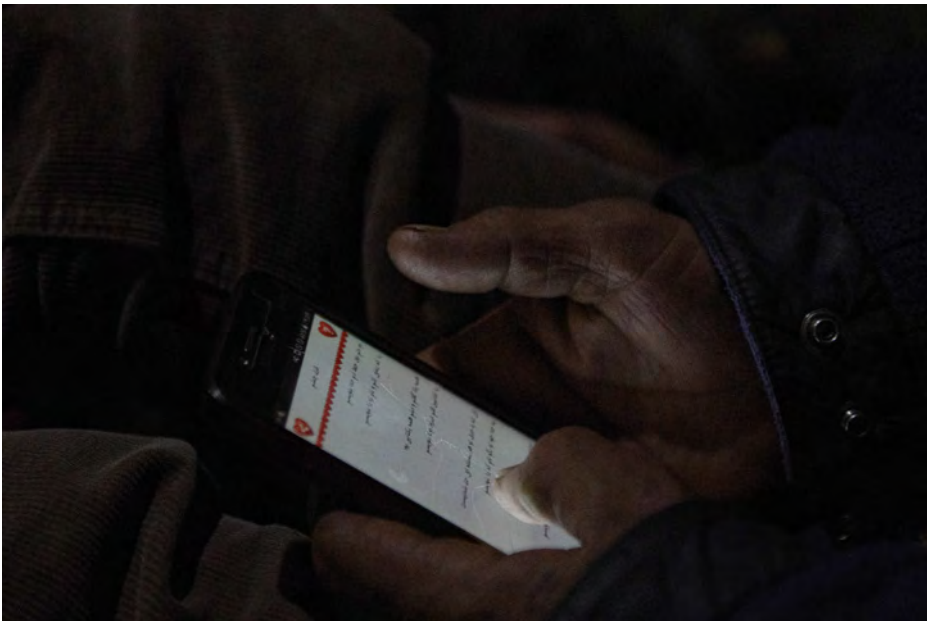
-20° C weather involves small but steady acts of care. The routine was settled and timed by the activities of women inside.



Absence

Holiday break in the Afghan Pamirs after two years in Kyrgyzstan – an evening watching Turkish soaps

and the news on TV; Faisali embraces his neighbor Syrajiddin.



Permanence

“Those plastic things are not made in Afghanistan, but it’s the only place it’s really used ubiquitously. I can always tell it’s Afghanistan when I see them in a photo,” commented an Afghan friend on Instagram.

Love Verses

Late evening rest, reading poetry. A calm break after long walks battling by the cold wind outside allows for versing into more intimate thoughts. Along the way, poems, proverbs, and quotes punctuate our stretched strides in our attempts to share perceptions, reinventing their old meanings.



Aspiration

Reaching Tajik antenna at the border some forty kilometers away, Ismail saved texts and images on his smartphone and carried them on horseback to the camp. He shared family news and images from

distant relatives who left for Kyrgyzstan a year ago. Later, he returned to the border to send farewell messages and hopeful dreams – only partly hiding in the messages his own aspiration to join them.



Bai

Common individual and family souvenirs, portraits of wealthy leaders (*bai*) feature on house walls, wooden beams, and felt carpets. I was surprised to find portraits taped to the mirror of the motorbikes brought upland via yak.

Flight of time

Upon my return a year later in 2019, I was comforted by the surprise of seeing my portraits dating back from 2016 hanging among the house's timekeepers: a calendar, a clock, photographs, a talisman, a mirror, and a rug hung over the cracks in the wall.



Frames

Hajji Rushan shows me a portrait of him and his brother that he otherwise kept hidden between two mattresses. In a playful way, he asks me to cut his and his friend's heads when photographing the portrait. "We looked better then than now," he laughed.

Red is uplifting

Returning in 2018 among Afghan Kyrgyz *returnees* (*kairylymandar*) in Kyrgyzstan, I was amused to see the orange laptop that I handed to them a year before covered with colorful stickers. Faisylhak affixed new stickers of pink and red roses, multi-colored butterflies, daisies, and tulips. The stickers match in tone and form the vivid aesthetics of rugs and mattresses that sit in their homes. He later explained to me that "red is uplifting."

BOOK REVIEWS/COMPTES RENDUS/ REZENSIONEN

FEMINIST TROUBLE: INTERSECTIONAL POLITICS IN POST-SECULAR TIMES

*Éléonore Lépinard, 2020. New York:
Oxford University Press. 336 p.*

Éléonore Lépinard is a sociologist and professor at the University of Lausanne focusing her research on intersectionality and feminist movements. Her new book *Feminist Trouble: Intersectional Politics in Post-Secular Times* (2020) contributes to this field in a way that is descriptive, analytical, and normative. The book offers a rich argument of how whiteness shapes the political subjectivities of white and racialized feminists and proposes a new feminist ethic of responsibility. Éléonore Lépinard's comparative methodology is based on qualitative data as she conducted fifty interviews with feminist organizations that represent white and racialized women in France and the Canadian province Quebec.

The book contains six chapters and is divided into three main parts. The first part, chapters 1–3, provides the reader with a theoretical contextualization and an analysis of the public debates which articulate gender equality and secularism in France and the Canadian province Quebec. The second part comprises chapter 4 and 5 and comparatively analyzes the subjectivities of white and racialized feminists in the two locations. In the final part, chapter 6, Éléonore Lépinard unfolds her normative argument and proposes a feminist ethic of responsibility.

Chapter 1 places “Feminist Trouble” in a context of “femonationalism” (Farris 2017) where neoliberal governments and xenopho-

bic parties are increasingly instrumentalizing issues of women's equality. The author claims that there is a need to understand the way hierarchies and white hegemony are sustained within feminism. According to Éléonore Lépinard, heated debates regarding pious Muslim women's agency question the basic premise of liberal feminism grounded in Eurocentric conceptions of agency, equality, and resistance. At the same time, these debates contribute to define proper and improper feminist subjects and renew attention paid to the moral dimension of the feminist project.

In chapter 2 Éléonore Lépinard builds upon existing intersectional feminist theorists who provide a critic of power asymmetries between women. In particular, she engages with an alternative genealogy of intersectionality which considers that there is a need to look beyond identity politics in order not to conflate identities with interests and experiences. Therefore, focusing on feminist's political subjectivities allows her to explore the relations between feminists “based on other grounds than identity, such as solidarity, shared ideals, recognition or even love” (p. 33).

The third chapter describes how “sexularism” debates which articulate racialization, religion, migration/national identity, and gender (Scott 2011), contribute to defining the boundaries of national identity differently in France and the Canadian province Quebec (p. 46). France is famously known for sustaining a so-called French “secular exception” and a majority of French mainstream feminist organizations are end-

owing this vision and have been supporting veiling bans and regulations. Meanwhile, Québec has passed a series of amendments and laws enshrining the secular values of the Quebecois political community in the name of “interculturalism”, in opposition to the multicultural Canadian model (p. 51). While the latter grants an equal recognition to all cultures, interculturalism recognizes pluralism but gives greater weight to Quebecois culture and values secularism in public spaces (Banting and Soroka 2012).

Chapter 4 centers on the concept of “feminist whiteness” which the author defines as the outcome of a process of political subjectivation as a white feminist as well as a location of privilege (p. 81). In France, white feminists rely on two main discursive repertoires to shape their feminist whiteness: universalism, on the one hand, and, on the other, placing race outside of the nation (p. 87). The first consists of downplaying racism either by reaffirming the primacy of social inequalities over racial concerns or by refusing to see how racism shapes power relations within feminism (p. 91). The second repertoire allows white feminists “to situate themselves not in the configuration of racial relations in the French contemporary context, but in racial configurations of international solidarity” (p. 93). Both result in an active resistance to approach feminism from an intersectional perspective (p. 95).

In Québec, feminist whiteness is articulated around the repertoires of interculturalism and intersectionality. Interculturalism is used by some white feminists to acknowledge racial differences but it is often understood in culturalist terms, without engaging the responsibility of white feminists to account for power asymmetries. On the contrary, those who join the intersectional repertoire are more willing to do so. This section

provides an insightful bottom-up analysis of the way national cultural repertoires can be mobilized and resignified through discursive strategies in order to secure white privileges.

In addition to this geographical comparison, Éléonore Lépinard also brilliantly analyzes how different views of the feminist project lead white feminists in both countries to adopt diverging moral dispositions. On the one hand, when feminism is understood as a social practice, non-white women are either seen as passive recipients of care, as subjects to be potentially enrolled in a pre-determined feminist collective project, or as subjects to be granted autonomy. On the other hand, when feminism is conceived first and foremost as a political project, it involves answering legitimate questions about the exclusion of racialized women. These questions are often dismissed by white French feminists, producing emotions of fear, anger, and melancholy of what they perceive as a long-lost unity among feminists (p. 117).

In the fifth chapter, the author looks closely at racialized feminists’ self-identification in France and the Canadian province Québec. She notes that presenting oneself as a racialized feminist in the public sphere, rather than a feminist, must be interpreted not only as subversion or identity-claiming. Rather, it is also a way to reformulate feminism and to claim visibility within the women’s movement. The author argues that negative emotions expressed by racialized feminists, in particular resentment, should be interpreted as resistance to power as well as a moral address and as a call for action (p. 170). Indeed, racialized feminists want white feminists to recognize the political nature of their claims, rather than to deem them as specific or marginal.

In the last chapter, Éléonore Lépinard develops an approach to a feminist ethic of

responsibility which is resolutely pragmatic. She exhorts that the concrete consequences of our actions – rather than our values – define our responsibility towards other feminist subjects. Indeed, when non-Muslim women favor a ban on Muslim headscarves, they will not bear the direct consequences of their action, such as exclusion from school and job discrimination, while Muslim women will (p. 213).

Identifying herself as a white feminist scholar and activist from the global North, her invitation to be morally responsive to “other” feminist subjects seems to be directed at feminists who structurally benefit from white privilege. Given the author’s intention to focus on feminists’ emotions, it would have been interesting and relevant to further include in the analysis how her standpoint and positioning on the issues at stake may have triggered emotions during interviews.

The author’s ambition to revisit the “foundations” of feminism results in the argument that a feminist ethic of responsibility should not be directed at all women but exclusively towards “other feminist subjects”. Such a statement could seem surprising at first, since women who face discriminations on the basis of their racial identity may be less likely to give an account of themselves as feminists in their everyday interactions, as the author rightly points out in the appendix (p. 252). However, in the last chapter, Éléonore Lépinard proposes a broad, yet relevant definition of the feminist subject, which goes beyond discourse and self-identification to include objective power relations. As she describes, those who should be considered feminist subjects are also “those who are put in relation with feminism through their claims – such as a claim to wear an Islamic veil in school or public spaces” (p. 231). The author’s argument on feminist’s ethical dis-

positions towards other feminists can be seen as part of a broader reflection on the articulation between a political project and the common moral ground which sustains the members of a political community. In this sense, the book’s contribution exceeds the fields of feminist theory and extends to social movement theory, normative theories, and literature on care.

Highlighted in the #metoo movement, questions of gender and sexual equality are today at the forefront of societal debates in numerous countries. But shifts in laws and norms are often accompanied by a displacement of boundaries of exclusion. For this reason, the author’s argument could be applied to the analysis of other forms of exclusions perpetrated in the name of feminism. Indeed, women wearing the veil, but also transgender persons and sex workers, are being relegated to the margins of the feminist struggle. In this context, Éléonore Lépinard’s reminder that the ethical responsibilities that feminist subjects have towards each other depend on their power and privilege is, above all, necessary and powerful.

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ÉMIGRER EN QUÊTE DE DIGNITÉ: TUNISIENS ENTRE DÉSILLUSIONS ET ESPOIRS

*Simon Mastrangelo, 2019. Tours: Presses
Universitaires François-Rabelais. 302 p.*

Ce travail s'intéresse à la migration non-documentée, à l'Islam et à la Tunisie. Issu d'une thèse de doctorat soutenue à l'Université de Lausanne, l'ouvrage s'attache principalement au vécu migratoire de huit hommes migrants non documentés (*harraga*) entre la Suisse, l'Italie et la Tunisie. Ces témoignages principaux sont complétés par ceux d'une quinzaine d'autres *harraga*. Ces vécus oscillent entre enfermement et liberté, désillusions et espoirs, dans le contexte tunisien de l'après-révolution de 2011 (2013–2016). Quelques années après la chute du régime de Ben Ali, une majorité de Tunisiens est désillusionnée par l'absence de changement apporté par la révolution. Ayant perdu foi en l'avenir de leur pays, de nombreux jeunes tunisiens tentent alors de rejoindre l'Europe, en quête de « dignité ».

Le livre débute par l'extrait d'un journal de terrain qui met en évidence les difficultés d'accès au terrain de l'auteur. Il se confronte ainsi rapidement à des mises en garde de ces contacts sur place, issus de la classe moyenne, contre les sujets de son étude, considérés comme des « voleurs » et des « clochards ». Les représentations sociales portées sur les *harraga*, ainsi que le sentiment d'insécurité qu'elles font émerger chez l'auteur, de son propre aveu, illustrent bien les obstacles récurrents de la démarche ethnographique. Une fois dépassés, ceux-ci permettent d'éclairer des dynamiques sociales plus vastes, de « marginalisation, stigmatisation, segmentation des sociétés, précarité, injustices et enfermement » (p. 16).

Le propos de l'auteur est de « comprendre quelles sont « les stratégies de résistance » des individus qui sont victimes d'injustice,

quelles sont « leurs interprétations des obstacles rencontrés » et comment se développent « leurs quêtes de nationalité des discriminations subies et des injustices ressenties » (Mazzocchetti 2012, 1) » (p. 18). L'auteur privilégie ainsi une analyse qui explore les migrations du point de vue de la subjectivité de ces acteurs et des imaginaires de la migration. Il utilise pour cela tant les discours des *harraga* que des paroles de chanson et des contenus postés sur Facebook, et « cherche à dépasser une approche purement factuelle des migrations non documentées » (p. 264). Tout en adoptant une perspective anthropologique, l'auteur souhaite établir des ponts avec les disciplines de la sociologie, de l'histoire et de la psychologie (p. 266).

En guise d'introduction, l'auteur pose le contexte historique de son étude ainsi que ses jalons théoriques, principalement autour du concept d'« injustice » et d'une littérature sur les imaginaires migratoires. Il consacre ensuite un court premier chapitre à la problématisation des termes utilisés ainsi qu'à l'historique des migrations au départ de la Tunisie et aux politiques migratoires en Tunisie, en Suisse et en Italie.

Un excellent deuxième chapitre approfondit de façon concise la méthodologie utilisée par l'auteur ainsi que son expérience de terrain. Confronté à une population difficile d'accès, l'auteur fait face à des défis méthodologiques. Il a d'abord recours à des intermédiaires avant de privilégier un travail de flânerie dans les rues de Tunis, notamment dans le quartier de Mellassine, qui lui permet de rencontrer « au hasard », puis par effet boule-de-neige, la plupart de ses interlocuteurs. Il mène d'abord avec eux des entretiens semi-directifs de type biographique. Cependant la plupart de ses données sont produites lors d'échanges informels et d'observations qu'il recueille en partageant le quotidien et en fréquentant les

mêmes lieux de sociabilité que ses interlocuteurs privilégiés, construisant ainsi une relation de confiance sur le long terme. Les propos de l'auteur sont aussi agrémentés de paroles de chansons (de rap principalement), de contenus trouvés sur Facebook ainsi que de photographies, qu'il utilise aussi comme support lors d'échanges par une méthode de *photo elicitation interviews*.

Simon Mastangelo définit la *harga* comme l'action de « brûler » à la fois les frontières et les papiers d'identité. Elle constitue une des échappatoires possibles à l'injustice sociale à laquelle ses interlocuteurs sont confrontés. Issus des quartiers populaires tels que celui de Mellassine, les interlocuteurs de Simon Mastrangelo ont difficilement accès à une mobilité tant sociale que géographique. Ils se sentent coincés dans des quartiers minés par l'absence de perspectives, et tentent de survivre par des pratiques de « débrouille » et de petite délinquance. Selon l'auteur, dans le cours des « événements de 2011 » (une expression que l'auteur utilise pour parler de ce qu'il a été coutume d'appeler « la révolution » les nombreux cas d'auto-immolation ont laissé la place à la multiplication des départs vers l'Europe. Plutôt que de brûler leur identité physique, les *harraga* brûlent leurs identités symboliques, dans l'objectif de détruire leurs liens avec une société injuste, dont ils ont abandonné l'espoir de changement. L'espoir se situe ici dans l'imaginaire d'un ailleurs qui, s'il n'est pas idéalisé, ouvre le champ des possibles sur le plan individuel, et notamment la possibilité de « vivre dignement ». Considérée alors comme la seule possibilité d'ascension sociale, la *harga* est revendiquée comme un droit pour échapper à la *hogra*, définit comme « le mépris des élites » (Chena 2012, 59) et « l'humiliation corrélatrice des classes populaires » (*ibid.*).

Dans le chapitre 3, l'ouvrage traite des discours qui présentent la *harga* comme la seule

voie possible et la voie la plus juste, en comparaison à deux autres options : la folie, qui mène au suicide, et attend ceux qui restent, et le *djihad*, avancée comme une autre réponse à l'injustice. Les inégalités entre le Sud et le Nord, incarnées par les nombreux·ses touristes européens·es présent·e·s en Tunisie, et ressenties comme injustes, motivent aussi les désirs de partir des *harraga*. Finalement, l'auteur souligne comment la foi en Dieu, et notamment la croyance au *maktoub* (le destin), soutient ces revendications.

Dans le chapitre 4, l'auteur explore l'expérience de ceux qui ont été expulsés et renvoyés en Tunisie, mais qui ne pensent qu'à repartir. Pour parler de ces allers-retours, Simon Mastrangelo parle de « carrière migratoire ». Malgré des expériences de vie difficiles en Europe, avec des étapes en prison, les *harraga* tentent souvent de donner du sens à cette « carrière migratoire » à l'aide d'une grille de lecture religieuse. Certains aspects de ces parcours, mis en récit par des interlocuteurs qui parfois mentent, exagèrent ou au contraire gardent sous silence, doivent être reconstitués à partir de fragments de récits, ainsi que dans les gestes et les non-dits. Malgré ces limites, l'auteur est parvenu à mettre en lumière le caractère non linéaire de ces phénomènes migratoires. La représentation des itinéraires de ses *harraga*, sous forme de cartes, ajoute de la clarté au propos. Par ailleurs, pour faire face à ces vécus souvent douloureux, tant à l'étranger qu'en Tunisie, ses interlocuteurs « se soignent » (l'auteur parle « des médicaments des *harraga* », p. 210) à l'aide de cigarettes, d'alcool et de *zatla* (cannabis). Selon l'auteur, ces pratiques illustrent le désinvestissement physique et symbolique de ces individus vis-à-vis de la Tunisie, dans l'attente du départ. En restituant les émotions de ses interlocuteurs ainsi que celles que leurs récits ont suscitées en lui, Simon Mastrangelo parvient

à provoquer en nous de l'attachement et de l'empathie pour ses *harraga*, ainsi que de l'intérêt pour ce que l'avenir leur réserve.

Pour conclure, l'auteur souligne l'originalité de sa recherche par rapport à d'autres travaux sur la *harga* tunisienne, notamment par rapport au contexte historique particulier dans lequel a été effectuée la recherche, ainsi que par son interdisciplinarité et le type de matériaux utilisés (paroles de chansons, ethnologie digitale).

Sur ce dernier point, il m'a semblé au contraire que l'ouvrage revient peu sur l'apport de ces différents matériaux se contentant trop souvent de les utiliser à titre d'illustrations. Ayant moi-même travaillé sur des paroles de chanson de rap pour explorer l'imaginaire migratoire au Sénégal, j'ai défendu que ces chansons ne doivent pas uniquement être considérées comme le lieu d'énonciation d'une parole migrante, mais aussi comme le lieu d'énonciation des positionnements de leurs interprètes sur la migration, à l'intérieur de genres musicaux singuliers (Navarro 2019).

Les mentions à la dignité dans l'ouvrage, qui apparaît pourtant dans le titre, sont assez anecdotiques. Il est dommage que cette notion n'ait pas été davantage explorée, notamment à la lumière d'autres terrains, ce qui aurait permis à l'auteur de renforcer la pertinence de son propos. En croisant ses données avec d'autres contextes, l'auteur aurait ainsi gagné à préciser les apports de son travail, non seulement vis-à-vis de l'analyse de la *harga* tunisienne, mais aussi vis-à-vis d'autres travaux sur la migration non documentée.

D'autre part, si l'auteur se présente comme anthropologue et historien des religions, et s'il développe certains éléments ayant trait à la religion, il ne défend pas de posture épistémologique sur la manière dont l'approche en sciences sociales des religions permet d'enrichir l'analyse de la migration non documentée.

Je trouve par ailleurs intéressante l'exploration des phénomènes de déviance sociale mis en évidence par l'auteur. J'y vois notamment de nombreux parallèles avec l'ouvrage de Philippe Bourgois, *En quête de respect: le crack à New York*, qui n'apparaît pas dans la bibliographie de l'auteur. Dans les deux ouvrages, la quête de dignité est au cœur des motivations que les auteurs prêtent à leurs sujets, exclusivement masculins et aux comportements « déviants » : recours à l'économie informelle, petite délinquance, consommation et vente de stupéfiants. Ces comportements sont pour Bourgois (2001) associés à une « culture de la rue » [...] émergeant en opposition à l'exclusion suscitée par la société dominante. La culture de la rue est un véritable forum alternatif où peut s'affirmer une dignité personnelle autonome » (p. 36). La *harga* comme la « culture de la rue » chez Bourgois se présentent comme des manières d'échapper à l'humiliation et de restituer une virilité menacée. Il y aurait eu là matière à creuser davantage le rôle des sociabilités urbaines, à l'échelle du quartier, y compris par la voie du rap, chez les *harraga*, et à générer d'autres ponts possibles entre migrations non documentées, imaginaires et créations culturelles.

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LA FABRIQUE DE L'INTÉGRATION

Flora Di Donato, Élodie Garros, Anne Lavanchy, Pascal Mahon, Tania Zittoun, 2020. Lausanne: Antipodes. 351 p.

Cet ouvrage collectif est le résultat d'un projet de recherche interdisciplinaire, mené de 2013 à 2017. Les cinq auteur·e·s y interrogent la manière dont, en Suisse, l'intégration se construit et est contestée, principalement durant les procédures de naturalisation. L'ambition de ce livre est de montrer que l'intégration «constitue la somme de processus vivants, mis en œuvre, régulés, entravés, agis et vécus, subis ou soufferts, par de très nombreuses personnes, dans des postures et des rôles différents» (p. 16). En d'autres termes, plutôt que de répondre à la question «Qu'est-ce que l'intégration?», les auteur·e·s s'attachent à identifier comment cette notion, dans sa dimension légale, est construite par les acteurs et actrices concerné·e·s, dans un contexte particulier.

Ce livre est organisé en quatre parties. L'introduction s'attarde sur l'un des importants apports de cette étude, à savoir son approche interdisciplinaire. D'un point de vue méthodologique, toutes et tous auteur·e·s prennent en compte «l'historicité» des phénomènes étudiés (p. 48) et leur nature socialement construite. Ensuite, une attention particulière est donnée «aux perspectives spécifiques des actrices et acteurs sur un objet donné» ainsi qu'«aux notions, valeurs et pratiques qui font faire des choses aux gens ou dont les gens font usage dans certaines circonstances» (pp. 49–50). Ce livre est

ancré dans une démarche de recherche qualitative donnant à voir différentes dimensions de la procédure de naturalisation dans le canton de Neuchâtel. Pour l'épistémologie, les auteur·e·s s'appuient sur des approches issues de leurs matières respectives, à savoir «l'analyse juridique, l'approche socio-clinique du droit, l'anthropologie des institutions et la psychosociologie culturelle» (p. 48). Sur ces bases, trois perspectives analytiques sont élaborées pour éclairer l'intégration à l'aune de la procédure de naturalisation. La première consiste en l'analyse de la trajectoire administrativo-légale d'une naturalisation. Cette perspective s'intéresse à l'intégration en tant qu'«institution de réinvention [...] dont la fonction principale est de transformer le statut identitaire de personnes qui y entrent en principe de manière consentante» (p. 37). Empruntée à la sociologie, la notion d'institution de réinvention révèle l'introduction de mesures d'individualisation du droit des étrangers comme autant de mécanismes visant à modifier la personne afin qu'elle puisse prétendre à devenir suisse. La seconde perspective porte sur la trajectoire de la personne candidate. Ici, la notion de «sphère d'expérience» est centrale, désignant «la diversité d'expériences cohérentes et socialement situées que traverse une personne» (p. 39). Dans cette perspective, la procédure constitue une sphère d'expérience qui, pour les candidat·e·s, peut avoir des effets considérables sur d'autres sphères, personnelles ou professionnelles, en les validant ou les annihilant. La dernière perspective consiste en l'analyse des «transactions» (p. 41) qui s'opèrent entre la trajectoire administrativo-légale et la trajectoire de vie «susceptibles d'accélérer, de ralentir et d'infléchir les trajectoires elles-mêmes» (p. 41). Les transactions peuvent être explicites, tels les échanges formels entre personne requérante et administrations, ou implicites,

voire invisibles, telles les dissimulations d'information réalisées par les parties impliquées. On notera l'exemple de notes manuscrites apposées aux dossiers contenant des informations qui ne seront jamais communiquées aux candidat·e·s à la naturalisation.

La deuxième partie, intitulée « Construction du contexte institutionnel » s'attache en premier lieu à « reconstruire la genèse de la notion d'intégration dans l'ordre juridique suisse » (p. 77). Par une analyse socio-légale des évolutions législatives en matière d'accès à la nationalité Suisse, les auteur·e·s montrent comment l'intégration a progressivement fait son entrée dans l'attirail législatif destiné à réguler le séjour des étrangers en Suisse. L'analyse débute avec la Constitution de 1848. A cette époque où la Suisse est avant tout un pays d'émigration, l'intégration ne fait pas partie du débat. Or, déjà, la nécessité d'évaluer les liens des candidat·e·s avec leur pays d'accueil et « leur valeur morale » est mise en avant dans les débats politiques (p. 82). Ce chapitre est particulièrement intéressant en ce qu'il retrace les différentes manières dont les étranger·ère·s ont été transformés en suisses, légalement, mais aussi du point de vue identitaire « à travers l'implication active de la population locale » (p. 105). En effet, l'afflux étranger·ère·s durant et après la première Guerre mondiale alimentera l'opinion selon laquelle les candidat·e·s doivent « déjà être assimilés avant de – et pour – pouvoir être naturalisés » (p. 85). Selon les termes du juriste Sauer Hall, c'est à la population Suisse « d'insuffler à ces nouveaux citoyens un peu de l'amour civique qui nous anime, de les gagner à nos idées de tolérance et de solidarité, à nos traditions démocratiques » (p. 86). Dans les années 1920, l'institution de réinvention prend forme avec l'instauration des permis de séjour et d'établissement individualisant le droit des étranger·ère·s et créant ainsi un sas préalable à

la naturalisation. Dans le discours public, l'assimilation, jugée réactionnaire, laisse place à l'intégration dans les années 1970, ce dans une optique plus inclusive. Le chapitre suivant s'emploie à « expliciter la notion d'intégration telle qu'elle est conçue et perçue aujourd'hui » (p. 107). Les lois fédérales sur la nationalité et sur les étrangers, ainsi que de la réglementation du canton de Neuchâtel, en vigueur au moment de la recherche, servent de base à cette explication. Les auteur·e·s relèvent l'« ubiquité » de l'intégration dans le droit suisse. Elles cherchent à savoir si la notion d'intégration « revêt ou doit revêtir des significations identiques ou, au contraire, différentes » (p. 108–109). Au niveau fédéral, le constat est celui d'un renforcement progressif des critères d'intégration et d'une harmonisation de ces derniers dans les lois sans pour autant offrir de « garanties spécifiques en faveur des personnes candidates » (p. 123). Les auteur·e·s distinguent les critères individuels d'intégration des critères d'ordre public, chacun évalués à l'aide d'entretiens et d'enquêtes administratives. Les premiers, tels la maîtrise d'une langue nationale ou la participation à la vie associative locale, semblent « jouer un rôle clé dans la procédure » tandis que les seconds, tel le respect des lois et l'absence de dépendance à l'aide sociale « représentent les principaux facteurs d'une intégration réussie » (p. 126). Cependant, il est observé que l'autonomie des cantons « peut être mise au service d'une conception plus ou moins libérale de l'intégration » (p. 145). Le dernier chapitre de cette partie tente de rendre lisible la complexité de la procédure de naturalisation dans le canton de Neuchâtel résultant de cet enchevêtrement législatif et administratif. Force est de féliciter les auteur·e·s pour cet exercice qui met en exergue « les ambiguïtés terminologiques » (p. 176) d'une procédure prêtant à confusion dans la répartition des tâches entre

échelons administratifs communaux, cantonaux et fédéraux. Ielles posent la question cruciale de la responsabilité dans le processus de décision et constatent sa dilution.

«L'analyse des trajectoires» constitue la troisième partie. Un premier chapitre est dédié à l'analyse de la trajectoire de vie de M. Charles, qui est utilisé à titre illustratif. On y retrouve de larges extraits de son récit biographique, décrivant sa vie dans son pays natal, les conditions difficiles de son voyage vers la Suisse à l'âge de 17 ans et une analyse de son parcours de naturalisation, débuté en 2003. Face à une administration qui doute de son intégration en Suisse, M. Charles mobilise notamment des éléments de ses différentes sphères d'expérience, comme son engagement au sein du Conseil général de sa ville et en crée de nouvelles, notamment en engageant un avocat pour construire son argumentation. Après maintes pérégrinations, le Département de la justice informe M. Charles que «son dossier a été classé» en 2012. La naturalisation ne lui a pas été formellement refusée, mais s'il souhaite y prétendre, il doit entreprendre une nouvelle procédure. Cependant, selon Charles, sa transformation identitaire a bien eu lieu. Convaincu de son intégration en Suisse et donc de sa capacité à devenir suisse, M. Charles est néanmoins renvoyé à la catégorie d'étranger: «Plus tu passes le temps ici, plus tu es embêté avec la loi, pourquoi, parce qu'au lieu de «plus tu passes le temps, plus tu dois [t']intégrer», c'est «plus tu passes le temps, plus tu te désintègres» (p. 194). S'ensuit une analyse transversale de tous les cas, confirmant les hypothèses exploratoires des chercheur·e·s s'agissant des trajectoires de vie: «les personnes formulent une demande de naturalisation en fonction d'une certaine imagination de leur trajectoire de vie» (p. 214). Leurs sphères d'expériences sont amenées à être reconfigurées, par-

fois dramatiquement, notoirement en cas de refus. Les deux chapitres suivants explorent plus en détail l'agentivité limitée des candidat·e·s à la naturalisation et «les pratiques professionnelles de la naturalisation» (p. 264) au regard du critère d'intégration. Ces chapitres donnent à voir comment, à «la fragmentation du pouvoir décisionnel» (p. 298), répondent des stratégies pour «devenir actrice et acteur de son histoire légale» (p. 256).

La partie conclusive revient sur ce qui a été démontré à travers le livre, à savoir que la diversité des compréhensions du terme intégration engendre «des effets indirects et paradoxaux» (p. 303), telle la défiance envers des institutions dont les candidat·e·s souhaitaient *a priori* se rapprocher. Ainsi aux termes de leurs procédures, plusieurs des candidat·e·s interrogé·e·s partagent le sentiment selon lequel en Suisse «la loi [...] est appliquée de manière injuste» (p. 209). *In fine*, il reste difficile aux auteur·e·s comme aux lecteur·rice·s de savoir en quoi consiste l'intégration réussie requise par la loi. Bien que l'étude porte sur le cas particulier de Neuchâtel, il est vrai qu'elle met en évidence «des processus complexes de portée générale» (p. 313) utiles tant à la recherche qu'à la pratique. En ce sens, *La fabrique de l'intégration* remplit pleinement ses objectifs. Il semble qu'une approche interdisciplinaire est la mieux à même de rendre compte de la complexité d'une notion certes définie par la loi, mais difficilement saisissable en pratique.

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TRADING CATERPILLAR FUNGUS IN TIBET: WHEN ECONOMIC BOOM HITS RURAL AREA

*Emilia Roza Sulek, 2019. Amsterdam:
Amsterdam University Press, 328 p.*

In *Trading Caterpillar Fungus in Tibet*, Emilia Roza Sulek provides a nuanced account of pastoralists' everyday life in Golok, a region on the Eastern Tibetan plateau which today forms part of Qinghai province in the People's Republic of China. The pastoralists that Sulek did research with over eleven months between 2007 and 2010 are involved in the harvest and trade of caterpillar fungus, a very peculiar commodity. Caterpillar fungus (*Ophiocordyceps sinensis*) – or *yartsa gumbu*, “summer grass winter worm”, as it is called in Tibetan – is parasitic on the larvae of species of ghost moth that are only found in high-altitude regions of the Tibetan plateau and the Himalayas. While *yartsa gumbu* has long been used in traditional medicine, in recent decades it has emerged as a luxury product in China, being ascribed the function of a natural Viagra among other things. Consequently, its demand underwent an unprecedented boom which – so goes the book's central argument – has profoundly transformed the livelihoods of Tibetan pastoralists involved in digging and trading caterpillar fungus and in leasing out their land to others for digging.

This monograph is the first in-depth, book-length analysis of how the commodity of caterpillar fungus leads to changes in pastoralists' socio-cultural lives and the region of Golok more broadly, also paying close attention to the historical and legal dimensions of a commodity largely produced for an external market, not the pastoralists' own consumption. As stated in its introduction, the book sets out to understand “the inner mechanisms and consequences” (p. 16) of a

phenomenon that every year draws together a multitude of actors in two main places: the pastureland where caterpillar fungus is harvested and the market where it is traded, heading off to consumers all over China and abroad. Sulek demonstrates that pastoralists use their newly generated income actively to participate in developing their region – claimed in official discourse as being an area exclusively attributable to the Chinese state – instead of merely wasting the money on consumer goods and short-lived pleasures.

The introduction is followed by nine chapters, a conclusion and an afterword. The first three chapters introduce the region of Golok and its population, along with the digging process, which the author participated in for many weeks, and the usage of caterpillar fungus as medicine and commodity. The next three chapters, on the market and trading as well as laws and state regulations, delve deeper into the processes and practices surrounding the caterpillar fungus economy. Throughout these chapters Sulek shows that in addition to the pastureland and the market, townships and roads are also crucial to the booming economy. A whole bundle of income-generating practices and diverse networks of actors are associated with caterpillar fungus: pastoralists, diggers, traders, migrant workers, seasonal businesses in town, and the (non-)regulatory state all play their part in a complex translocal economy. The final three chapters address money and, more specifically, the individual and structural consequences of a novel income stream. The central question of what pastoralists decide to do with their newly acquired wealth is considered throughout these chapters too. All chapters and the afterword are designed as independent units; they can be read in any order, enabling readers to learn about the themes

they feel most curious about first. Significantly though, the overall structure reflects the author's commitment to staying close to the pastoralists' everyday lives: The focus is on telling their stories through caterpillar fungus, not vice versa.

Sulek's skilful ethnographic descriptions bring Golok, the pastoralists' lives, and the caterpillar fungus economy into sharp focus. In a captivatingly written opening vignette, for instance, we not only learn about but can almost feel the atmosphere during the harvesting season, which starts in May and lasts for around 40–45 days: it is busy, exciting, joyous but also filled with conspiracy and rumours that manifest in whispers about illegal digging and state regulations. Chapter five includes lively snapshots of dialogue that outline the occasionally heated bargaining process between pastoralists and traders. An accompanying sketch illustrates the various hand signs used during bartering – these are often invisible to observers since they are hidden by the involved parties inside long sleeves for secret negotiation.

The transformation of pastoralists' livelihoods is discussed in greater detail in the later chapters of the book. Sulek's analysis of Golok pastoralists as active agents of social change in their individual lives and on a more systematic level in their wider region makes an important ethnographic contribution to scholarly debates on rural development processes in China's Western region. Chapter eight addresses pastoral production and the changes it has undergone due to the caterpillar fungus trade. Improvement in the general economic situation enables pastoralists to choose more freely which of their products they want to sell. Consequently, there was a decrease in the sale of yaks to slaughterhouses and of dairy products to the market. Pastoralists explain these changes

with reference both to their additional revenue stream and their religious values. On the one hand, they no longer need the income from selling butter and cheese, and they perceive this as benefitting the growth of their yak herds since it leaves more milk for the calves. On the other hand, they stress that according to Buddhism it is bad to kill animals; selling fewer yaks to slaughterhouses reduces the accumulation of negative karma. Sulek shows that at the time of her research the pastoralists viewed yaks as less crucial for their economic survival than they had done in the past. Herds continue to be kept because of diet, lifestyle and, most importantly, the preservation of pastoralists' self-understanding as yak-breeders. In contrast, sheep flocks diminished in size or disappeared altogether due to a combination of educational, environmental, and economic factors. First and foremost, though, pastoralists emphasise that as a quick source of cash sheep were replaced by caterpillar fungus – the latter is simply seen as an easier source of income. These shifts in pastoral production fuel debates among Sulek's research participants about the social effects of *yartsa gumbu*. Some pastoralists view the consequences of the caterpillar fungus economy as problematic since these appear to be linked to a decline in what is perceived as a more traditional pastoral lifestyle.

In chapter nine, Sulek reveals that improvement of the material situation due to caterpillar fungus is linked to complex transformations in the local society. She shares stories of what pastoralists have done with the previously unimaginable amounts of money they earn and what, in turn, this money does to them. Certainly, pastoralists consume and purchase more commodities such as furniture, electrical appliances, mobile phones, cars, and motorbikes – all of

which introduce new dynamics into everyday life. The availability of washing machines and fridges make infrastructural changes in the form of running water desirable. Cars and motorbikes ease seasonal migration and extend mobility beyond sites of immediate pastoral activities, namely the county seat and urban centres farther afield. At the same time, households save up substantial funds. They make long-term investments, for example by building roads leading to their pastures or new houses, which are thought of as the best way of investing one's savings. Chapter nine in particular complicates views that exist in the local community as to pastoralists' supposedly short-lived consumption habits.

The conclusion suggests that the local authorities which interpret formal regulations concerning the caterpillar fungus economy often turn a blind eye to certain practices, or side with their communities rather than representing state interests. This subtlety of observation negates a simplistic understanding of "the state" as a monolithic category. Impersonal constructs such as "the state" or "the government", after all, consist of individual people who have multiple positionalities and interests. In addition, the author convincingly argues for an understanding of caterpillar fungus as a symbol within broader political processes. Ultimately, it is through this commodity that some pastoralists feel they can take a symbolic revenge on the state as well as against Han Chinese men who rely on a product from the Tibetan plateau. Han Chinese men must be in such dire need of this natural Viagra, so a common explanation in Golok goes, that they are willing to pay any price and believe in all sorts of magical stories about its effectiveness. But why is the state not interfering more directly in the caterpil-

lar fungus economy, which in many aspects stays outside of its tight control? Sulek sees one key explanation in the widespread belief by the Chinese authorities that material satisfaction leads to political stability and harmony. According to this logic, as long as the pastoralists are generating and spending money, they share in the state's goal of economic development, which diminishes the likelihood of political unrest.

In the insightful afterword, Sulek reflects on her research process and methodology. She describes her fieldwork as "partisan research" (p. 265) carried out as a series of several three- to four-month stints due to the lack of an official research permit. Moving around on a tourist visa allowed her to navigate practices "at the border of the law" (p. 267) more easily, while not speaking Chinese and coming from a former communist country created a degree of curious familiarity between herself and many of her research participants. It is unusual at the end of an ethnography to learn about the challenges but, importantly, also the advantages of conducting fieldwork without official research status, as well as the mobile nature of such a research project and its sampling methods. However, Sulek's declared aim to put the pastoralists centre stage from the outset and the fact that the chapters can be read in any order explain this decision. Since critical discussions about difficulties and dilemmas arising from research in the region mostly take place privately or are hidden away in footnotes, Sulek's afterword is a valuable addition to the few existing accounts on the messy realities of fieldwork in contemporary Tibet.

The book's particular strength lies in its evocative, vivid, and clear language, as well as the numerous rich ethnographic descriptions attesting to the power of sustained fieldwork in a region that is generally not

easily accessed and travelled by researchers. Photographs, maps, and comprehensive tables depicting quantitative data on caterpillar fungus pricing, ownership of livestock, and household appliances complete this thoroughly researched and enjoyable ethnography. Readers looking for a comparative approach on sudden economic booms and commodity chains might feel that the book lacks a more global perspective, including a discussion of literature on similar phenomena beyond rural Tibet and China. However, the author's explicit aim was to analyse Golok pastoralists' everyday lives, the rapid transformation of their livelihoods and, finally, the socio-economic shifts observed in a region due to a new form of income; in this the book admirably succeeds. Emilia Roza Sulek has produced a beautifully written and accessible monograph that will be of interest to scholars working on pastoralism, shadow economies, and resource extraction, as well as processes of development and state-making in Tibet, the Himalayas and China. This book is not only an illuminating piece of work for undergraduate and graduate courses on Central and East Asia, but also offers a comprehensive case study for courses in economic anthropology.

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GIFT EXCHANGE: THE TRANSNATIONAL HISTORY OF A POLITICAL IDEA

*Grégoire Mallard, 2019. Cambridge:
Cambridge University Press. 280 p.*

Grégoire Mallard's monograph *Giftexchange: The Transnational History of a Political Idea* adds to scholarly work that reinterprets Marcel Mauss' seminal essay *The Gift* (2011 [1925]) in the light of his political writings.

Mallard's interpretation goes against the grain of what has become a consensus among anthropologists, i.e. the idea that in *The Gift* Mauss investigated non-contractual and ambiguously disinterested yet constraining intra-group socio-economic solidarity. Instead, Mallard argues that for Mauss gift exchange provided a blueprint for building inter-group or international solidarity. Mallard abundantly demonstrates that in the context of widespread colonialization – contemporaneous with Mauss and his essay – such a theory had a dangerous colonial underbelly. Mallard's book, however, does not stop at pointing to the pro-colonial ends to which the theory of gift exchange could be used. He tries to decolonize the gift exchange as a doctrine for constructing international relations by exploring how it has been employed and could be employed in debates around national sovereignty and international socio-economic interdependency. This brings Mallard to his second central argument: Mauss-inspired gift exchange theory reminds us that – contrary to the present-day doxa – illegitimate sovereign debts can be forgiven, if debt forgiveness serves to increase inter-societal cooperation.

Grégoire Mallard is a sociology professor who works on global governance, law and expert knowledge regimes. His interest in Mauss' work and political engagements was sparked almost accidentally, when he and his wife rented the apartment of Mauss' biographer Marcel Fournier in Montreal. Mallard's findings on Mauss' involvement in interwar politics was first translated in a 2011 article and now in this monograph. The seven chapters that compose the book do not draw only on Mauss' political writings made widely available by Fournier, but also on extensive archival work, writings of Mauss' contempo-

raries and more recent secondary sources and analysis.

Mallard opens the book by reminding the readers that throughout the late 18th and early 19th century, colonial administrators-turned-ethnologists believed that gift exchange was an efficient way to extract resources from the colonized without political revolts. If the gift exchange theory fell under the critique of 19th-century utilitarian thinkers, in the early 20th century the model of gift exchange came back to theories of good government through the work of anthropologists such as Boas, Thurnwald, Malinowski, and Mauss. Mallard notes that they tried to show that there was nothing premodern or irrational in the governance through gifts.

In chapter two, Mallard reconstructs Mauss' position in the French academic and political fields. In 1925, when *The Gift* was published, Mauss was already academically recognized in France and abroad. However, because of his Jewish origins, he belonged to the French elite only precariously. Mauss was actively engaged in establishing ethnology – that he called “descriptive sociology” aimed at studying peoples of “inferior rank” (p. 5) – as a recognized academic discipline in France. To do this, Mauss promoted ethnography as useful for colonialization: ethnography could help to translate the French colonial law acceptably to the colonized. In 1926, he won support for his cause and got the resources for founding an independent Institute of Ethnology. To raise the prestige of his institution, Mauss was teaching ethnography also at the Colonial School that prepared colonial administrators. He also collaborated with bankers and art collectors who financially supported ethnographic and “Negro art” – at the time extremely popular

in Paris – collection missions of his institute's students.

In the next chapter, Mallard situates *the Gift* in the interwar political debates around the sovereign debt crisis. After WWI, Mauss and other Durkheimians were curious whether wartime industrial cooperation and financial solidarity among allies would endure and whether this solidarity would also be extended to Germany. Without German reparations the French debt to the allies was unsustainable. Yet, according to Mallard, Mauss believed that it was necessary to give a moratorium to German reparations so that Germany could first recover and then pay for the damages that it had caused. Mallard argues that Mauss used anthropological records in *The Gift* to back up his arguments for debt rescheduling, aimed at proving that over time the gift would be paid back and suggesting that a delay in time between gifts would create solidarity. Mallard underlines that many of the terms employed in *The Gift* – quasi-contracts, obligations, reparations – were used in the debates around interwar sovereign debt crisis.

Chapter four transposes the Maussian theory of gift exchange to the colonial context by exploring Mauss' unfinished manuscript *The Nation* (2013). In *The Nation*, Mauss lays out a theory of “integration”, where poly-segmentary societies were the least “integrated” while the “nation” – a society ruled by organization, law, and justice – represented the highest level of “integration”. Mauss believed that high levels of integration were necessary to bring about world peace and that intersocietal exchanges – not Durkheimian internal division of labor – were the real drivers of history. Hence, although Mauss was critical of colonialism administrated by chartered private companies, he held that state-managed colo-

nialism – with the right type of gift exchanges that increase solidarity – could have a civilizing mission.

Chapter five follows Mauss' students, such as Jacques Soustelle and Germaine Tillion, in post-WWII colonial Algeria to see how Mauss' theory of integration and gift exchange after his death was tested by decolonization struggles. Mauss' followers – faithful to the ideas espoused in *The Gift* and "The Nation" – believed that Algeria did not deserve independence because it had not reached the required level of integration. Besides, they held that the current state of disarray was not due to French overinvestment, but French underinvestment in Algeria. According to Mauss' students, French were not being enough generous to Algerians, hence the discontent with French colonisation.

A competing use of the gift exchange theory came from Pierre Bourdieu who was first brought to Algeria as part of the French army. Based on fieldwork data, he, contrary to the Maussians, argued that there was an Algerian nation which functioned according to the "logic of the gift". Moreover, this local solidarity, according to Bourdieu, was being destroyed by French colonialism. With Bourdieu's critique that found gift exchange in intra-societal not inter-societal relations and the emerging academic discipline of political science, anthropology was pushed out of international matters and retreated to the local.

In chapter six, Mallard considers the potential continuing relevance of gift exchange theory as a doctrine for international relations. He resurrects the spirit of the gift exchange theory in the work of Algerian jurist Mohammed Bedjaoui, one of the key architects of the New International Economic Order (NIEO) doctrine. Within the UN International Law Committee (ILC),

Bedjaoui worked to change the international economic law of decolonization, particularly the financial obligations of successor states to former colonial metropolises and – in case of nationalizations – to private property owners. After 20 years of work, the 1983 Vienna Convention attempted to enshrine internationally recognized rules that laid out the procedures for the succession of rights on property and debts, but it never went into force because it lacked the signatures of key UN member states. Mallard argues that the NIEO doctrine laid out in the convention inherited the spirit of the model of the gift exchange because it attempted to put long-term international relations based on trust and reciprocity above short-term interests of private multinational companies that held important investments and concessions in the former colonies. However, this time the model of gift exchange was applied to independent nation-states to regulate international economic interdependency and was not used to justify colonial relations.

Chapter seven explores the pertinence of gift exchange theory to the Eurozone recently put under the test of the European sovereign debt crisis. Mallard concludes that European citizens should "decolonize" the principles of financial responsibility, understand whose interests are served by debt accumulation, and envisage forgiving illegitimately acquired debts if they increase inter-societal solidarity.

Mallard's innovation hides in situating *The Gift* in Mauss' political writings on the sovereign debt crisis during the inter war period. Other approaches instead situate *The Gift* in the genealogy of Mauss' academic thought or consider it in the light of his political writings on cooperatives. This shift enables Mallard to argue that Mauss' *The Gift* was about inter-group and not intra-

group solidarity, which is clearly against the grain of the mainstream anthropological theory on the gift exchange.

The reader remains wondering whether it is possible or useful to try to find the most truthful interpretation of Mauss' oeuvre. Between 1920 and 1925, Mauss' political writings were prolific and at the time cooperatives – not only sovereign debts and monetary stability – continued to shape Mauss' interests. Could it not be simply the case that Mauss was transposing his ideas from one field to another, even when they were not fully elaborated and researched? Does Mauss' interest in inter-societal solidarity during the interwar sovereign debt crisis or his pro-colonial sentiments make the gift exchange theory as an exploration of various socio-economic rationalities among group members irrelevant?

Regardless of what was Mauss' real intention behind *The Gift*, Mallard's monograph opens refreshing – if underexplored – perspectives on international solidarity and the present-day neoliberal international governance, where it has become impossible not to honor one's debts, no matter how unjustly acquired. It provides a dense and stimulating read that brings to the fore events, theoretical and political engagements that are insightful not only for those interested in the history of anthropology but also the history of France and the NIEO.

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DU BIDONVILLE À L'HÔPITAL: NOUVEAUX ENJEUX DE LA MATERNITÉ AU RAJASTHAN

Clémence Jullien, 2019. Paris: Maison des sciences de l'homme. 400 p.

Clémence Jullien's book opens by discussing a major shift that took place in India over the course of only a decade. Where almost all women used to give birth at home with the help of a traditional midwife (Hindi: *dāī*), now they are predominantly doing so in clinics and hospitals. The numbers are striking: whereas in 2005–2006 just 38.7 % of Indian women gave birth in a medical facility, by 2015–2016 that figure had risen to 78.9 % (p. 166 individuals) – including in Rajasthan, a state that has one of the Indian lowest scores on the Human Development Index, and where Jullien's research is focused. This process of biomedicalization followed a series of strong financial incentives from the Indian central government, which opened the doors of public health institutions to women who could not previously afford to use them, namely by making all maternity-related services free of charge and by paying those who give birth in hospitals.

The explicit aim of this series of government provisions was to combat maternal and child mortality, which is still very high in India and higher even than the rates of its neighbours, Bangladesh and Pakistan (pp. 17–18). But reproductive health in India, as Jullien notes, also faces several other challenges: soaring socioeconomic disparities (pp. 275–288, 292–303); an increasing sex-ratio imbalance (with Rajasthan presenting a particularly imbalanced situation;

pp. 255–274, 336–346) that is the result of the preference for boys, itself a cause (among others) of men’s struggle to find a spouse; and political instrumentalization of the higher fertility rates among Muslims in comparison to the Hindu population (pp. 304–324). Yet, in spite of the statistical success of governmental measures encouraging women to give birth in hospitals, some authors argue that the solution put forward, in the form of financial incentives, presents a risk of treating the symptoms of the issues – that many women do not give birth in clinics and that sex-based discrimination is still practised – rather than their root causes.¹ Clémence Jullien’s monograph is of major importance in this respect, as it thoroughly investigates those causes. Its author reveals how policies that seem to promote equal access to healthcare in India for all mothers actually have the adverse effect of reinforcing divisions along the lines of caste, class, and religion.

One of the strongest assets of the book is its constant back and forth between micro, meso, and macro levels of analysis. Jullien’s fifteen months of multi-sited fieldwork (in three slums on the outskirts of Jaipur and at the town’s main public hospital) and her explicit ethical stance do proper justice to the actors involved, in that she does not fall into the trap of pointing the finger at one group in particular but rather does a fine job of accounting for the complexity of the issues at stake.

The first chapter frames the topic, offering a historical perspective on policies pertaining to maternal-child health since colonial times, and considering the aims, impacts, and challenges of this process of biomedicalization (pp. 21–22) up to the contemporary period. 150 years of maternal-child health

are covered, from the perception and biopolitics of the female colonial subject to the postcolonial era, especially from the turn of the millennium. Today’s voices on the issue of maternal health bring different agendas while at the same time revealing a certain continuity with those of the colonial era: sharing humanist ambitions particularly regarding women’s rights, around efforts to control the population, and concerning the promotion of Hindu and nationalist values – for all of which the control of procreation constitutes a keystone strategy.

In the second chapter, Clémence Jullien investigates the complexity and ambivalence of the relationship between the social workers of an NGO working in two peri-urban slums of Jaipur, the female inhabitants of these illegal settlements, and the role of governmental institutions in granting the latter provisions and rights. This study reveals the inhabitants’ resentment towards the state, deemed indifferent to their fate, as well as the social workers’ internal contradictions. On the one hand, social workers strive to help the slum’s population to exercise their rights as citizens and “empower” themselves, while on the other, they express irritation whenever slum dwellers protest against violations of said rights. Clémence Jullien analyzes the strategies deployed by these social workers to strike a delicate balance between a commitment to empowering the women of these slums while also keeping them under control and reasserting their own dominant position; mainly in terms of class, caste and education. Another disjunction is visible in the NGO’s efforts to facilitate slum dwellers’ access to, and use of, government provisions, thereby supporting a state apparatus it nevertheless qualifies as deficient. This double bind leads the NGO, despite its aspirations, to sometimes rein-

¹ See the preface to the book by Roger Jeffery.

force the very social and political inequalities it seeks to fight.

Chapter three is situated in the public hospitals, where Jullien analyzes the dynamics at play in interpersonal relations between health practitioners and the female patients who live in the slums. The starting point for reflection is these women's reluctance to go to hospital, in spite of the existing financial incentives. Through the reasons put forward by slum dwellers, the reader is brought to understand how the democratization policies enacted by the government, with the aim of ensuring equal access to health services for all, are hindered by the hospital staff's domination over and discrimination against these patients – the form of which ranges from both explicit and implicit derogatory comments to blatant mistreatment and neglect. Instead of simply accusing these health practitioners, though, Clémence Jullien does them justice and shows empathy for their position by allowing their distress also to be heard, and by demonstrating how discretionary practices are implemented according to these individuals' own visions of progress and development. On the other side, she breaks from the simplified image of female patients as mere victims by accounting for their discreet forms of resistance and their negotiations with hospital rules, with the staff and doctors' practices, and with pressure from in-laws. This nuanced analysis highlights the prejudices of the end of both patients and medical practitioners about the other and the lack of, or failure at, communication.

The fourth chapter sheds light on how contemporary debates within Indian society transpire through interpersonal conflicts between parturient women, their families, and medical staff at the moment of the birth. Hindu principles of modesty and honor, the

impact of statutory inequalities, and fears of the impurity of bodily fluids are intertwined here, compelling medical staff to resort to preventive as well as punitive measures. Preventive measures stem from the duty to limit sanitary risks but also mingle with the socio-moral disgust that contact with lower-caste and/or Muslim women provokes among medical practitioners. Punitive measures consist of a variety of strategies to dominate and humiliate, which are all part of a response to the injustices of which staff performing them feel victim. These perceived injustices range from the overcrowding of public hospitals, the feeling that the government's policies on maternal health are just an attempt to win votes, the sense of being left out of the equation for positive action measures, to the fear of a growing Muslim and/or low-caste population.

In the fifth chapter, Clémence Jullien investigates the proximity of life and death at the clinic. Indeed, newborn babies are considered to have liminal status, as imperfect beings of “raw flesh” (Hindi: *kaccā mans*), and are therefore regarded by patients and their families as more vulnerable to predators and evil spirits. Taking three widespread beliefs among parturient women as a starting point, the author examines the medical staff's positioning: between acknowledgement of the legitimacy of different aetiologies, and their rejection when the staff's responsibility is invoked – as in the case of the death of a newborn, for instance (pp. 253–254).

The sixth chapter tackles the much-studied topic of son preference in India from a new angle: The ethnography reveals how each set of actors within the hospital structure identifies different causes for the perpetuation of the preference for sons, thereby positioning themselves socially by reasserting a set of prejudices. It also emphasizes the

ways in which gender discrimination is covertly practiced and expressed here, at a time when it is no longer acceptable in most public spaces. This situation produces a paradox in which son preference has become shameful to express, while remaining obvious.

The final chapter of the book shows how women's fertility is at the intersection of three kinds of issue. The first is politico-religious, touching upon Muslims' supposed higher fertility rates and demographic agenda to take over India. The second is of a social nature, relating to the assumed strategy of the underprivileged to have as many children as possible in order to increase the family's workforce. The last deals with gender, through the multiplication of births until a son is born. Jullien shows the discrepancy between the proclaimed intention of the states to encourage families' wellbeing and individual freedom in making informed choices about family planning, and the implicit and explicit intentions of the different actors at work on a state, medical, family, and individual level. She does so through an account of counselling sessions which reveal that IUDs (intra-uterine devices for birth control) and sterilization are the only options presented to patients,

and by delving into the medical staff's rationale for this bias.

The major contribution of this work is to go beyond what apparently stands as a success story in the history of reproductive health in India, and rather approach it as a prism through which one can understand how social relations of class, caste, and gender are constructed and reproduced. This book will be of interest to social scientists as well as to action-oriented readers who have a specific interest in health, biopolitics, development, intersectional discriminations, and the relationship between citizens and the state. Clémence Jullien's work contributes significantly to a subtler understanding of the interpersonal dynamics at play among pregnant women and their family members, health workers and development workers regarding their access to and use of state provisions. In doing so, this monograph also accounts for each group's understanding of the rationale behind state policies, as well as the motivations underlying their actions. The reader is left with the impression of being provided with as full a picture as one could get of such a complex topic.

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