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Special Issue
Universality in Pieces? Mobilizations of Science in a Fractured World

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Universality in Pieces? Mobilizations of Science in a Fractured World

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Introduction

In recent years – in the context of debates on post-truth, Covid-scepticism and decolonization – the idea that science represents universal knowledge has been challenged from a variety of perspectives. Despite (or because of) this, science and the promise it holds out for generating knowledge that is relevant to solving planetary problems are gaining new valence and momentum. Based on ethnographic research, this special issue investigates mobilizations of science and claims to universality in a variety of different contexts. We ask: When, and around which issues, does universality become mobilized and contested? What are the politics behind specific attempts to universalize and/or localize knowledge? Where do claims to universality enact inclusive and/or exclusive socialities? Our central argument is that universality is both necessary and

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unreachable, problematic and desirable; it is an elusive, but powerful notion, deeply engrained in the idea of science, which orients people's actions towards particular goals. Studying people's varied attempts to universalize or localize knowledge in the name of science – for political, ethical, or pragmatic purposes – offers relevant insights into how people imagine, create, justify or call into question often unequal social structures. It also reveals, as many of the contributions in this issue show, the hopeful visions scientists and citizen-scientists pursue in striving to build better futures. This special issue, then, speaks to a key theme in contemporary anthropological debate, namely the politics of knowledge and the complex quest for epistemic justice in an unequal world.

Although science has been disputed since its inception, these contestations have gained a new dynamic in recent years as disparate actors from across the political spectrum have fundamentally called into question the status of science and its claims to universality. Central to these interventions are often critical reflections on 'whose science' produces what kind of knowledge, where, and for whom. While climate change sceptics and Covid-19 deniers have recently been most vocal in their critique of 'mainstream science', postcolonial critics have long diagnosed scientific institutions and ideologies as both unequal and biased. They argue that knowledge produced under these conditions cannot possibly have universal relevance for everyone, everywhere, given that the paradigmatic premises of universality remain largely unquestioned and are inherently bound up with notions of 'Western modernity'. At the same time, scientific approaches remain a compelling and normative force in people's ways of thinking, acting and feeling in the world. Demands are high for policy-makers worldwide to 'follow the science', for instance, in the context of climate change or during the pandemic. Here, many people are dissatisfied that governments are not taking the far-reaching relevance of scientific advice seriously enough. In the face of globally interconnected crises, injustices and existential threats, the idea of universally applicable standards continues to hold out the promises of equality, justice and survival.

Between scepticism and aspiration, there are numerous suggestions and initiatives for re-thinking and re-situating what scientific universality could or should do. While recent media representations often suggest the radically opposed positions of those who celebrate and those who reject science or science-related truth-claims, in this special issue we offer a nuanced perspective on the diverse and shifting debates on the role, status and imagined possibilities of scientific knowledge in different social, geographical and epistemic contexts. We investigate mobilizations of universality with, for, and against science in fields as varied as astronomy, biomedicine, psychology, artificial intelligence, genetics, conservation ecology and environmentalism.

Following well-established criticisms of science's claims to truth, universality and impartiality – prominent, among others, in the field of STS and in the history and anthropology of science (e.g. Franklin 1995; Haraway 1988; Harding 1991; Latour and Woolgar 1986; Martin 1998; Mol 2003) – we start from the assumption that what is seen as the universality of science in fact moves through, and is modified in, different contexts. Scientific knowledge is never absolute; rather, it is contingent and relational,

always enacted and negotiated in practice. From this angle, universality is an abstract ideal that can never be fully attained. But far from seeing people's preoccupations with universality as futile, in this issue we are interested in the political valence that comes from engaging with universality for various specific purposes. Our aim is to examine how people approach universality, not as a unified totality but as a handy composition tool for various projects in changing political landscapes. People do not always voluntarily acquiesce in claims to universality, but practices of universalizing (or particularizing), we argue, can enable people to engage and utilize scientific knowledge in a way that connects their specific political projects to wider frames of reference. These practices play an important part in integrating science into social life.

In this introduction, we first present a brief overview of universality's troubled history (for a comprehensive analysis see, e.g., Hofmann and Messling 2021). This is followed by the discussion of three figures – the horizon, the fragment, and the aggregate – which all capture, if in different ways, universality's inherent (yet productive) incompleteness. Finally, we introduce the individual case studies from which our engagements with universality emerge.

Staying with the Universality Trouble

Universal knowledge claims, including those of modern science, have historically been staked on the fundamental human capacities of reason and rationality. The Enlightenment period and the ensuing scientific revolutions came to celebrate rationality and reasoned thinking as the bedrock of scientific thought. And yet this faculty of reason was not only socially and historically contingent, it also excluded much of humanity (Said 1978; Haraway 1988; Wynter 2003). Slaves and women have been outliers of rational humanity since antiquity. But the philosophical transfer of authority from divine power to human capacity was quickly transformed into the universalization of Europe's particular interests, beliefs and norms as the fundamental human essence (Said 1978, Chakrabarty 2008, Laclau 1992, Hofmann and Messling 2021). Nowhere was this essentialism more prominent than in the colonies, where introducing scientific rationality to the 'savage' world became an invaluable part of the civilizing mission pursued by the imperial powers (Prakash 1999).

Given the range of historical, political and epistemic troubles attached to it, universality should be viewed neither as an inherent property of science nor as the basis of a moral quest to advance knowledge and progress for the benefit of humanity as a whole. On the contrary, as a wide range of scholarship in the social sciences has argued, any attempt to unify knowledge contains the danger of homogenizing differences and reifying the dominant group's perspective (Harding 1991). Thus, on the one hand, the 'universalization of Europe' as the originary site of modernity, history and science became an object of investigation for postcolonial and subaltern studies. This scholarship

has responded by carving out other histories that cannot easily be incorporated into a single narrative, be it about the introduction of capitalism and capitalist modernity (Chakrabarty 2008) or science and technology (Prakash 1999; Habib and Raina 1999; Dumoulin Kervran et al. 2018; Bärnreuther 2021) to the rest of the world. Universality in this form of analysis is countered by multiplicity and plurality.

On the other hand, scholars in postcolonial STS have demonstrated how scientific breakthroughs – for example, the notion of variation in plant biology (Subramaniam 2014), the discovery of disease-causing pathogens (Arnold 1993; Anderson 2006; Venkat 2021), or the development of technologies of preserving, analysing and reading DNA (Kowal et al. 2013) – were made possible by colonial (and settler-colonial) conquests and the global trade in populations, specimens and laboratory science. While these critical studies of science and empire have contributed to our understanding of how racial, geopolitical and cultural inequalities persist in and inform our postcolonial present, they have also opened up new pathways to reflect on how the work of producing science and technology has become a remarkably global pursuit. Against the image of monolithic and hegemonic 'Western' science and technology, such analyses draw attention to the work of non-hegemonic, non-Western actors, sites and positions.

A closely related question is that of the situatedness of knowledge production in science and its unequal effects. It is not uncommon for practitioners and institutions to ask who their knowledge is accountable to, where is it derived from, who has produced it, who receives the benefits, and how research can be translated into action. Recent calls to open up science and include citizens and non-experts in its production are gaining traction and valency not just in the Global North but also in the context of decolonizing science (Lyons et al. 2017; Gabrys 2022). While some scholars argue that decolonizing knowledge means diversifying knowledge and education systems to mitigate the hegemonic legacy of white European thinkers and thought by including and highlighting non-hegemonic knowledge (Ndlovu-Gatsheni 2018; Harrison 2022), others warn that such efforts risk essentializing or even racializing difference (Kennemore and Postero 2020). While some take decolonizing to mean countering the racial exploitation and injustice engrained in the history of science through knowledge-creating and knowledge-sharing partnerships with indigenous communities (Verran 2018; Asiamah, Awal, and MacLean 2021), others warn of 'equity washing' and point to the complexities of initiating genuine partnerships (Ballo et al. 2021).

Similar to collaborations between scientists and non-scientists, there is a trend towards collaboration between different sciences regarding common concerns. The science wars of the 1990s that fiercely debated whether scientific claims are based in nature or socially constructed (Ross 1996) seem to have transitioned into debates about what the different sciences can bring to the table. The science wars' combatants have been steadily moving beyond critique, distancing themselves from the simple deconstruction of scientific authority (Hacking 1999) and instead addressing matters of shared concern (Latour 2004), such as environmental crises (Zimmer 2023). In the wake of these transitions, anthropologists studying scientists or working on multidis-

ciplinary projects find resonance in 'friendship with scientists', a methodological disposition to redefine what critical science studies mean and to 'engage scientists on their own terms, as they work out what will count as true, rigorous, and worthy of concern' (Fortun and Fortun 2005:51; see also Benezra 2016).

And yet, crossing the boundaries of disciplines and epistemes does not in itself resolve conflicts, avert crises, or achieve more equitable solutions. Collaborating on matters of shared concern by social and natural scientists does not always work out for the best (see e.g. Benezra 2023). Increased interest and insight into the production of scientific knowledge by citizens and non-experts is no guarantee of democratizing science – or society – as the contestations referred to above clearly show. However, thinking from a shared space affords asking novel questions.

In summary, the continuing and widespread representation of science as universal has structural implications with respect to participation in and exclusion from doing science. However, outrage against unequal possibilities of participation in the advancement of science is gaining traction. Resonating with how the International Council for Science has linked the 'Principle of Universality of Science' to human rights and formulated the goal of 'equitable and non-discriminatory access to science' (International Council for Science 2017), scientists from various corners of the globe are building on the international political purchase that their demands to participate elicit. Science, in this policy-making environment, is an unchallenged common good – an assumption which, as noted, is often called into question in social science studies. In the end, then, several factors, ranging from location and discipline to identity and personal conviction, shape how people imagine and relate to science and the idea of science's universality.

The Politics and Practices of Universalizing

In this special issue, we trace how the universality of science has political purchase despite its inevitable incompleteness. We identify two key aspects of scientific knowledge-making in our respective case studies: 1) politics and participation, and 2) practices of universalizing. Though these two aspects in many ways overlap, the first focuses on people and the related question of who can produce and who is the imagined recipient of universal scientific knowledge, whereas the second has more to do with content and the question of how knowledge actually becomes (more) universal. We observe that our interlocutors work towards, produce, claim, contest and practice science's universality for different purposes.

In our attempts to analyse these dynamics, we deploy a number of conceptual tools, three of which we present here: horizons, fragments and aggregates. These 'figures' help us to think the incompleteness of universality in different ways – as a horizon that one strives towards but never reaches, as a series of fragments that never amount to a whole, or as a continuous process of aggregation.

Firstly, universality as 'horizon' draws on the work of the Beninese philosopher Paulin Hountondji (2017). Writing against 'ethnophilosophy' in the 1970s, Hountondji advocated the pursuit of philosophy as a universal endeavour, amalgamating Western and other differently located philosophies. Universality, he contended, may be and remain incomplete, but there is value in striving towards ever greater universality by accumulating the scholarship from increasing numbers of particular positions. Hountondji's philosophy defends the value of universality not in spite of local particularities and differences but because of them. Drawing on the US-based philosopher and political scientist Olúfẹ́mi Táíwò (2022), we might say that those who contribute to the knowledge and practice of science from any location not only become part-owners of science but, more importantly, contribute to its movement towards ever greater universality. As horizon, universality is a future-looking practice and becomes a potential, a promise, and aspiration.

Secondly, we conceptualize the always unfinished nature of science's universality in-the-making through the concept of 'fragments'. In her work with survivors of collective violence in Delhi, Veena Das (2007) argues that 'fragments' of experience ought not to be taken as 'various parts that may be assembled together to make up a picture of totality' but rather as elements marking the impossibility of an imagined whole. In Marilyn Strathern's work on parts and wholes (1992), fragments emerge as broken pieces with reference to a prior cohesive totality that has been forever lost. Finally, in his work on the fragmentary quality of moral traditions in South India, Anand Pandian (2008) suggests taking fragments as marking the impossibility of a coherent whole and seamless horizon of experience. Building on this work, we read universality as fragmented, but use fragments less as reminders of a lost past than as traces of an aspired wholeness in the future. Expanding on Pandian's image of the mosaic (itself inspired by Walter Benjamin) as composed of fragments, we draw attention to the possibility of universality and universalizing by joining together particularities as fragments.

Thirdly, we think about universality as aggregated. Therefore, we draw on Dörte Bemme's (2019) concept of the 'aggregate human', which she has developed in the context of her work on global mental health epistemologies and interventions. The idea of an aggregate human defies the idea of the universal human unified by a single theory of, say, the psyche, or mental health, and goes beyond the dichotomy of the universal and the particular. In this model, universals emerging, for example, in global mental health are contingent and unstable. They are true and measurable, but only until they stop working in the field or until the parameters of 'what works' shift to a new iteration. They make epistemic objects comparable across difference, but without fixing or essentializing them as once-and-for-all given. Following Bemme, universality becomes pragmatic, and claims to ontology are reformulated as questions of applicability (Bemme 2019).

Horizon, fragment and aggregate are just three of the figures we think with in this issue, and they show the multiplicity of how the universal becomes mobilized for various purposes and with various intentions despite as well as because of its inherent

incompleteness. We believe that such nuanced academic engagements with the ever-incomplete universality of science opens up perspectives on how people in different social, geographical and epistemic contexts strive to act collectively in a fractured world.

The Contributions

The contributions in this special issue address some of the key questions around politics and participation, such as: Who gets to produce, or participate, in the production of scientific knowledge and make claims that it is universal (Bečka, Nieber, Vorhölter)? For whom is scientific knowledge produced (Bhan, Lang and Sathaye, Nieber, Vorhölter)? To what ends are claims to universality made or contested (Bečka, Bhan, Kumpf, Werner)? These contributions trace how the ideal of science's universality is enacted in light of its incompleteness and portray a kaleidoscope of universalizing practices, always situated in particular power constellations and always mobilizing the politics of participation.

Hynek Bečka argues that the universality that Covid-19 sceptics in the Czech Republic seek is one of participation. Protesting against anti-pandemic measures and refusing vaccination, they claim that science should not be bounded by established expertise but open to all who are able to observe, experiment and gather evidence by themselves. Bečka shows how these 'rational sceptics' negotiate the boundaries of good and bad science and create alternative knowledge by mobilizing the notions of universality and embodied empiricism.

Desirée Kumpf examines how the premise of universal interconnection between humans and their ecological life-worlds operates as another notion of universality in the 'mission-oriented' conservation sciences. In the example of wolf rewilding in Italy, uncertain and unreliable camera-trap images inspire story-telling in online forums which allows both conservation scientists and their audiences to sense and narrate the relationships between wolves and humans. As universal interconnection becomes an important narrative mobilizing public support for conservation projects, embodied experiences of immersions into fragile environments add to the canon of universal knowledge.

Claudia Lang and Sonali Sathaye investigate the universalizing processes of psychology and therapy and some of its frictions. Based on an ethnography of life skills training courses in Bengaluru and a mental health app designed in the same city, they look at the universalizing practices of everyday psychology, therapy, and self-work. Lang and Sathaye show that, in the case of the courses, universality is assumed to be bounded and context-free, while in the case of the app it is 'aggregated'. Thus, the divergent ways the universal is aspired to be achieved in these two cases is linked to a shift in the meaning of 'context', which is bracketed in the first case and operationalized in the second.

Julia Vorhölter's contribution questions conventional framings of psychotherapy as something external and foreign to 'Africa' that have been imposed by outsiders. Instead, she shows how psychotherapists in Uganda cater to the demands for psychotherapeutic care of an emerging middle class and pragmatically navigate the particularities of the Ugandan clientele while believing in and contributing to a universal psychology. Nevertheless, they are frequently confronted by historical legacies and contemporary structural inequalities which limit how and where they can practice, and, how their work is valued.

For astronomers in Africa, as Hanna Nieber's chapter shows, universality provides a strategic discursive repertoire for entering the global field of science diplomacy and combating the structural inequalities of participation. Building on the fact that, without the perspective from Africa, astronomy's gaze into outer space is incomplete, astronomers in Africa argue for their participation in astrophysical research by holding astronomy accountable for its claim for universality. Nieber takes inspiration from Paulin Hountondji's formulation of universality as horizon and reads this metaphor through the example provided by astronomers in Africa to show how universality elicits hope, provides direction, and allows for an examination of position-based particularities.

A similar form of 'anticipatory universality' animates postcolonial genomics in India, as Samiksha Bhan's contribution illustrates. Like their colleagues in other parts of the Global South, geneticists in India are critically aware of the Eurocentric bias in genome databases worldwide which limit the potential clinical benefits for under-represented population groups. In their simultaneous need to claim inclusion in genome databases and devise public health solutions closer to home, Bhan argues that Indian geneticists approach population 'in fragments' rather than as a unified whole. These population fragments, however, rely on other knowledge regimes that often reinforce genetic essentialism and stigmatize already marginalized groups, while deferring the universal applicability of genomics into the future.

Hanna Werner's contribution examines the ambivalent relationship between environmentalism and science in contemporary India. As a contested source of legitimacy, science is an inevitable yet troubled reference point in environmental politics. Werner addresses the conflicted entanglement of science and religion in India's current political landscape and sheds light on how environmental activists (must) navigate these spheres. In this context, she explores the possibilities of conceptualizing a grammar of environmentalism – a grammar that challenges common readings of environmentalism, puts hegemonic claims to universality in perspective, and redirects the focus onto questions of environmental justice.

The goal of this special issue is not to offer solutions but to illuminate universalizing practices within and with science. We describe what kind of work goes into universalizing science in unequal, stratified and patchy conditions of life in different parts of the world, and we develop the conceptual tools to do so. In our individual contributions, we explore what matters to our interlocutors as they ask questions about and through science, contribute to existing discourses, or contest knowledge production, all the

while situating themselves within specific localities, vocabularies and broadly defined goals. Our contributions show that making knowledge universal is not and indeed never can be a singular project or ambition. In this sense, then, we see the universality of science as never quite finished, always in making, and always situated in particular politics and moral economies.

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From Context-Free to Aggregate Universality: Life Skills Courses and The Making of Automated Therapy in Bengaluru, India

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Abstract: This paper uses life-skills training courses and an automated therapeutic self-help app from Bengaluru, India, as lenses through which to investigate universalizing processes of psychology and therapy and some of its frictions. How is psychological universality achieved in these courses and in the app, and in so far as context comes to matter, how does it do so? We show that, in the case of the courses, universality is assumed to be bounded and context-free, while in the case of the app it is 'aggregated'. Thus, the different ways in which achieving the universal is aspired to in these two cases is linked to a shift in the meaning of 'context, which is bracketed in the first case and operationalized in the second. In the former, it is a cultural feature to be silenced or reduced; in the latter, it is the generative material of the aggregate universal itself. While in life-skills training courses universality is assumed to be free of context, automated therapy is pragmatic and assembles context to generate what we call 'aggregated universality'.
[universality, science, psychology, India, digitization]

This paper uses life-skills training courses and an automated therapeutic self-help app from India as lenses to investigate universalizing processes of psychology and therapy and some of the frictions involved. These techniques and technologies address everyday emotional and relational afflictions and offer micro-therapeutic interventions for self-care and self-improvement. We understand 'therapeutic' not in the narrow medical sense, but in a broader sense of attentive support or self-care. Both approaches assume, and seek to produce, psychological subjects that are grounded in self-work, and both work with formalized scripts (Akrich 1992): they differ in how they aspire to achieve universality. The divergent ways the universal is imagined and aspired to in these two cases – by bracketing context in the first case and by operationalizing context in the second – is linked to a shift in the meaning of 'context.' While in the life-skills training courses universality is assumed to be free of context, automated therapy assembles contexts to generate what we call 'aggregated universality'. Crucially, while the context life-skills trainers silence is a cultural feature, the context operationalized and put in use

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by automated therapy is a narrow one. While the universal as context-free is fixed and stable, the aggregate universal in automated therapy is moving, emerging and unstable.

This paper contributes to anthropological research on the globalization of what is often understood as 'western' psychology, a particular way of interpreting and working on the self and of responding to suffering based on psychological and psychiatric (psy) knowledge. A recent body of scholarship has considered the rise of (popular) psychology, therapy and counselling and the travel of psychological ideas and language into the everyday in India and beyond (Chua 2013; Duncan 2018; Illouz 2008; Matza 2018; Vorhölter 2019; Zhang 2017). The global rise of psychology carries particular imaginaries of mental and emotional well-being and suffering and is linked to broader social and economic changes such as the emergence of a new middle class, consumerism, rapid urbanization, and the rise of humanitarian and global mental health activity. These new 'technologies of the self' aim to promote and cultivate self-knowledge, articulation, responsibility and empowerment (Foucault 1988; Rose 1998). While often linked to neoliberal transformations of governance, political economy and subjectivity, 'psy regimes' also provide orientations and new forms of care in worlds that are rapidly changing or falling apart. Although global psy ideas potentially transform people's ways of relating to their own and others' suffering, they are also transformed as they are appropriated and adapted around the globe. Many of these transdiagnostic and popular therapeutic practices are based on ideas about the universal value of behavioral activation, the verbal articulation of distress and self-work grounded in an agentic, responsible self that rationally works through everyday forms of distress and conflict.

Critics worry about psychological imperialism and the (neo-) colonization of non-Western others, which they fear create 'monocultures of the mind' (Shiva 1993) through which the world becomes 'crazy like us' (Watters 2010). Others take issue with normative assumptions of what Davies has called the 'happiness industry' (Davies 2016), which obscures the importance of emotional discontent. They also argue that these approaches are oblivious to context by ignoring 'local culture' (Lutz 1985; Obeyesekere 1985) and by psychologizing or individualizing political, economic and social conditions (Mills and Fernando 2014; Sathaye 2008; Sax and Lang 2021). These depictions contrast with the perspectives of some psychologists and psychiatrists from former colonial territories who reject the 'ethnopsychological' emphasis on cultural difference, recover psychology and psychiatry from colonial and racist influences, and stress the universality of mental suffering and of psychological interventions (Heaton 2013; Kilroy-Marac 2019; Vorhölter, this special issue; Lovell et al. 2019).

Because automated therapy developed in Bengaluru is situated in this larger context of self-work and self-improvement, we read its universalizing practices through the example of life-skills courses in Bengaluru from the early 2000s, when an early articulation of the popularization of psychology was taking place in India. In Bengaluru, as in other IT metropoles, including Silicon Valley, psychology has entered the IT industry and other workplaces in the form of soft-skills training (Sathaye 2008; Upadhya 2013). The same is true of ideas and practices of New Age mindfulness and

spirituality (Gooptu 2013). Popular psychology and New Age spirituality have grown exponentially in Bengaluru over the last twenty years or so – in the workplace, in management contexts and in schools and colleges – and for all sorts of relationship issues, as browsing in any Indian bookstore or media outlet shows. Both life-skills trainings and automated therapy as they are practiced and designed in Bengaluru are based on assumptions that are situated in the English-speaking, middle-class, techno-cosmopolitan and often elite-educated backgrounds of their practitioners and designers, but are assumed to be universal, standard and applicable across heterogenous contexts. These assumptions include, for example, universal ideas of self-responsibilization and self-work, of well-being as an individual achievement, of the therapeutic effect of venting troubling thoughts and emotions, and of the therapeutic value of the experience of being listened to and feeling heard.

We are both anthropologists, though we write from different situatedness and locations. Sonali is a Bengaluru-based US-trained Indian anthropologist, teacher and drama writer. In the early 2000s, she conducted fieldwork on life-skills courses in Bengaluru as part of an ethnography of the rise of the mental health 'industry' in urban India. Earlier, Sonali had worked on notions of emotion and self in the US through fieldwork with two theater actor training schools. Claudia is a German-based anthropologist. Since 2019, Claudia has been conducting research on the digitization and automation of mental health in India with designers and psychologists in Bengaluru. In 2021, we both collaborated in an online project with Indian participants in which we experimented with a Bengaluru-produced mental health app and engaged in introspection, diary writing and regular online group exchange. This group included a psychologist and psychotherapist, a lawyer and blogger, and we two anthropologists. We wrote this paper collaboratively, using Sonali's ethnographic material on the life-skills courses, Claudia's interviews and discussions with the app's designers, and our joint experiences with the diary-writing project and experimenting with the app. Although the life-skills courses and the automated therapy are certainly not the same, both are forms of what we conceive of as 'therapeutic': popular, everyday forms of working on the self-aimed at achieving psychological well-being.

Psychological Universality in Life-Skills Training

The interrogation of the self and its nature is certainly not new to India, nor is the idea that self-work requires effort, practices and diligence. Trainers in life-skills courses in Bengaluru in the early 2000s taught that psychological well-being requires self-work, technique and guidance. However, instead of relying on tradition or a relationship with a *guru*, trainers emphasized the grounding of life-skills training in the science and universality of psychology. Although historically contingent and often associated with postindustrial and neoliberal capitalism, individualization and the rise of consumer

culture (Illouz 2008; Rose 1998), trainers – middle-class residents of Bengaluru, most of them female and Hindu – proclaim psychology and psychology-based self-work to be universal because it is grounded in science.

Drawing on Sonali's participant observation in life-skills training courses in Bengaluru in the early 2000s, in this section we discuss the life-skills teachings, analyse some of their underlying assumptions and provide examples of frictions. These courses, not only draw on and are generative of psychology as a context-free universal, they also illustrate some of the limitations of psychology's universalizing endeavours and the ways the psychological universal is created through asymmetrical communication. We explore how trainers make universalizing-as-decontextualizing logics work. We argue that in these courses, the universality of psychology as a science was foundationally assumed to be context-free. In the early 2000s, psychological ideas of life-skills, self-work and self-improvement were still new in post-liberalization India, but training and counselling centres soon started to mushroom throughout the city.

Swayambhu[1] was one of the premier counselling agencies in Bengaluru. Activist and alternative organizations appreciated the agency for its ability to work in a scientific and non-normative manner across a range of sensitive issues, including sexuality and sexual violence. It also held regular courses to educate largely middle-class English-speakers on psychological techniques, both those who wanted to become trainers themselves and those who sought techniques to improve the quality of their own lives.

This case study focuses on one of Swayambhu's listening-skills courses, which was held two mornings per week over seven weeks. The group comprised thirteen people – two men and eleven women. Five of the women were housewives; the rest of the group included a lawyer, a medical doctor, a software engineer, a physicist, a civil servant, two retired teachers and an anthropologist. Almost all of us were there because we had heard of the course through friends who had highly recommended it. Of our trainers, two had learnt their counselling skills at Swayambhu. As usual in events addressing a middle-class audience, the language of instruction was English.

In the classroom the mood was expectant. The three instructors generated a certain gravitas as they cautioned us about the 'journey of self-awareness' on which we were about to embark. We were advised to go 'step-by-step, slowly' since we might encounter unanticipated difficulties. During the weeks that followed, one of the counsellors often expressed her own 'anxiety' about our well-being. She said, 'Be prepared for consequences … take care of yourself, be safe.' At other times she said, 'This was a lot of personal sharing: careful, are you sure you will be able to take care of yourself?' Or, 'I am a little uncomfortable right now – the sharings were very personal, and I don't want to start something and not finish it. I just want you to know that there are people you can speak to if you feel the need to do so.' By 'people' she meant the instructors at Swayambhu.

1 Swayambhu is a pseudonym, as are the names of the trainers.

Much of what we were told in the listening-skills course focused on bodily techniques to improve effective communication and promote better listening. Good listening, as it emerged from this course, was assertive listening. Key among the techniques was 'achieving eye-contact', something that trainers agreed was not necessarily considered appropriate in 'our culture', by which they meant in India. Beginning a lesson with a discussion of the importance of 'eye contact in communication', Sushmita, one of the instructors, said: 'In our culture, we have been taught to look down when an elder talks to us – isn't that so? Our teachers tell us to "look down, don't look in my face, don't stare".' She went on to talk of how, although it may not be part of 'our culture', eye-contact is an essential component of what she called 'effective communication'. It signals trustworthiness, she explained, where its opposite, looking down or not straight in someone's eyes, is surely a sign of shiftiness. For Sushmita, a habitus guided by 'our culture' would be to look down or not to make eye contact, depending on age, status and gender, while the good, correct or scientific way of effective embodied communication involved looking the other person straight in the eyes. In this case, moving towards universality as context-free, understood here as culture-free, was understood as deliberately overcoming or reducing the obstacles of cultural impulses and practices. Another instructor, Payal, told us: 'Heads, arms, legs, [are] very important. You are sending out signals with your hand movements, body movements. Automatically, hands folded [Payal folds her hands over her chest] means putting up a big barrier, a big wall. It's like a closed door. From that side the conversation is over.'

Beyond bodily techniques, effective listening and communication also involved verbal skills such as articulating or verbalizing feelings. A reliance on verbal articulation was wired into the very structure of the course on listening skills. Every class at Swayambhu began and ended with the 'feeling check', a verbal description of how we were feeling at that moment. Each of us had been equipped with a 'feeling wheel', a chart of emotion words. We were supposed to find the word that best corresponded to the nuance of our feeling on that particular day. The trainers disallowed certain words. Amos said: 'Words like fine, nice, good, or bad are very ambiguous. Try to take the help of the list we have given you. It is very difficult to know, to get in touch with your real feelings.'

Another important feature was the correct formulation of messages. Suhaila and Padma defined the 'assertive' personality as one who 'speaks with a lot of 'I'-statements' and thereby indicates their 'self-confidence'. This stress on I-statements differed from the way most of us had grown up to speak. An assertive personality, we learnt, is different from the 'aggressive' and 'passive' types who either blame others for their shortcomings or do not speak up at all. An 'assertive' type maintains 'self-respect', an attitude that also makes others feel respected. Payal taught us that, in "assertive communication', the intention is to stand up for my rights, and I do not violate another's rights.' While in the 'passive' mode the speaker follows an 'I lose-you win' model, and in the 'aggressive' it is only about the speaker 'winning', the 'assertive' communicator allows for a 'win-win' situation. All instructors agreed that an 'assertive' personality is

'in touch with their feelings' but, unlike an 'aggressive' person, she does not ever let her own feelings get in the way of her own or another's 'self-respect'.

Instructors also emphasized that the maintenance of what they termed 'boundaries' is imperative to the creation and sustenance of all healthy relationships, whether familial, social or professional. To illustrate the tangibility of these barriers, Payal told us a story about an annoying neighbour and her relief when she recognized what was 'actually going on'. 'I didn't know it was a case of boundary violation', she said, 'because I didn't know such a thing existed.' When one of the attendants questioned Payal on the need for such a formulation – why could she not simply say she found her neighbour annoying – Payal was unfazed. She smiled indulgently to agree that this is indeed the case with 'most people in India.' 'Everyone's boundaries are different, but people [in India] may not even know that word.' Not knowing the word 'boundary', according to Payal, became a handicap in skillfully and assertively responding to the situation.

Those who speak English in India know well the meaning of 'boundary' as something that physically delineates the limits of something, as a translation of the commonly used Sanskrit word '*seema*' that regularly crops up in the context of national boundaries. It is also a popular name for women, referring to the virtue of a woman's boundaries to protect the reputation of the family over her own desires. The perils of boundary-crossing are dire, especially for women who choose to follow their (sexual) desires. This meaning of 'boundary' in the Indian context is at odds with how our trainer would have us understand the term. Understood as the psychological limits of a bounded, autonomous entity, the trainer had us valorizing the gratification of desires and psychological boundaries that arise within that bounded self.

Broadly, we learnt that life-skills entailed, as Payal said, putting 'our own needs first', this too being different from the values we grew up with. In the 'feeling-check' circles that happened every morning, students at Swayambhu related their continued difficulties in putting into practice the idea of putting themselves first. Seema said in a tone of exasperation: 'I still find myself involuntarily putting others before me. It's a hard habit to break.' Another participant, a middle-aged bureaucrat who frequently expressed gratitude to the trainers for the 'difference' they have made in his life, knitted his brow to say, 'You know, I went to convent schools as a child, and there we were given the example of Jesus, of turning the other cheek, like Jesus did. I recognize this as a belief I have, but how do I change? How do I become assertive, take care of my needs, get respect from other people?'

Trainers agreed that skills such as assertive listening, bodily techniques or verbal articulation of feelings can be learnt. 'You're learning a skill', Sushmita told us. 'It's like you're learning to drive.' At one of the courses on 'Interpersonal Communication', one woman asked in a timid voice, 'Madam, I'm just wondering how do we get to there [assertiveness] – by learning, right?', to which the trainer responded, 'I agree, some of what we are is what we call 'personality', but also we learn through observation. There is always room for learning provided we have an open mind. Observe your boss [or anyone who] comes out a winner; observe him to see what he does right.' The other

trainer said, 'Don't worry. I'll show you tips, examples, so you can modify your behaviour accordingly.'

Life-skills trainers considered themselves to be on a civilizing mission; they were propagating science, empowerment and development to overcome what they denigrated as the psychological limitations of 'Indian culture' or 'traditional values'. Training came with a package of normative moral assumptions about the self, relationships and well-being that trainers took as being applicable across diverse contexts. Their assumptions reflected similar attitudes in the context of New Age management and entrepreneurial skills in Bengaluru (Rose 1996; Upadhya 2013).

One of the reasons for the rapid growth of life-skills training in Bengaluru and beyond, we suggest, has been their grounding in psychology as a *science*, as opposed to what trainers often denigratingly lumped together as *culture.* Much of what we learnt was different from the habitus we had grown up with. For trainers, culture was an obstacle, and science was truth. They often mentioned the need to rid society of the cultural baggage and 'stigma' attached to approaching mental health professionals. Implicit in this formula was the notion that the latter, rather than religious or spiritual figures, were best able to provide guidance in working through problems and pursuing self-improvement, untainted, they argued, by the burdens of tradition or superstition.

Although the kind of self-work instantiated by the life-skills courses was foundational for designing automated therapy in Bengaluru fifteen years later, the psychological universal of these courses as context-free differed significantly from another psychological universality – aggregated universality – in automated therapy, to which we turn in our second case study.

Aggregated Universality in Automated Therapy

Wysa[2] is a chatbot in the figure of a gender-neutral penguin. It was designed and developed by a team of software engineers, psychologists and conversation designers in a startup that was until recently solely located in a middle-class neighbourhood in Bengaluru, but now also has offices in Boston and London. Wysa is designed to be what its designers call a 'digital coach', 'AI friend' or 'happiness buddy', who checks in daily. An emotional resilience tool built into your smartphone, it listens to you, asks you questions and provides support. Using natural language-processing and interpreting and responding to free speech, it aims to help users reduce their distress, get in touch with their emotions and thought patterns, deal with distressing situations, and develop resilience. So far, Wysa works mainly in English, though there is a Spanish test version already on the market and a soon-to-be-released Hindi audio version that addresses a

2 For Wysa, we use the real name of the app and of the designers, since they have explicitly asked us to do so.

wider audience than the hitherto middle-class, English-speaking users. A well-being tool that is anonymous, available around the clock and fits in your pocket, the app reworks the therapeutic encounter, and the therapeutic relationship, into a digital encounter with a machine and bridges temporal and spatial obstacles.

The free version of Wysa provides chats with a chatbot and self-help exercises in mindfulness, managing anxiety and sleeping problems, and developing coping and problem-solving skills. For a fee of around USD eighty a month, the premium version provides chats with one of Wysa's human psychologists or counsellors. The app is therapeutic in the sense that it provides attentive support or self-care not only through its self-help exercises, which it partly resembles, but also goes beyond the life-skills taught in the training course. Its chatbot also mimics a psychotherapist. According to its designers, Wysa addresses what they call the 'missing middle of mental health': people who need more than mindfulness exercises, but not (yet) a human therapist, psychiatrist or medication. As of February 2024, Wysa's website claims that the app has helped 5 million people in 95 countries.[3] Wysa collaborates with insurance companies, private hospitals, health-care systems in countries as the UK or Singapore, and venture capital companies based in the US and India. Wysa's designers and psychologists draw on but also contribute to evidence-based mental-health interventions (Saha et al. 2022). Providing therapeutic work outside the clinic, the app reaches out to many more people than could be reached by conventional therapy, rendering the therapeutic more accessible, more scalable and part of everyday self-work.

Designers imagined Wysa responding to mental health needs, particularly those of the young, by reconfiguring the spatiality and temporality of care and therapy. They thought of automated therapy as stepping into geographical and temporal gaps in care, and they imagined therapeutic possibilities being decoupled from place-based and time-fixed human therapeutic encounters. They imagined Wysa as providing ubiquitous care, located, as it were, in everyone's smartphone. Wysa also remakes *temporalities* of care by facilitating immediate and instantaneous therapeutic or consoling engagement: insta-care. As Wysa's designers aim to build radically new mental-health futures by designing automated care, they encode their situated assumptions about the worlds in which this app is to be put to use into algorithms, even while crafting these worlds. These assumptions are rooted in the middle-class, upper-caste, techno-cosmopolitan, elite-educated and entrepreneurial backgrounds and values of their Indian designers.

Unlike the life-skills courses, which aimed to improve listening and other skills by developing assertiveness, Wysa's designers are preoccupied with the question of how to program a chatbot with listening, empathy and therapeutic skills. But Wysa offers a puzzle. How can a bot address heterogenous experiences and articulations of distress in a way that users find meaningful enough to stay in a conversation and continue resorting to the app for the everyday therapeutic? How does an automated therapist

3 https://wysa.io, accessed 15 March, 2024.

become universal enough? Wysa does this, we argue, by bracketing wider contextual meanings on the one hand, and by reducing context to the actual conversational thread on the other.

Cutting Across

Wysa's algorithms, contents, tutorials and exercises address a psyche that the app's designers consider to be universal across the globe. In spite of people's heterogenous ways of experiencing and articulating distress, the Wysa team programs the artificial intelligence (AI) to recognize patterns and respond in highly standardized, algorithmically enabled ways. Designers encode what they take to be universal assumptions about the psyche into algorithms. While these assumptions are taken to be context-free, another kind of (narrower) context becomes important for the functioning of therapeutic encounters with the bot. We will first turn to these context-free assumptions before examining the production of aggregate universality through mobilizing narrow context.

Designers translate standardized notions of psyche, therapy and well-being into codes and make them portable, unmoored from their historical and social contexts. The chatbot, psychologist Chaitali Sinha stated in an interview, is programmed to recognize universal patterns and provide appropriate responses, even if users express their distress in very diverse terms. 'There are some universal things that allow us to do something that is generic across very large parts of the population, some universal principles that cut across', she stressed. These assumptions include the following notions: the need for a metaphorical safe space to articulate distress and be listened to; mental health and well-being as an outcome of rigorous self-observation and analysis; suffering arising from negative thoughts; the need to control these thoughts and emotions; self-acceptance; and the possibility of a therapeutic alliance with an AI therapist. Anonymity, along with the fact that Wysa is a chatbot and not a human being, is key to this placeless cloud-like safe space that is assumed to be universally applicable.

Wysa's designers started from the assumption that venting troubling thoughts and emotions to an empathetic listener has a therapeutic effect. A chatbot's empathetic listening shares with assertive listening in the life-skills courses the importance of listening for psychological self-work, but it differs in that it focuses on users' experiences of being listened to and heard, rather than on developing assertive listening skills themselves.

Wysa's founder, Jo Aggarwal, talked about her own experiences with diary writing in her youth. For her, Wysa was a kind of diary, but one that writes back and that enables a cathartic 'typing off' of vexing and distressing thoughts and emotions while providing feedback from an AI therapist. Jo shared the information that she herself used Wysa for typing off thoughts she considers too disruptive to confide to a close person and too minor to discuss with a human therapist. She spoke about thoughts and emotions that she felt were either embarrassing or wounding to others, and stated that she preferred to confide to a conversational agent. These were small, everyday things,

minor emotional upheavals, not worth being brought to a psychologist's clinic, things that require a quick 'typing off' and a chatbot's response because they are transient and do not indicate a deeper meaning or truth. Similarly, Chaitali, the psychologist in the team, observed for herself the difference between talking to a human therapist and typing with Wysa. One of the ways they differ, she said, is that typing with Wysa 'feels more like an internal process, a bit more safe. It's still mine, my world. It allows me to be more honest,' whereas talking to a therapist feels 'more public, it requires more courage.' This experience of typing as intimate and safe, she felt, is also the reason why a therapeutic alliance develops more quickly with a chatbot than with a human therapist.

The idea that talking and being listened to in a safe space is therapeutically beneficial has a long genealogy, from Aristotle's notion of catharsis, to the Catholic confessional, psychoanalysis and other therapeutic practices, peer-to-peer help, and telephone helplines (Zeavin 2021). This hydraulic model of mental health in which venting is regarded as therapeutic is also the basis of Global Mental Health interventions in India and beyond, in which laypeople work as listeners. 'A lot of global mental health projects work based on this concept where listening reduces distress,' Chaitali stated, drawing on her experience of working in one of them. 'This was also an assumption that Wysa started with: if we just create a space where someone can feel heard, that can lead to a reduction in distress.' Wysa designers program the bot so as to enable this experience of feeling heard.

The developers imagined the chatbot to enable venting and the experience of being listened to or heard – these words are used interchangeably – independently from a human listener. Programmers, conversation designers and psychologists saw one of their key tasks as developing and adapting algorithms and content to respond empathetically and universally *enough* for users to feel listened to and gain trust. As a technical tool and business model, Wysa's therapeutic universality is pragmatic, with the bot intended to provide users with a satisfactory experience of empathy and a genuine response despite their heterogenous sociocultural contexts. While the universality of experience and therapeutic needs has been an object of contestation between actors and critical scholars of global mental health (Biehl and Petryna 2013; Gaudillière et al. 2022; Lovell et al. 2019), others have emphasized universality's contingency even in interventionist approaches. For example, Bemme (2019) argues that, in the context of global mental health interventions, where knowledge produced is actionable rather than true knowledge, universals are pragmatic. Wysa's universality emerges as similarly pragmatic.

The chatbot's listening like a therapist is key and involves compassionate questions, nudges and empathetic responses. According to one conversation designer in the team, Wysa has moved from passive to active listening. While earlier, she said, Wysa's algorithms responded to articulations of distress by saying, 'I hear you. Go on,' more recent algorithms respond more actively by saying, for example, 'I hear you are having troubles with your relationship with [whoever person the user has mentioned]. Now I get it. Tell me more about it.' As she explained, 'there is a part of acknowledgement

that comes in along with the gentle nudge to tell or share more.' Other than a human therapist, Wysa does not (yet) respond to non-verbal embodied articulations of distress. Although quite different in terms of methods and sociality, this reduction of automated communication to linguistic articulations of feeling and distress mirrors the stress on verbalizing feelings in the life-skills training courses.

Apart from venting and listening, Wysa also works with the assumption of asking questions to elicit critical self-reflection regarding potentially pathogenic thought patterns, a practice that Jo called 'Socratic' and that also underlies cognitive behavioural therapy. As in the case of life-skills courses, Wysa's scripted communication patterns assume and are generative of a psychological subject that is keen on working through problems by working on the self. 'Think of it like a gym,' Jo suggested; 'a gym not for the body but for the self.' In order to help users on their path to self-knowledge and wisdom-oriented self-care, Wysa's algorithms and self-help exercises are programmed with an eclectic mix of diverse therapeutic approaches oriented towards self-care, such as cognitive behaviour therapy (CBT), acceptance and commitment therapy (ACT), Rogerian principles and mindfulness. Like a Rogerian therapist, Wysa is programmed to display unconditional positive regard for users by listening empathetically and restating the client's articulations. Wysa's designers draw on the experimental approaches of the designers of early computer therapists, notably ELIZA, the world's first such automated therapist, which also used Rogerian principles in its technique of repeating users' statements (Weizenbaum 1966). CBT and mindfulness practices have been widely acknowledged as being evidence-based. Both approaches seem to be 'chatbotable', and many well-being apps on the market are based on mindfulness, CBT or a combination of the two (Jablonsky 2021). In many conversations, the bot plays back users' verbal utterances, asks about the emotional effects of particular thoughts, and nudges them to reframe them. This also involves a distancing from negative ideas (or 'beliefs') by imagining supportive others' reactions to maladaptive cognitive and emotional orientations. Following up on key words and phrases, it suggests self-help exercises with short meditations, autogenic training and tutorials designed to promote acceptance, gratitude, compassion and empowerment. Here is an example of Wysa listening and nudging to reframe thoughts in the exercise 'minimizing isolating thoughts' from Claudia's diary.

> 'I shared the thought "I can't talk to anybody".' Wysa acknowledged my sharing of that thought and introduced me to a little exercise of fact checking. Then it suggested a cognitive reframing exercise: 'We can now reframe the unhelpful thoughts to ones that give you confidence and hope, or try mindfulness to nurture feelings of connection with yourself.' I decided to press 'work on my thoughts'. 'The first step', I was told, 'in moving forward from a thought that makes us feel stuck is to understand why we are thinking this way and to recognize any negative patterns. So we can then reframe the thought to change how we feel. One way to do that is to spot the distortion in your thoughts.' I replied that I'm ready to try. Wysa then listed

> for me some typical examples of distortions such as catastrophe thinking (I might die) or overgeneralizing (I will never succeed). It tells me, 'Sometimes you might confuse your thoughts or feelings with reality and take your emotions as evidence of truth.' Wysa continued to prompt me, 'Ask yourself, am I thinking this way just because I'm feeling low right now? Try to consider if the thought is making you feel better or worse. Focus on feeling better before you allow any thoughts that make it worse. I can help you with that.' After another little example, Wysa asked me to think about my negative thought, what I thought it might tell me, and formulate a thought that gave me confidence. I entered one and agreed that 'it makes me feel better than the other, negative one.'

In our experimenting with the app, the psychologist and therapist, the lawyer and blogger, and the two anthropologists in our group were divided in their assessment and experience of reframing thoughts. While some found exercises of reframing thoughts and emotions such as the one above helpful, others were more sceptical about the idea of discerning thoughts, emotions and imaginaries as inessential and replacing them with more adaptive ones. Soumya found them helpful to 'introspect', as she said, as they offered her simple suggestions to think otherwise. Anita was critical about the normative distinction between adaptive and unhelpful thoughts. Sonali compared the idea of reframing thoughts to her own experience with several spiritual approaches and found the chatbot's emphasis on keeping control over thoughts and emotions disturbing and, in her words, characteristic of 'western' approaches to well-being. Anita and Sonali would have preferred an approach more accepting of any kinds of thoughts as they emerged.

Creating 'gratitude lists' by drawing on positive psychology is another technique that Wysa used to install a more positive attitude in users' experiences of the world. For Soumya, using gratitude lists with Wysa has become a habit. Routinely drawing up these lists has helped her to build an overall attitude of gratitude, she recounted. But these gratitude lists also run the danger of becoming mechanical, ritualistic, 'like doing puja', she said. Moreover, Sonali found that the bot seemed to be more attuned to some entries in the gratitude list and less to others, testifying to normative assumptions of well-being and the good life. She wrote in her diary:

> This morning, as part of the 'mindfulness' program, it asked me what I was 'grateful for.' At the first go, I answered, 'sunlight', 'birds singing' and 'clean air'. It gave me some version of 'nice, nice, anything else?' and at the end, produced a little frame in which my responses were presented. I decided to try it one more time to see how it would respond with different answers. This time I answered 'children', 'health' and 'husband'. This was clearly an answer that the penguin was more prepared for because before we got to the replay of my answers, it said, 'Here's a little gift for you', and displayed a picture of a penguin smiling sweetly with little floating hearts around it and above it the words 'children, what I am grateful for'.

As this experience with Wysa illustrates, chatbot-afforded therapeutic conversations and everyday workings on the self are disaggregated from wider contexts of individual experiences and the situatedness in which they unfold. The fact that Sonali resides in one of India's most polluted and traffic-noisy cities would have provided a local context for responding to her valuing the sight of sunlight, the sound of birds singing and clean air. Wysa is oblivious to this context and is obviously programmed to recognize as universal the value of children, health, and a husband in a relationship – but in Sonali's case, this missed the mark.

Similar to the life-skills training sessions, in Wysa the bracketing of wider contexts affords universality across the cultural or linguistic particularities of the milieus in which Wysa is put to use. As such, Wysa also resembles other global (mental) health programs that transcend 'local context' through scalable interventions (Adams 2016; Gaudillière et al. 2022). As automated therapy's engineers move the mental health or psychological discourse into the digital realm, they seek to pragmatically sidestep the longstanding problem of universality versus the culture-specificity of mental distress and mental health-care by rendering it technical, digital and manageable. According to Chaitali, the app is programmed to provide responses their designers consider appropriate even if users express their distress in very diverse terms. Contrary to everything that she had learnt from cross-cultural psychology and psychiatry, her experience as a psychologist with Wysa had shown her that a lack of context or being 'agnostic of context' as she termed it, is no obstacle to effective therapeutic communication. On the contrary, this kind of de-contextualized texting with chatbots or with humans can potentially bring a conversation faster to what she considered the core issue. Moreover, the bot is programmed based on the assumption of the possibility of therapeutic communication on what she called 'core distress' or 'core emotion', which enables, she stressed, 'conversations beyond culture'.

But in Wysa, the psychological *universal-as-context-free* sits in a productive tension with the *universal-as-aggregate*. The aggregate universal, instead of bracketing context, rather engages and operationalizes it in order to make the AI therapist work by facilitating meaningful responses – although these are not always successful. This is another form of contextualization, a narrow context, scaled down to what users offer in the beginning of a conversational thread. It is to this narrow context that we now turn to.

Narrow Context and Aggregated Universality

In pursing universality, Wysa not only brackets context, it also considers, even relies on, context. However, this is not a context understood as cultural features, but rather one that enables the AI-enabled therapeutic conversations to function. It is within one particular conversational context that Wysa reads further articulations in one particular session. 'The AI can only use the context within this one conversation', one of Wysa's conversational designers explained. 'The users share something, we get context

from that text and we [the bot] respond appropriately.' What designers call 'context gathering' at the beginning of a conversation is helpful for the AI to break down complex user text and analyze it by distinguishing different 'contexts', such as relationship, work or financial problems. In total, there are around 150 AI models active in Wysa at different stages of the conversation, and the conversation design team decides which models are used in which AI, and when.

This is how a conversational thread works: conversations with Wysa typically consist of three parts. In the first one, in which the listening aspect plays a major role, AI models for context-gathering are active. These allow the AI to discern the kind of problem the user is talking about. In the second part, the AI evaluates users' openness to try exercises or techniques offered through text, audio or video. In this stage, a typical bot question would be, 'Would you like to try this exercise that I have for you?' or 'Would you like to try a technique to help with your negative thoughts?' Based on the first two parts, where context is established as specification of a problem and as preferences of choices, Wysa's algorithms choose one of the scripted standard interventions, for example the compilation of a gratitude list, a safety plan or an anxiety intervention. These are highly standardized, and the user has limited agency to use the intervention creatively, although they have the option of dropping out or moving to another one. Since at this stage the designers do not want the user to go off-track, they offer limited scope for giving more context. Here, Wysa leads the conversation, nudging the user to compile a list or to do an exercise. At neither stage of the conversation is the wider socio-political-cultural frame of the distress taken into account. The lack of situatedness or wider contextualization of the therapeutic encounter between user and bot limits the ability of automated therapy to work towards the meaning and interpretation of distress and suffering, as many rather meaningless conversations of participants of our experimenting group with Wysa have shown.

Not only are complex socio-ecological-emotional problems difficult for Wysa to handle in a meaningful way, the very therapeutic techniques inscribed and encoded into Wysa focus less on the meanings of thoughts and emotions within wider ecologies of meaning than on the functionality and dysfunctionality of a thought, and this is assumed to be standard. The context that Wysa *does* extract is modest and narrow – just enough data to respond appropriately and meaningfully. Context is being reformulated as something that allows the AI to function rather than something that distinguishes individual experiences and situatedness.

Wysa's algorithms are based on 'natural language-processing', an approach that uses computers to process and analyse large amounts of natural language data. Technically, it consists of, first, reading comprehension and pattern recognition (Natural Language Understanding) in unstructured free text, and second, generating what appears for users to be authentic and empathetic textual responses to free text by using pre-scripted modules (Natural Language Generation) written by conversation designers and psychologists. Wysa does this by repeating and addressing the core ideas that users are trying to communicate. The chatbot plays these core ideas back and nudges users to tell

more. The better the AI recognizes patterns, the more emotionally 'intelligent', empathetic and responsive the bot seems.

Wysa's conversations work with aggregated data from thousands of conversations retrieved through natural language models, through which designers create and continuously refine algorithms and scripts to respond to users' distress. It is through this process of integrating an increasing amount of aggregated data of successful and failed conversations that Wysa works towards ever more universality: an aggregated universality, understood as processual. Humans and algorithms collaborate to produce the big data yielded for aggregated universality. Designers and algorithms monitor and learn from users' successful and failed conversations. Detecting failures is the result of both algorithmic and human labour, as AI engineer Geetha describes:

> We have an AI model to detect frictions or moments when the conversation is heading towards a failure. But we periodically do this analysis manually as well. Ultimately, AI models are just computer algorithms which have a tendency to fail sometimes. So we do need manual interventions to keep checking how well our models are performing. Periodically we look at user data from a certain time frame, we do the tagging or annotating manually. We tag the data in order to see that here the user was unhappy but the model didn't detect it, so our model needs to be improved. Through our analysis, we may also find places where the user is responding in a way which was not expected during the conversation design. So we can go back to the conversation design team and say, this is also a kind of response you need to account for while designing this.

By analysing thousands of chat records, Wysa's programmers and algorithms learn which categories people use to articulate distress, when the algorithms recognize or fail to recognize them, when users continue conversations and when they drop out. Users' aggregated behaviour of complying with the app, rejecting it, or even dropping out, along with Wysa's algorithms and programmers, coders, and content writers, collaborate in moving the AI towards ever greater universality and communicating more effectively. Wysa learns and changes along the way as its algorithms are recoded with traces of users' engagement and frustration. The more aggregated information Wysa harvests, the more universal the app becomes. Wysa's aggregated therapeutic universality is then assumed, produced and fine-tuned by data practices and algorithmic and human labour. While the life-skills training courses do not provide for the possibility of feedback but rather export a standardized model into the world as an 'immutable mobile' (Latour 1990), Wysa remains open to feedback loops and integrates diversity into its human-algorithmic work towards ever greater universality.

What transpires in the shift from universality-as-context-free to the aggregate universal are different conceptualizations of context. The contexts that life-skills training courses bracket are the same contexts that anthropologists strive for in their 'thick descriptions', or that critical scholars of global health refer to when they criticize global health knowledge production and interventions as de-contextualized.

Following Seaver's (2015) call to 'examin[e] contextualization as a practice in its own right', and to investigate 'how 'context' is differently imagined and managed by different groups of people' (ibid. 2015:1105), we argue that *while the wider context is similarly bracketed in Wysa as it is in Swayambhu, the context that matters for the app is narrower.* The context that Wysa mobilizes refers to the information the AI collects at the beginning of each session. As one of Wysa's AI engineers explained:

> There will be a particular model that helps gathering context. We train the model by giving it a lot of examples where the sentences are related, for example, to relationship problems. Similarly, we can feed it with a lot of sentences related to work problems, or financial problems. Then the model learns on its own to distinguish between these different kinds of context.

This is an 'operational' and limited context, for instance, the specification of a classificatory term (such as relationship) within a conversational thread, which makes the AI work. Wysa's operational context resembles other context-aware computing systems, such as 'digital phenotyping' (Semel 2022) or music recommender systems (Seaver 2015). In Wysa, both universalities – universality as context-free, and universality as aggregated and assembling operationalized contexts – interact. These universalities produce a productive tension between bracketing socio-cultural-economic context on the one hand and operationalizing context on the other.

Wysa's designers posit a universal user that they define as aggregated data who is listened to, asked for choices and provided with an intervention. In contrast to the bounded universality of the life-skills training courses, Wysa's universality is aggregated and processual. It deploys a future-oriented universality-in-the-making; always in flux, it emerges through continuous processes of improvement and integration. With more and more data from failed and successful user-AI interactions, designers learn where and how to tweak the algorithms to adapt and improve Wysa's responding. The more heterogenous the harvested data, the more universal the bot becomes. Because the user imagined as data remains in flux, Wysa itself – the bot therapist – is a moving target; it is a reiterative, open-ended and open-minded practice of continued interaction with the ever shifting yet standardized user. Because the figure of the user appears as an aggregated data subject, universality-in-the-making is produced by ever more data accumulation.

Conclusion

Using the cases of life-skills training courses and an automated therapy self-help app from Bengaluru, we have explored two divergent modes of imagining and producing psychological universality. Although both offer and encourage psychological self-work and improvement, they differ in the way universality is imagined and achieved: either

by bracketing or by operationalizing context. This, we have shown, is linked to a shift in the meaning of 'context'. While the context that life-skills trainers silence are the cultural features, the context of automated therapy is an operationalized and narrow one. And while the universal as context-free is fixed and stable, the aggregate universal in automated therapy is moving, emerging and unstable.

In contrast to other cases where psychology emerges as relational and adapted to local lived realities (Vorhölter, this issue), in Swayambhu's life-skills courses the wider local socio-political-cultural context was bracketed, and psychology's universality was regarded as bounded. The aim of the courses was not to open up psychology towards more variety and thus greater and more encompassing universality (see Nieber and Vorhölter, this issue). Rather, in the way it was used and circulated by Swayambhu, psychology became an 'immutable mobile' (Latour 1990). As is commonly the case in global (mental) health programs and interventions, trainers placed local context largely under the banner of 'ignorance' and as therefore as an obstacle to effective self-work.

In contrast, Wysa's universality was pragmatic and aggregated. In the app, psychological knowledge and practice encoded into the chatbot's algorithms pragmatically aimed to be universal enough to work across contexts and variously situated users. The universality that emerges in Wysa's automated therapy for global use is a processual, aggregated universality. It is characterized by universalization as continuous improvement through integrating more and more aggregated data drawn from AI-user-designer feedback loops.

In both case studies, the universality of psychological knowledge and practices emerges as both a set of underlying assumptions and an effect. Universal assumptions of mental distress and of pursuing mental health and well-being have allowed psychology and therapy to become universal, as did universalizing practices grounded in erasing culture in the first case and in data-mining in the second.

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Rethinking Psychology in Africa: From Decolonizing to Universalizing Knowledge in an Emerging Field

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Abstract: Inspired by broader calls to decolonize knowledge, psychologists in Africa have recently started debating the necessity and feasibility of creating a distinctly African psychology as a new academic discipline and field of practice. Some view this idea, whether sceptically or enthusiastically, as a primarily political move; others are more concerned with philosophical questions regarding the possibilities, and boundaries, of universal psychological knowledge. While critics warn of the risks of exoticizing and further marginalizing 'African' psychology from what they see as a universal discipline, proponents argue that mainstream 'Western psychology' has so far been harmful, or at best irrelevant, for Africans. My article engages with these recent debates by drawing on my fieldwork among psychotherapists in Uganda. I question conventional framings of psychotherapy as something external and foreign to 'Africa' that has been imposed by outsiders. Instead, I show how Ugandan therapists consider themselves part of a universal field of knowledge and how, through their efforts to make this knowledge relevant in Uganda, they actively engage in the production and negotiation of psy's universality. Nevertheless, they are confronted by historical legacies and contemporary structural inequalities which limit how and where they can practice, and how their work is valued.
[Decolonization, Global Mental Health, Psy, Uganda, Universality]

Anyone who is willing and able to acquire a language
becomes a part-owner of that language.
Táíwò, 2022:44)

Introduction

In *Against Decolonization*, from which the above quote is taken, Olúfẹ́mi Táíwò states that one of his motivations for writing the book was the

> nagging feeling that many of the creative works of the ex-colonized are either not being recognized or not being taken seriously by the zealots of decolonizing, in so far as their intellectual products or institutional practices could be considered tainted, even faintly, by the colonial experience (2022:7).

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As I will argue in this article, psychology is a case in point. The creative and fundamentally relational work involved in 'making psychology global' is often lost in discourses that focus on the discipline's colonial history; however, it is also lost in discourses that naively take psychological knowledge to be universal.

Psychology, and related practices like psychotherapy, have been rapidly expanding across the globe in recent decades. This expansion of 'psy'[1] and its underlying assumptions and ideologies is being driven not only by the World Health Organization and related networks but also through media and social media. It is related to new ways of thinking about (mental) health, new understandings of the self, new problems that people have to cope with, and the global spread of middle-class values and aspirations, including competition for status and jobs and conspicuous consumption. While psychiatry, the older and more biomedical of the psy-disciplines, was established as a discipline and field of medical practice in most countries during the colonial period, it has always had a somewhat marginalized status and limited influence on broader society because it was seen as only for abjectly 'crazy' people. Those few who did come under the gaze of psychiatry were put in custody and largely silenced through medication – and there was little effort and limited means to engage with their 'selves' or 'minds' (Vaughan 1991:125). The more contemporary global emergence and popularization of psy in the form of self-help literature, talk therapy, and mental health discourses is very different: it is centered on processes of subjectivation, introspection, and a thorough engagement with the individual self. Moreover, its focus is much broader because it targets both the mentally healthy and the mentally ill, and thus has influence beyond the confines of the clinic and the therapy room.

There are two main interpretations of this trend: The critical perspective – succinctly captured in the title of Ethan Watters' prominent book *Crazy Like Us: The Globalization of the American Psyche* – argues that the ongoing expansion of psy represents yet another form of Americanization (some would say colonization), this time of the minds of people in the 'Non-West'. The responsibility for psy's global 'crusade' is attributed to 'Western healers' who, to quote Watters, 'steamroll indigenous expressions of mental health and madness and replace them with [their] own' (2010:bookcover backside). 'Non-Westerners' (to stick with Watters' dichotomy) are reduced to being mere 'recipients', whose embracement of psy can only be explained through false consciousness. In short, psy is seen as a *cultural* – Euro-American – system of knowledge and practice whose assumptions and approaches are being imposed – often with negative consequences – on people in other cultural settings (Summerfield 2012).

1 Nikolas Rose (1996) has coined the umbrella term 'psy' to refer to closely related disciplines and fields of practice like psychology, psychotherapy and psychiatry. Over the last ten years or so, several groundbreaking studies have been published in anthropology which critically analyze the global rise of psy (e.g. Béhague and MacLeish 2020; Lovell et al. 2019) and its manifestations in different world regions (e.g. Duncan 2018, on Mexico; Matza 2018, on Russia; Vaughan 2016, on East Africa; Zhang 2020, on China; Behrouzan 2016, on Iran; Tran, 2016 on Vietnam; Lang 2018, on India etc.).

The contrary perspective, often found amongst uncritical proponents of a Global Mental Health approach, argues that psy-knowledge – including assumptions about the human psyche, cognition, emotion, and, importantly, mental normality and pathology – is universal to a certain degree, and that practices based on this knowledge represent the best, evidence-based, form of diagnosing and treating so-called mental disorders (Cooper 2016). Because of its assumed universality and scientifically-proven relevance, so the argument, psy-based forms of mental health care should be made accessible to people everywhere. Even though initiatives like the GMH movement aspire to be inclusive,[2] many of the mental health interventions are de facto conceptualized, implemented and paid for by organizations from the so-called Global North and target the populations of low-income countries who, again, are framed largely as recipients of psy-knowledge.

While the two approaches assess the recent expansion of psy very differently – one being critical, the other supportive; one seeing psy-knowledge as cultural, the other as universal – they are structurally very similar. Both differentiate between places and people that produce and distribute 'psy' (variously labeled Western, the Global North, or high-income countries) and those 'others' who receive it (the poor, the Global South, the 'colonized'). And while both approaches, especially in their more moderate versions, have their merits,[3] they both fundamentally underestimate the agency, creative work and 'local desires' that drive the emergence of psy in different settings. Both approaches also seem to at least tacitly assume that knowledge has clearly identifiable producers, or owners, and consists of stable contents, rather than recognizing the fundamentally relational and distributed nature of any form of knowledge (cf. Taylor 2020).

In this article, I offer a third perspective which takes seriously the 'creative work' and multiple agencies involved in the contemporary global expansion of psy. Without downplaying psy's colonial past and its ongoing dominance by Euro-American practitioners and institutions, I want to reflect on the future possibilities of psychology that *could* emerge if its growing and diverse community of practitioners and 'users' were properly acknowledged as co-producers (and not simply as recipients) of knowledge. Rather than starting from the assumption that psy is inherently colonial (and thus needs to be decolonized), or universal (and thus static), I want to think of psy as a *universalizing* field of knowledge and practice.

More concretely, I focus on recent developments of and debates on psychology in Africa. Here too, one can find versions of the above positions: the universalist Global Mental Health perspective, often found in development discourses, and a more critical

2 See https://www.globalmentalhealth.org/, accessed 24.11.2022.

3 It is certainly important to reflect critically on and question the ways some forms of knowledge have come to be designated as universal and thus superior, while other are demarcated as 'merely cultural'. At the same time, the premise that good mental health care should be available to people across the globe is laudable, even though the questions of what constitutes 'good health care' and for whom are obviously not simple ones.

and particularistic 'decolonizing' perspective. In short, the former assumes that psychology as a discipline and field of practice does not yet exist in most African countries and that this 'knowledge and treatment gap' needs to be filled by bringing in foreign expertise (Cooper 2016). The latter views psychology as a colonial discipline which – if it is to be meaningful in Africa – needs to be thoroughly decolonized, and, according to some, replaced by a whole new, and separate, discipline of African psychology. My aim is to challenge both perspectives. Following Táíwò's call to 'respect African intellectuals [and practitioners] as innovative adaptors, appropriators and synthesizers of ideas they have always seen as universally relevant' (2022:back cover) and drawing on my own research on emerging forms of psychology and psychotherapy in Uganda, I seek to 'rethink' the status of psychology in Africa. Is it possible, I ask, to conceptualize the growing popularization of psychology without, on the one hand, reiterating colonial and Eurocentric imaginations of a unidirectional knowledge transfer whereby supposedly universal scientific expertise is brought from the western centre to the African periphery; and, on the other hand, without making a claim for an ontologically separate discipline of 'African psychology'?[4]

Shifting the focus from ideology to practice, I argue that, to assess the current status and relevance of psy in diverse African settings, we need to analyse the way disciplines like psychology and related forms of knowledge, practices and institutions are actually being used, embraced and rejected, and importantly by whom, in particular contexts. As Táíwò writes,

> when X [here: psychology] is present in a former colony post-independence, before we rush to decolonize it as a colonial hangover or product, we must consider (…) alternative explanations. Such explanations may include inertia or a choice by the peoples or intellectuals of this ex-colony to domesticate X in their new situation. That is, we should not be too quick to declare that the presence of X under colonialism and its persistence post-independence represent an un-broken chain of causality. We need to establish in each case whether X has actually endured because the ex-colonized themselves have embraced it. And, if so, we should ask whether this is an embrace which comes from the continuing power of colonialism to bend the will of the colonized, or if it is a case of the ex-colonized choosing… (Táíwò 2022:17).

4 Similar questions are at the centre of current debates in anthropology, African Studies and STS regarding the necessity and possibilities of decolonizing academic knowledge more generally. In this article, I cannot do justice to the complexity and heterogeneity of these broader debates and the various approaches they entail (for two especially relevant contributions see Diagne and Amselle 2020 and Law and Lin 2017). Instead, I focus specifically on the debates regarding psychology in Africa (see below). In my analysis of these specific debates, I draw on Táíwò's criticisms of the decolonization framework because it speaks to the perspective of my Ugandan interlocutors, most of whom considered themselves as inaugurators of psychology in Uganda (and not as inheritors of a colonial discipline).

In order to contextualize current debates on psychology in Africa, I first provide a brief and by no means comprehensive overview of psy's contested history on the continent. I then present a summary of my own fieldwork with psychologists and psychotherapists in Uganda. Using some examples, I show that contemporary psy in Uganda can be meaningfully conceptualized neither as 'un-African' nor as 'colonial', but as a form of knowledge and practice that is continuously co-produced by Ugandan practitioners and desired by at least some parts of the population. However, I will also show how colonial legacies and contemporary power-knowledge dynamics continue to undermine and devalue the work of African psy-experts, thus limiting the possibility of a truly global psychology.

Histories of Psy in Africa

The origins of psychiatry and psychology in Africa were intimately entangled with colonial and eugenic politics. Psy was used to justify 'scientifically' the colonization of those who were deemed psychologically inferior, and it entered African life worlds in this context. While, as Táíwò (2022:17) reminds us above, 'we should not be too quick to declare that the presence of X under colonialism and its persistence post-independence represent an unbroken chain of causality', the colonial history of psy forms an important backdrop to contemporary debates. However, it is necessary to add three caveats. First, there is no single history of psy in Africa (every country is different, and some countries like South Africa have rather exceptional histories), but one *can* identify some general trends. Second, it is important to distinguish the history of institutional practice and thus how forms of treatment emerged in Africa (here psychology, until very recently, did not play much of a role at all) from the intellectual history of psychiatric and psychological theories about Africa and Africans (Vorhölter 2020:461f.). And third, histories are always told from particular standpoints. The version I present here relies on well-established work by historians and entails particular assumptions about what psy is and how it emerged in Africa. Some critics have raised the question of whether this history could or should be told differently – starting, for instance, with African founding figures rather than colonial psychiatrists. I briefly mention this debate below but cannot address it in all its complexity here.

Colonial Psy in Africa: Governing through Science

Both psychiatry and psychology entered Africa as part of the colonial mission. Colonial psychiatry dominated research on mental illness and 'abnormal' behaviour in Africa and of Africans between 1900 and 1960 (McCulloch 1995:1f.). Most theories in this field were based, in one way or another, on clinical work and were promoted by a small number of European psychiatrists working in African mental asylums and hospitals.

All of them were locked into a discourse on racial difference, and most were openly racist (Vaughan 1991:115). While earlier works such as those by Gordon and Vint (cf. McCulloch 1995:46ff.) explicitly focused on biological differences – e.g. on brain size or weight – to 'prove' apparent African mental inferiority, later works were also, and increasingly, embedded in discourses of cultural difference. Three key beliefs promoted by colonial psychiatrists were that the African is similar to a lobotomized European (esp. Carothers 1953) or a European child; that mental illness in Africa is largely due to acculturation and reflects failed attempts by 'primitive' Africans to cope with 'modern' civilization; and that depression is rare in Africans due to their underdeveloped sense of individuality and moral conscience (Akyeampong et al. 2015:3f.). Colin Carothers in East Africa (whose work has been well-summarized by McCulloch 1995) and Antoine Porot, with his Algiers School of Psychiatry, came to be the most influential figures in colonial psychiatry, albeit in different ways (see Keller 2007:4ff. on the specifics of French colonial psychiatry). Both were heavily criticized by Frantz Fanon, especially in his seminal chapter 'Colonial War and Mental Disorders' (2004 [1961]:181–233), for reifying and perpetuating colonialism through their Eurocentric psychiatric theories. Since the early 1990s, there has been an increasing interest in colonial psychiatry by historians who have provided detailed and complex accounts of the debates, institutions and practices of psychiatry in Africa at the time (e.g. Bullard 2005; Bell 1991; Mahone 2006; Parle 2007; McCulloch 1995; Vaughan 1991; Sadowsky 1999; Jackson 2005; Keller 2007; Pringle 2019).

Discourses and practices of colonial *psychology* overlapped significantly with those of psychiatry, especially as the latter moved away from biological theories of mental pathologies towards more 'cultural' ones. One important reason for this convergence was the fact that both psychiatry and psychology were concerned with understanding the 'normal' African as much as they were concerned with the mentally ill. As Vaughan (1991) has pointed out: 'To put it simply, whilst the history of insanity in Europe is the history of the definition of the mad as "Other", in colonial Africa the "Other" already existed in the form of the colonial subject, the African' (101). She further notes: 'Though it would be wrong to imply that colonial psychologists and psychiatrists were in any way a homogenous group, they were all grappling, in one way or another, with the question of who "the African" really was' (ibid.:115).

To a certain extent, however, the research foci and interests of psychologists in Africa differed from those of psychiatrists, and they are discussed as distinct fields in at least in some of the literature (see e.g. Wober 1975; Peltzer and Bless 1989; de-Graft Aikins 2012). Psychological work in Africa at the time of colonialism was by no means uniform, and not all of it was racist. Influences ranged from Lévy-Bruhl's (1926) notion of 'primitive mentality', Freudian psychoanalysis (e.g. the works by Laubscher 1937; Ritchie 1943; and Sachs 1937), to slightly later, explicitly anti-racist approaches (e.g. by anthropologists like Field 1960 and Fortes & Mayer 1966).

In the early 1960s, amid wide-ranging calls for decolonization and after the horrors of the Second World War, which rendered eugenic politics (officially) unspeakable,

the work of colonial psychiatrists and psychologists, especially those promoting racial theories about African brains and minds, became the subject of profound criticism and was soon dismissed. However, 'cultural othering' continued. In the postcolonial era, psychiatric research was replaced by largely apolitical, clinical and epidemiological studies which sought to assess (the prevalence of) African mental illnesses and their treatment on the basis of Western psychiatric concepts and nosologies (for an overview of this type of research, see Corin and Murphy 1979 and Corin and Bibeau 1980).

While psychology largely disappeared as a discipline and field of practice,[5] the immediate post-independence era saw a relatively brief period of what is sometimes referred to as 'African psychiatry', i.e. distinct attempts to initiate a culturally appropriate form of psychiatry in Africa, most prominently reflected in the engagements of Thomas Adeoye Lambo in Nigeria and Henri Collomb in Senegal (Bullard 2005; Heaton 2013; Kilroy-Marac 2019). The first Pan-African Psychiatric Conference was held in 1961 in Nigeria and was organized by Lambo. However, due to larger politico-economic dynamics (political conflicts, economic decline, structural adjustment, etc.) starting in the 1970s, attempts to set up widely accessible psychiatric services and include these in the general medical system soon ran out of steam across the continent and often stalled completely (Akyeampong et al. 2015:5ff.). Health-care provision was reduced to a minimum, and in some countries it was effectively taken over by international organizations, which focused primarily on communicable diseases, malaria and the HIV/AIDS pandemic – but not on mental health care.

Only recently has there again been a renewed interest in psychiatry and mental health in Africa. One of the drivers of this new interest, as discussed above, has been the Movement for Global Mental Health and related efforts by WHO since the early/mid-2000s to increase psychiatric services in low-income countries (for critical overviews of these efforts, see Ecks 2016 and Kohrt et al. 2015:24ff.). While most of these interventions have a strong biomedical and psychiatric focus (i.e. they aim to expand services and improve access to essential psychopharmaceuticals for the mentally *ill*), they have also helped to raise awareness of and popularize psychological psychotherapy and the broader concept of mental *health*.[6] However, as my own research in Uganda demonstrates (see below), the increasing attention given to mental health care is not just related to international trends; it has also been propelled by African psychiatrists and psychologists who see the need for broader and more diverse forms of mental health support in their own countries. The contemporary (re)emergence of psy in Africa raises

5 Nsamenang (1993), Peltzer and Bless (1989) and de-Graft Aikins (2012) provide more detailed overviews of the little psychological research that was done, mostly by non-Africans, during this period.

6 One foundational and very influential psychological intervention in the field of Global Mental Health is the 'Friendship Bench', which was developed by a Zimbabwean psychiatrist and trains 'grandmothers' to deliver a simplified form of talk therapy (see https://www.friendshipbenchzimbabwe.org/about-us, accessed 21 Dec. 2023).

far-reaching questions regarding who gets to define what psy is and how it can be extricated from its colonial past.

Contemporary Debates on Psychology in Africa: Decolonizing Knowledge

Most chronicles of psy in Africa, including my summary above, reflect a particular, linear and Eurocentric way of writing history and of thinking about how disciplines like psychiatry and psychology are related to, or distinguished from, other healing approaches. Even if written from a critical standpoint, these histories tend to emphasize that psy is foreign to Africa and was imposed on, rather than shaped by, Africans as a form of control or care, or both. Furthermore, these histories suggest that psy can be compared to and placed in the same category – medical care – as what is often called African traditional or faith-based healing. This is not necessarily wrong, but it is only one of many possible ways of interpreting 'local' institutions. Susan Whyte formulates the latter point well when she discusses how the rising popularity of medical anthropology in the 1970s led to a shift in focus of anthropological work in Africa from religion to medicine (Whyte 1989:289):

> Affliction, which was once dealt with in monographs on African religion and cosmology, now seems to belong to the realm of medicine and medical anthropology. What we knew as divination now appears to be diagnosis; what we analysed as ritual is termed therapy. The victim of supernatural forces is called the patient, and his or her relatives – the therapy managing group. Rituals specialists have been discovered – by both development aid organizations and the African press – to be 'traditional healers'. One is tempted to speak of the medicalization of African religion.

While the history of psy in Africa as I recount it above is still relevant because it explains, to a certain extent, how things are today, it also limits our understanding of what psy in Africa is, or can be, in the future. In recent years, African scholars, including those in the field of psy, have stressed the need to rewrite the history of their disciplines, which would entail highlighting different founding figures, key findings and events, and plot lines (Lamola 2021; Nyamnjoh 2012). Such calls raise important and far-reaching questions regarding the universality of academic knowledge and who gets to define it.

Inspired by these broader calls for decolonizing knowledge in African universities (Mbembe 2015), psychologists in Africa have started debating the necessity and feasibility of creating a distinctly 'African psychology' – how exactly the term should be delineated is a matter of ongoing debate – as a new academic discipline and field of practice (Kessi et al. 2021; Nwoye 2015, 2017, 2018; Makhubela 2016; Moll 2007; Ratele 2017a, 2017b, 2019). Some view this idea, whether sceptically or enthusiastically, as a primarily political move; others are more concerned with the philosophical question of the possibilities and boundaries of universality within the sciences. While critics

warn of the risks of exoticizing and further marginalizing 'African' psychology from what they see as a universal discipline,[7] proponents argue that mainstream 'Western psychology' has so far been harmful, or at best irrelevant, for Africans.

The decolonizing discourse is particularly strong among psychologists in South Africa, where psychology as an academic discipline and field of practice has a much longer, very specific history compared to other countries of Sub-Saharan Africa (Cooper 2013). While it raises important concerns – for instance, regarding the structural inequalities inherent in the global academic system and the related unawareness of, or disregard for, African-centred psychological knowledge – the conceptual framework of 'decolonization' actually furthers the 'absolutization of colonialism' (Táíwò 2022:8) and reifies, to a certain extent, that what it seeks to deconstruct. By always relating psychology to its colonial origins, it actually obscures the manifold ways psychological knowledge, practices and institutions are emerging in African contexts. In the next section, I draw on my own research on emerging forms of psychology and psychotherapy in Uganda to show that the recent expansion of psychology – in Uganda, at least – cannot be meaningfully framed as a relict of colonialism, but needs to be analyzed in its own terms.

The Emergence of Psychology and Psychotherapy in Uganda

Over the past several years I have studied the recent emergence and popularization of psychotherapy and related discourses, practices and institutions in Uganda (for a good overview see Vorhölter 2019, 2021b). Here, I can only provide a brief summary of this work.

While the beginnings of Ugandan psychiatry date back to the 1930s, psychology and psychotherapy only started to emerge on a broader scale in the early 2000s. Their expansion took place from two main centres that became the focal points of my research: Gulu, the most important town in northern Uganda and, for a while at least, a main hub of international trauma interventions; and Kampala, the capital, with a growing (upper)-middle class population.

In Gulu, the expansion of psy and mental health care was, at least initially, very much a top-down process driven by international humanitarian organizations which launched various trauma interventions after the end of the twenty-year civil war in 2006. These services targeted people from lower-class backgrounds who lived in rural or semi-urban settings and were considered 'traumatized'. Clients were mostly identified through NGOs, and initially few came of their own accord, even though therapeutic offers were free of charge. Although over the years mental health services have become

7 Similar debates have been fought in other academic fields, most prominently African philosophy (cf. Hountondji 1996; Dübgen and Skupien 2019; Diagne 2016; Táíwò 2022).

better known and accepted, there is still a general scepticism, among clients but also among practitioners, whether practices like psychotherapy can really help people with the issues they face. Many live in contexts of ongoing structural and/or acute violence and a lack of basic needs, conditions for which talk therapy provides only limited relief.

In Kampala, professional forms of psychotherapy started to become institutionalized and were gradually expanded after MA programs in clinical and counselling psychology were launched in the late 1990s. Soon afterwards, graduates of these programs opened the first private practices. Since then, psychotherapeutic discourses, practices and institutions have been slowly but steadily gaining prominence, at least among certain sections of the population, mainly the educated, wealthy and cosmopolitan. More people are becoming interested in, and willing to pay for, private therapy;[8] demand for psychology courses is increasing; and Uganda's professional counselling association (see https://ucaug.org/), established in 2001, grew from 300 to almost 1900 members between 2012 and 2015. In contrast to northern Uganda's international psy regime, the development of psychotherapy in Kampala has been largely driven by a small group of Ugandan therapists, some of whom received their training in the US or UK. For their clients, psychotherapy is attractive because it offers a new and different way of understanding and dealing with problems like stress, interpersonal conflicts, loneliness, anxiety, or depression for which other existing healing approaches (like traditional or faith-based forms of healing) do not offer sufficient or satisfactory solutions.

Drawing on fieldwork among therapists in Uganda,[9] my work has analyzed why, how and with what effects psychotherapeutic discourses and practices have recently started to proliferate, who can and wants to access them, and how imaginations of suffering and well-being – those of therapists and those of clients – shape psychotherapeutic interactions. I have argued that, while the expansion of psy is certainly related to growing international attempts to upscale mental health services in low- and middle-income countries, and is inspired by psychological theories, models and textbooks from Europe and the US, psychotherapy in Uganda cannot be meaningfully conceptualized as an externally imposed medical approach. Rather, I have proposed that the popularization of psychotherapy is a response to changing experiences of suffering, for

8 Psychological psychotherapy in Uganda is generally not supported by the public health-care system, but it is increasingly being promoted in larger companies, organizations and private schools, which cover the costs for their staff and students. Furthermore, various forms of mental health support are provided by NGOs, and most of the private practitioners I spoke to in Kampala offer at least some pro bono sessions for clients who cannot afford their fees.

9 In 2015, I carried out four months of fieldwork, mainly in Kampala but also in Gulu (where I had already spent 12 months for my doctoral research between 2009 and 2011). I interviewed psy professionals (psychologists, psychotherapists and psychiatrists), visited different therapeutic institutions and analysed current debates on mental health and psychotherapy in a major Ugandan daily newspaper, *The Daily Monitor*. I also spoke with service users and occasionally sat in on counselling sessions, but most of my research focused on providers of mental health care. For a more detailed description of and reflections on my fieldwork, see Vorhölter (2021b:10–13).

which older forms of therapy and healing seem ineffective or only partially effective. Psychotherapy, as my research shows, is in the process of becoming established as a new form of care, one that seems meaningful and relevant to a small, but growing, sector of the Ugandan population, and one that relies importantly on psychological knowledge co-produced by local practitioners (for a detailed discussion of the ways Ugandan psychologists perceived and debated the meanings and relevance of psychology in Uganda see Vorhölter 2021a).

Challenges Faced by Ugandan Psychologists: Three Examples

During my fieldwork, I met and interviewed over thirty psychiatrists and psychologists – some international, but most of them Ugandan – who were spearheading attempts to establish and expand psy knowledge and services across the country.[10] Most of them were in their forties and fifties, belonged to the urban upper middle-class and had previously worked in other jobs. Many described how, long before they became therapists, friends, relatives or colleagues had sought them out to discuss problems, share intimate experiences, or seek advice. Through these experiences of caring for others through talking, and sometimes failing to adequately respond, they had become interested in psychotherapy and wanted to learn more about it. A few of my therapist interlocutors had been trained abroad, in the UK or the US; others had lobbied for the establishment of Master's programs in counselling and clinical psychology at Ugandan universities and had been among the first graduates. All of them were extremely passionate about their work – which often involved academic teaching, therapeutic practice, as well as lobbying and administrative tasks to advance further the establishment of psychology in Uganda – even though they faced many challenges. Here I just briefly want to mention three (for a more in-depth discussion of these challenges, see Vorhölter forthcoming).

The first challenge was the lack of locally relevant teaching materials. Most of the psychology textbooks used in university teaching came from the US or the UK and thus did not really speak to Ugandan therapy contexts. The examples provided in these books were modelled on 'typical' British or American cases, clients and problems, which are different from those in Uganda. Instructions on how to use family genograms, for instance, did not consider the large and often polygamous family constellations in Uganda. Terms for feelings and emotions that are a taken-for-granted part of everyday language in the US or UK sometimes had no equivalent in Ugandan languages. Although cultural adaptation was a much-discussed topic, most graduates experienced a profound mismatch between the knowledge they acquired at university

10 All interviews were conducted in English, which – for complex political and historical reasons – is the only widely spoken official language in Uganda. Because it is difficult to translate psychological terms and concepts into local languages, therapists generally also prefer to counsel in English, although most also offer sessions in their mother tongue or work with translators.

and the knowledge that was required in practice, and only gradually did they find their own individual strategies for dealing with this gap. One of my interlocutors, who had been among the first graduates in counselling psychology and at the time of our interview already had over ten years of experience, told me:

> When you are a young practitioner, just started, you are trying so much to do only western psychology, because the teaching has only exposed you to this. But when you become more experienced through practice, there is a way you can be in between what is real [i.e. relevant here in Uganda] and what is in the books. The longer you stay in the field, you start to see: OK, this could work…, so many new things come into play.

As this statement suggests, a lot of locally-relevant knowledge is produced by individuals in practice. However, due to a lack of resources for producing local teaching materials and the still small numbers of experienced professionals who are already overburdened with other tasks, this knowledge is not officially documented. As one interviewee put it:

> These things involve funding, and also trained people. Like clinical psychology in Uganda now, I think we are not yet fifty people who have actually graduated, people who could sit down and are able to see how we best can design our own instruments that are culturally appropriate. So most of what we use is the western.

A second major challenge relates to the large field of internationally recognized, scientifically validated diagnostic tools, like depression scales, intelligence tests, or screening tools for addiction. In Uganda, such 'proper' psychological or psychiatric forms of assessment are very popular both among therapists and clients because they seem to provide credible and objective 'evidence'. As one of my interlocutors, a clinical psychologist, put it: 'We need to use the real things, so that we make an impact.'

The vast majority of psychological assessments have been developed in Europe or the US. The licenses to use them are often extremely expensive, and even if Ugandan practitioners manage to access them, these tools are usually not sensitive to the Ugandan context. A common example mentioned by my interlocutors was the WISC, an intelligence test for children that was used by some of the private schools in Kampala. One psychologist, who was co-operating with a school in Kampala, explained:

> Sometimes we have to adapt these assessments, like the WISC. There is a question that asks how many seasons there are. And you find in the West they have four seasons: autumn, winter, spring, and summer. But here it is different: we have either the wet or the dry season. So, we use the questions, but have to adapt the answers according to what we have here. And when it comes to writing reports, we have to put a disclaimer: "these instruments can be applied, however, they are not culturally sensitive"; so that whoever is reading the report knows that there is a cultural difference.

Other interviewees admitted that they simply adjusted the points scored in the WISC test at the end so as to not put Ugandan children at a disadvantage – a process that somehow calls into question the whole idea of standardized assessment. Despite their 'cultural mis-fit', most of my interlocutors were fascinated by 'scientific' assessment tools like depression scales or IQ tests. And they were curious about different therapeutic approaches (established ones like cognitive-behavioural or person-centred therapy, but also newer ones like ACT or EMDR[11]) and how to use them with Ugandan clients. Adaptation was a challenge, but one that the more experienced therapists in particular readily took on and often enjoyed. Their main struggle was gaining access to particular tools or certificates, which were usually expensive or simply unavailable in Uganda, but which were crucial forms of 'professional capital'.

The last example concerns international knowledge hierarchies that determine, to some extent, how different forms of expertise and different experts are valued. While it was common practice for psychologists from Europe or the US to work with Ugandan patients – for instance, on trauma relief missions in northern Uganda – the idea that Ugandan psychologists could provide meaningful therapy to 'westerners' was much more contested, if it was considered at all. My Ugandan research assistant Stella, who was in the final stages of her MA degree in clinical psychology, had been privately employed by an American family to support their autistic daughter with schoolwork and basic social skills training. The girl attended a very expensive international school, and Stella had regular meetings with the special needs teacher to report about her work with the girl. The European special needs teacher was openly sceptical about the qualifications of Ugandan psychologists. Whenever a student needed more comprehensive psychological assessment, the school would seek out western-trained psychologists, even if this meant that they had to fly them in. When I asked her, in an interview, why the school did not generally employ Ugandan psychologists, the special needs teacher explained:

> The problem we have is that lots of locally-trained people have not necessarily been out of the country. They come to our school, and it is so different to what they know. For example, there was one instance when Stella felt that the behaviour of the girl was inappropriate, but she wouldn't tell the family because she felt maybe that is what American kids do. So, rather than pursue what could have been an uncomfortable cultural conversation, she just didn't say anything. I think sometimes there is the perception that what you see on American TV shows is how all expats raise their families, and so you see the Disney cheeky kinds of teenagers with no parents around, and people here assume that's what all expats must do. So sadly, unless you

11 Acceptance and Commitment Therapy aims to increase psychological flexibility, for instance, by using mindfulness strategies. Eye Movement Desensitization and Reprocessing is a therapeutic approach designed especially for trauma treatment.

> go and travel, or you have a network of people you can check with, there is no other way to find out really.

Her statement made me wonder about all the international psychologists in northern Uganda, most of whom also had very little knowledge of their clients' life worlds.

These brief examples from my research reveal a number of things about the contemporary emergence of psy in Uganda, and perhaps Africa more broadly. First, as my comparison of northern Uganda and Kampala demonstrates, the way practices like psychotherapy and disciplines like psychology emerge in African settings is extremely diverse: it is both a top-down and a bottom-up process, driven by local and international experts. How psychological practices and forms of knowledge are received not only varies between different cultural and socio-economic milieus, it also depends to a large degree on how psy is made relevant to these particular contexts. Second, Ugandan therapists are not mere receivers, or translators, of psychology. In their daily practice, they continuously produce psychological knowledge, which, however, rarely enters the academic feedback-loop and thus often remains invisible. Third, psychologists in Uganda, and Africa more broadly, are often hindered not only by a lack of resources and support in their own countries, but also by historically developed international power-knowledge structures which determine what counts as 'proper' psychology and who can practice it where and how. Nevertheless, psychology as it is practised in Uganda today cannot be meaningfully conceptualized as a colonial remnant.

While there are many important reasons for challenging Eurocentric notions of psychology and the knowledge regimes on which they are built, I wonder, like Táíwò (2022), whether a decolonizing approach – as suggested by some critical African psychologists – is the best, or in fact the only way of doing this. Decolonizing, in a way, actually reifies what it seeks to deconstruct: it takes psychology (and related disciplines like psychiatry) as stable entities and emphasizes their colonial origin. Decolonizing, in this sense, implies turning backwards, to colonial history, before being able to move forward, or sideways. Furthermore, decolonizing carries the risk of culturalizing when proposing potentially endless new particular psychologies (African psychology, Ugandan psychology, northern Ugandan psychology etc.).

I wonder if, instead, it would be more fruitful to think of a future-oriented and universalizing approach to psychology, one that starts with the assumption that psychology is not a stable thing, not a given that can simply be decolonized or exported, but a dynamic and emergent discipline that is being applied, appropriated, and developed by psychologists across the globe. Recognizing psychology as an emerging universal would change the questions we need to ask: Not: how can we bring psychology to Africa? But: how can we make psychological knowledge produced in Africa universally visible and valued? Not: How can we create a separate discipline of African psychology? But: how can we bridge the gap between hegemonic academic knowledge and African lived realities?

Conclusion

As Táíwò speculates (see introductory paragraph), emerging forms of psychology and related practices like psychotherapy in Uganda are not yet being recognized and taken seriously despite the creativity and dedication of the mostly African practitioners who are driving their expansion. Not surprisingly, perhaps, given the structural domination and related arrogance or ignorance of Euro-American psychology, African psychologists are often not (yet) treated as equal 'part-owners' of the discipline in international circles. But, as Táíwò suggests, perhaps more surprisingly, they are also being discredited by those proponents of decolonization who argue that psychology in Africa can only be meaningful if it includes 'effort[s] to engineer a rejection of any tendency toward a wholesale adoption of a mainstream Western approach to Psychology' and 'promote[s] a combating of the residual negative effects of colonialism and neo-colonialism on African tradition and culture and human subjectivity' (Nwoye 2017:329).

All of my Ugandan interlocutors recognized the biases inherent in, and the limitations of, what they sometimes called 'Western psychology', not only in respect of its standardized diagnostic tools, but also in its underlying assumptions about the individual or the family. And they were well aware of the widespread scepticism about and criticisms of 'Western psy' in Uganda and Africa more broadly. However, I never heard them deploy the language of decolonization. While through their ongoing creative practices of enactment and translation a distinctively Ugandan, though not yet consolidated form of psychology was gradually emerging, my interlocutors did not generally see themselves as 'cultural' or 'critical' psychologists (cf. Ratele 2017b:320ff.), but rather as part of a universal discipline which can offer relevant, if partial insights and ways of caring, for Ugandans no less than people elsewhere. In this sense, my interlocutors already took it for granted that they were 'psychologists without adjective' (Ratele 2019:3).[12]

To move beyond the impasse of assigning knowledge to particular producers (Africans, Westerners, or whoever), it might be helpful to think of knowledge as funda-

12 Ratele (2019:3) writes: 'The psychology that tacitly places Africa and Africans at its centre is, however, the ideal. That psychology emerges from under the rubble of colonial ruins, apartheid racism and post-independence despotism. The time when a psychology student at the University of Johannesburg says, "I am studying psychology", and is immediately presumed to be studying African psychology, is in the future. The time when a clinical psychologist working in Lagos presents a successful case using her therapeutic modality and her audience immediately grasps that she is talking of African-centred psychotherapy is yet to come. Today, to be clearly understood, we are still compelled to say "African psychology". We are thus also obliged to say that the *African* in African psychology *must* be made tacit. We live in the age of American psychology – the psychology of the United States of America (US) – and to a lesser extent Western European psychology, taken as universal psychology. And a consequence of the hegemony of American and Western European psychology is that psychology produced outside those regions of the world, and fully conscious of its situatedness in the places where it is practiced, requires an adjective in order to be granted recognition.'

mentally relational. Rather than framing knowledge as content, it might be helpful to think of knowledge as practice, as something that evolves and often continues to be negotiated *between* people, for particular purposes and in particular contexts. Universality, in this reading then, is never a property of knowledge in the abstract, but a horizon (see Nieber, this issue), something that may seem graspable when particular forms of knowledge become broadly relevant to diverse people and in relation to particular questions, but that remains fundamentally out of reach.

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Universality as Horizon: Aspirations and Geometries of Astrophysics in Africa

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Abstract: For astronomers in Africa, both amateurs and professionals, the universality of the scientific investigation of the universe holds out the promise of navigating inequalities on earth. Universality is attractive: it allows astronomers from Africa to enter the global field of science diplomacy and provides them with a discursive framework in which to combat the structural inequalities of participation. Rather than taking universality as a descriptor for science, this article is inspired by Paulin Hountondji's formulation of universality as horizon and speculatively elaborates this metaphor. Drawing on two ethnographic case studies, one on the spatial geometry of a Malagasy amateur astronomer, the other on the crafting of a vision document by and for astronomers in Africa, the article explores how different notions of 'horizon' are evoked in each case. In so doing, the article engages with the temporal and spatial aspects of universality and shows how this concept can elicit hope, provide direction and enable an examination of position-based particularities.
[universality, horizon, Africa, astronomy, science]

> When you speak with someone who is many thousand kilometers away from you and you speak about the same thing, then you are on the same wavelength. Technology helps a little. […] Astronomy, for example, can be a common point between me and that other person. We talk about the moon: 'Do you see the moon at your place?' She says: 'yes.' In such a conversation, there are no longer any state boundaries. […] They don't exist anymore, unless, let's say, there are people in France and they ask me 'Do you see the polar star?' – 'No, I don't see it.' But on the other hand there are objects like Orion. 'Do you see it?' – 'Yes, but I see it upside-down.' When it's like that there are no longer terrestrial boundaries, it's universal then. (Benja)

Benja, president of an amateur astronomy club in Antananarivo, Madagascar, is passionate about astronomy. He is in his late twenties and recently finished his Master's degree in science education. When a student, he invested a lot of time and energy in turning the astronomy club into a vibrant hub for various activities, such as public stargazing events, public talks about astronomical topics, or participation in internationally organized awareness days for the pale blue dot, for example. While looking for an opportunity to do a PhD, he was working as a science teacher and found it very difficult to continue being the driving force behind all of these events, so he trained other people and slowly handed responsibilities over to them. I have known Benja since before this

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transition. In fact, I first met him in 2019 when I was visiting Madagascar for a brief exploratory period of fieldwork. Having heard about my research, he approached me, and I was immediately captured by his enthusiasm for astronomy, which he links to his concern and care for our place in the world. From the very beginning, Benja became one of my key research participants and shaped this role actively, keen on understanding my research questions. We stayed in touch throughout the pandemic, and in 2022, when I returned to Madagascar for four months of ethnographic fieldwork, we intensified our communication, already knowing that we were interested in each other's interests. We shared many thoughts about the universe, Africa, Madagascar and its capital Antananarivo. Over this time, Benja explained to me how his sense of living on a remote Indian Ocean island changed as he turned his attention to the night sky and thereby became connected to a global community of astronomy enthusiasts. As a result, he discovered that astronomy, with its gaze directed towards the sky, provides a geometry that enables people across the world to connect and become part of a larger framework. Celestial objects may become 'common points' in the physical universe to which people located in different places on earth can refer. When they are attuned to 'the same wavelength', they can potentially transcend the limitations of 'state' or 'terrestrial' boundaries. Not all the time, though; people on earth's southern hemisphere cannot see the Pole Star, and people in the north cannot see the Southern Cross. The earth itself is in the way of an omnidirectional viewing of outer space; from the surface of the planet, a particular horizon always defines the limitations of views into the cosmos. Despite this caveat, many celestial objects can triangulate people's positions on earth and thus help them to connect, which is what excites Benja. But Orion is 'upside-down', he says. The triangulation does not erase differences in perspective, and in Benja's formulation we can detect the persistent normativity of defining the orientation of constellations of celestial objects. Still, Benja is excited for this exchange to be possible at all. He is excited about sharing 'a common point' in the night sky with someone from France and the sense of connection that brings.

In this article, I pick up on the geometry that Benja expresses and trace how the objects of astronomical interest become intertwined with astronomers' situatedness on earth through two different but related conceptions of science's universality. To illustrate this process, I draw on both my conversations with Benja and insights from my ethnographic engagement with a meeting of astronomers in Africa.

In 2021, a couple of months before my conversation with Benja, I participated in the 'Forum on Astronomy in Africa', hereafter 'Forum', a three-day online meeting organized by the International Astronomy Union's (IAU) Office of Astronomy for Development (OAD). Attended by over 400 participants, this event was designed to acquainting them with the various astronomy initiatives on the continent and to prepare them for the IAU General Assembly (GA), scheduled to be hosted in Cape Town in 2024. The GA is the world's largest astronomical conference, taking place triennially and bringing together astrophysicists from across the world. In more than a hundred years of the IAU's existence, 2024 marks the first time that the GA will be held in

Africa, and astronomers across the continent have been invited to join the excitement. 'This is not about South Africa; this is about Africa – to make sure we all combine our forces, our resources to build skills and capacities, to strengthen our institutional mechanisms, our facilities, to make sure that we can give hope to young and upcoming astronomers', as Takalani Nemaungani, Chief Director of the South African Department of Science and Innovation, said in his introductory words to the Forum. Indeed, the Forum was designed to foster the understanding that this GA was not just taking place *in* Africa but *for* Africa; it was to happen in Cape Town 'on behalf of the African continent' and 'to leave a legacy', as Vanessa McBride (OAD) stated. The Forum was highly affective, fostering pride and appreciation that this GA would be an opportunity for both Africa and its astronomers. Although I was sitting at my desk in Europe and am not an astronomer myself, I became caught up in the meeting's atmosphere, felt increasingly excited as it went on, fervently wrote field notes and occasionally took screenshots. While the Forum was one of my earlier exposures to the OAD's activities, my writing is informed by my subsequent attendance at numerous other online meetings over the next few years, as well as further personal communication with some of the participants and one of the organizers.

In preparation for the GA, the Forum aimed to cultivate a bottom-up approach to collectively craft an 'audacious African astronomy vision'. The link to a carefully structured Google Doc was shared with the participants, all of whom were encouraged to engage with and take ownership of this vision. Among other things, this document contained sections on 'people'. 'infrastructure', 'science' and 'funding'. It also included a section on 'legacy', reflecting the goal not only of hosting the GA 'on African soil', but also of generating a long-lasting effect for people in Africa, astronomers and the general population alike. While Kevin Govender, Director of the OAD and one of the main organizers, gave a detailed introduction to the then 25-page document and explained its various points, a large number of comments and suggestions began to appear in the document. Like probably many others, I kept the meeting's window in the background while following the activities in Google Doc. Many participants were embracing the opportunity to shape this vision collectively, to mark and annotate, to bring up new points and reply to other participants' comments. Over the following two days, these comments were collectively incorporated into the growing document, an actualization of the 'principle of shared ownership' posited in the document's prologue.

Rather than bemoaning the challenges of doing astronomy in Africa, this emergent document became an exercise in conceiving of a near future in which astrophysics in and from Africa will become vibrant and be globally recognized. It also sought to produce both a feasible road map for reaching this near future in 2024 and a 'legacy' effect thereafter. The Forum both celebrated the scientific achievements achieved on African soil by African people and also took the universality of astrophysics for granted. On the one hand, it was generally assumed that contributions could be made to astrophysics regardless of location, and that scientists from across the globe could gather in a single conference venue to discuss state-of-the-art research and develop

common questions. On the other hand, the Forum emphasized the particularity of Africa as a place where astrophysical research is conducted but requires more attention. Far from being indifferent to place, the Forum suggested that science's universality depends on a plurality of places, definitely including African ones. Such thinking, the Forum's organizers recognized, tongue in cheek, is audacious; it is daring and it might meet resistance. Yet, they chose to meet the challenges head on. Embracing science as a geographically and socially situated practice, the Forum shows, is a strategic way to cultivate the universality of astrophysics as a scientific discipline. The Forum's strong emphasis on how special and unique this occasion is for 'Africa' speaks to the inequalities of doing science on this planet in postcolonial conditions that hinder equal possibilities of participation. Nevertheless, the Forum asserted that African astronomers are equipped to become important players in the universal discipline of astrophysics. The multitude of astronomy initiatives that were mentioned in the Forum on both the professional and amateur levels proved this point, but the Forum also made it clear that Africa had not yet fulfilled its potential. Not yet, but acting towards this horizon with a collectively written document provided a collectively drawn road map and set a timer: until the GA2024.

Benja did not take part in the Forum, though his conception of astronomy as providing a way to connect with people across the globe resonates with the Forum's conception of astrophysics as a scientific discipline whose universality allows African scientists to work towards equal participation on a global stage. In both cases, an ideal of science's universality provides direction for emplaced activities. And in both cases, a sense of remoteness and an acute awareness of being particularly situated make whatever promises to transcend particularity attractive. In this article, I first trace this attraction to universality. I then discuss the philosopher Paulin Hountondji's notion of universality in relationship to the concept of a horizon. Finally, I explore this metaphor to understand the drafting of the Forum's vision document and feed it into astronomy's geometry of connectivity, which I take from Benja. In this article, I argue that the horizon, as a figure to think with, allows us to describe the condition of being situated without abandoning the idea of a whole, of a maximally large picture, of the universe in which everything is contained, which is something that astrophysicists care for. As a horizon, universality does not demand opposition to particularity or relativism, but foregrounds target-oriented aspirations that never lose touch with actors' concrete situatedness on earth. I next provide some background on astronomy in Africa.

Fig. 1 African Astronomy Map. Created by the Outreach Committee of the African Astronomical Society (AfAS), included with kind permission from AfAS.

Universality's Attraction

In the past decade or two, astronomy activities have multiplied on the African continent. While a few countries have a long history of astronomy, and while African sites are among the earliest locations from which astronomical observations were made (such as Nabta Playa in today's Egypt [Malville 2015]), most other countries are relative newcomers to what we understand as astrophysics and space science today (Pović et al. 2018; Baratoux 2021). Emergent and vibrant, numerous Africa-based groups of amateur astronomers have formed in recent years to engage in astronomical activities, from public star-gazing events to educational initiatives for prison inmates. These groups interact with each other and are occasionally invited to present their work to the professional community of astrophysicists in Africa. While differences in language hinder closer-knit interactions, an overarching sense of contributing to the rise of astrophysics in Africa finds expression in the discourse of the African Astronomical Society (AfAS) and through events organized by the Office of Astronomy for Development (OAD). The Forum is one such event.

The OAD is jointly funded by the IAU and the South African National Research Foundation. One of its key tasks is to find ways in which astronomy can contribute to the UN's sustainable development goals. Assuming a globally shared fascination for the night sky, it helps to implement projects that connect astronomical knowledge with earth-bound needs, thereby seeking to counter the perception that astronomy is irrelevant to the problems on earth. The OAD is committed to the 'Principle of Universality of Science' as formulated by the International Council for Science in 2006.[1] This understanding of universality envisages the 'widest possible participation in science' because 'science is a common human endeavor that transcends national boundaries and is to be shared by all people'; it thus opposes 'any discrimination on the basis of such factors as ethnic origin, religion, citizenship, language, political stance, gender, sex or age' (2006:1).

Embracing its placement in Africa and thus speaking from and for Africa, the OAD profits from current trends in the discourse of global scientific policy-making bodies to pay attention to science and scientists in Africa. Indeed, on the second day of the Forum, one of the participants made a plea to the community of astronomers in Africa to engage more actively with these policy-making processes:

> Having listened to yesterday, I really feel that this […] focus on Africa at the GA in 2024 […] should be highlighted at the United Nations […] General Assembly next year. […] Just looking at yesterday, […] I didn't hear sufficient discussion around the enabling policy environment for all these good things to happen in the future. […] there is enormous benefit to be derived from [influencing future calls for scientific research that one can then apply to] and I feel the United Nations would be a very good area for which to do that and also to engage in the arena of science diplomacy.

Clearly, this participant understood the Forum's call to be audacious, but he was not making an entirely unrealistic suggestion. Given that the OAD regularly participates in policy-makers' events, this verbal contribution served as a reminder to think about the vision for astronomy in Africa on all available levels: supporting, coordinating and making visible grassroot initiatives; collaborating with higher education facilities; and networking with policy- and decision-makers. Science's claim to be universal, and thus to rely on participation from across the globe, opens the door to all of these levels.

In his own way, and on a much smaller scale, Benja is also interested in providing the conditions for future astronomy activities. He aspires to become influential enough for politicians to listen to him, and he has even thought about becoming a politician himself. In the meantime, he dedicates his time to nurturing the emerging astronomy community in Madagascar and to networking with scholars from abroad. In our con-

1 In 2018, the International Council for Science, ICSU, merged with the International Social Science Council, ISSC, to form the International Science Council, ISC. (This entailed a shift in vocabulary, and the principle mentioned here is now formulated as part of 'freedom and responsibility' of scientists with particular support for the 'advancement of science' in 'developing countries'.)

versation, he bemoaned the fact that these networks were not always seen favorably, especially if they included scholars from Europe. Benja told me:

> Africans are often quick to say that foreigners are colonizers. They do this often, but they do not take into account that science is universal, that we live on one planet. For example, here in Madagascar, it's a problem when people see French people who contribute to doing something [in science]. They will ask themselves whether there is an ulterior motive for neo-colonization or whether it's just a scientific collaboration. And that is a big problem for Africa. […] For me, [science] is universal, it has to be shared, everyone has to have access to it. It is an opening that we here in Africa should take advantage of. [We should] take advantage of this universality.

Embracing belonging to Africa, Benja felt the need to comment on the colonial lens through which Africa and European involvement in Africa is often portrayed. Science, he contended, is universal and as such an 'opening', a possibility through which Africans and Europeans can collaborate, the ability to meet one another at eye-level. Because it is universal, science should not be left to Europeans alone, as 'everyone has to have access to it', irrespective of whether they are in Europe or in Africa or anywhere else on the globe. Culminating in the call for Africans to take advantage of science's universality, Benja's statement evolved from his unease about the discourse on (de-) colonization's relation to science and showed their discursive proximity.

Decolonization is a thriving topic in the social sciences and humanities. Calls to 'decolonize the mind' (wa Thiong'o 1986), efforts to achieve 'epistemic decolonization' (Ndlovu-Gatsheni 2018) and initiatives to 'decolonize higher education' (Woldegiorgis 2021; see also Katundo 2020) engage with colonial history in order to rethink and reconfigure the assumptions and practices that underpin knowledge production. The notion that knowledge is always 'situated' is central (Haraway 1988). Although popular and productive within the social sciences and humanities, 'decolonization' strikes an uneasy chord with natural scientists because it seems to threaten the very foundations of science itself. Open to questions of social inclusion, the geographical spread of opportunities to learn and do science and the effects of linguistic conventions for the scholarly discourse, natural scientists are less willing to entertain critiques or relativization of the principles of Enlightenment rationality on which their disciplines are based.

In 2015, at the University of Cape Town, a social science student spoke passionately about the need to decolonize the natural sciences too, because 'science as a whole is a product of Western modernity, and the whole thing should be scratched off'.[2]

2 At the University of Cape Town in 2015, successful protests for the removal of a statue of Cecil Rhodes, a visionary of the colonialist project in southern Africa, turned into a larger movement in South Africa and beyond that addressed various historically grown and persistent structures of discrimination. This included protests against university fees (fees must fall) and demands to reconsider higher education curricula. The protesters came to be known as 'fallists'. One small event that took place in this context thematized the decolonization of the epistemologies of natural sciences. The video clip containing the

Captured on a YouTube video, the student's plea produced a wave of negative, often insulting comments that expressed vehement resistance, even aggressive antagonism to any challenge to the universality of science. While the vast majority of astronomers do not engage with the term 'decolonization' or reject it altogether, Tana Joseph takes a different approach. She is a South African astronomer who has moved from astrophysics to doing science communication and consultancy for audiences in Africa and Europe. She engages with the feminist and black discourse on astronomy that is mainly propagated in the USA (see Prescod-Weinstein 2021) and with literature on structural inequalities in the natural sciences (for example, Cech and Waidzunas 2021) to introduce these topics to more astronomers and advocate more equity and inclusion in astronomy (Joseph 2021; 2022a; Joseph 2022b). Joseph remains committed to the universality of science, but uses the language of 'decolonization' to point out that science is not universally accessible because of colonialism. Other initiatives that are narrated as part of decolonization work include Sibusiso Biyela's efforts to translate astronomical vocabulary into African languages, such as isiZulu (Kwon 2019) and Wanga Zembe-Mkabile's voicing of post-apartheid traces of racialization (Nordling 2018). Mostly, however, these topics are not dealt with in relation to the struggle against the colonial heritage, and certainly not using the language of 'decolonization', which has the potential to radically fragment science and alienate scientists. Rather, they are dealt with as questions of inclusion and participation, which are much less contentious and have even received a platform in one major journal, *Nature Astronomy* (see for example McBride et al. 2018).

'Astronomers are not like social scientists', I was told by an astronomer, Modest, in an interdisciplinary workshop:

> Astronomers do not look for the points of difference, not for an astronomy that is particularly African and thus different, but they look for the points of agreement – and that is found in science, its numbers, its calculations, its conclusions. The only problem is that not everybody can participate in learning and doing this science.

Like many other African astronomers I talked to, Modest turned conversations about decolonization into a critique of the structural inequalities of participation, effectively foregrounding the appeal of science's universality, which Benja had highlighted as an 'opening' that 'we here in Africa should take advantage of'.

Universality is attractive. It does not offer itself to discourses that challenge the very foundations of the science, but it does allow one to address inequalities of participation. While a discourse on decolonization could implicate unsettling the particular foundations of contemporary science, the affirmation of science's universality and the logical consequence that scientists' backgrounds should not matter can be employed as a

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quote in question stemmed from this event. In the reactions to this video, the hashtag #sciencemustfall was used to ridicule the speaker. See the video and comments here: https://www.youtube.com/watch?v=-C9SiRNibD14, accessed March 8, 2024.

gateway to African astronomers' participation in international science diplomacy and as leverage to criticize and counter stubborn conditions of inequality. Science's universality is attractive because it supports political demands for more universal social structures in science.

Universality and Hountondji

In relation to social structures, scholarship in the social sciences has long described universality as ambiguous and incomplete. David Palumbo-Liu, for example, by asking 'what happens when the minor seeks to be part of the universal in the terms the universal claims for itself?' shows how difficult it is to challenge the universal from a standpoint that is not part of universality's framework and thereby challenges what universality stands for (1995:189). To be relegated to the realm of the 'particular', he contends, is to be 'situated beyond the bounds of the universal, or at its margins' (ibid.). The universal is defined as all-encompassing, yet in practice it is never accomplished. In practice it has margins, and these margins are contested. At the Forum, the astronomers perceived themselves to be located at the margins and sought to counteract the implications that come with this positioning. They did so not by downplaying the particularity of their situatedness in Africa, but by embracing this placement and stressing the importance of contributing to the endeavor of astrophysics from Africa. The ideal of a universal astrophysics is incomplete without contributions from Africa, a notion that recalls Paulin Hountondji's philosophical engagement.

Trained as a philosopher in France in the 1960s, Paulin Hountondji was the first philosophy professor in what is now known as Benin. Time and place mandated him to reconfigure philosophy for and in the period when African countries received their independence, for which he rejected 'ethnophilosophy' as too particularistic (Hountondji 1996, first published in French in 1976). Against the grain of attempts to appropriate scientific disciplines for the African context, he feared that African thinkers doing 'ethnophilosophy' would confine their significance to that very context. Instead, in his writings Hountondji advocates embracing philosophy as a human endeavor. Relying on Habermas's argument that reason is established within intersubjective communication (see also Ali 2006), Hountondji notes that 'a debate is only possible if in the game of giving and asking for reasons, the interlocutors both look towards the same horizon and raise the same claim to truth'[3] (ibid. 2017:161). He encourages African philosophers to enter communication with other philosophers and take part in philosophical discourse, because 'the requirement for veracity and universality are things

3 Here and hereafter, the translation of Hountondji's 2017 text is adopted from Graham Wetherall, published online: https://bpb-us-e1.wpmucdn.com/sites.northwestern.edu/dist/d/5576/files/2021/06/Constructing-the-Universal-1.pdf, accessed March 11, 2024.

which cross cultural boundaries. The requirement for universality is itself universal' (ibid. 2017:161; see also Lamola 2021).

Universality, we can learn from Hountondji, is

> everywhere seen as a value, a norm which must govern our discursive practices. The fact that this norm remains an asymptotic ideal which is never attained is not sufficient to invalidate it. On the contrary, this failure presents us with a very precise task: to […] tirelessly pursue this ideal, recognizing at each turn the limits of all knowledge held to be universal; and to identify why, how, and in what way it is necessary to correct it. (ibid. 2017:161)

By taking universality not as a given quality of Western thought, Hountondji demonstrates that the achievement of universality is incomplete and will always remain incomplete (see also Nyamnjoh 2017): it cannot be contained in neat dichotomies such as here/there, local/global, modern/traditional. Having moved from Paris to Dahomey and configuring philosophy for a particular postcolonial context, Hountondji's philosophy defends the value of universality not in spite of regional differences, but because of them. Universality is an anchor in the global condition that saves us from fragmentation into innumerous particulars. Universality may be and remain incomplete, but there is value in striving towards it.

Hountondji stresses that philosophy's striving for universality does not mean it should seek to disconnect itself from the places and times from which thought emerges. On the contrary: for him, participating in philosophical debate and giving direction to African philosophy need to arise from and speak to the 'present historical situation of Africa' (ibid. 1996:66). Philosophy, and science more generally,[4] are done in places, and relate to these places; and it is from the plurality of places that philosophical contributions need to accumulate to build a more universal understanding of the world. In Dübgen and Skupien's words, Hountondji argues for the 'internal pluralities of each society, each following the aspirational goal of universal validity […] which will serve as a regulative ideal' (ibid. 2019:151). Put differently, universality is an ideal to invest in, or, in his own words, an 'infinite horizon of a communal task which all the cultures of the world must work towards' (Hountondji 2017:156).

Horizon as Analytical Lens

Read through Hountondji, the Forum on astronomy in Africa was doing work on universality by asserting an African position for a more 'universal' study of the universe from earth. It was asserting astronomy in Africa as simultaneously different because it

4 Hountondji speaks of philosophy as science, building on the French demarcation of 'science'.

is placed in Africa, and not different because it is looking 'towards the same horizon' of astrophysics' scientific discourse. Hountondji employs 'horizon' as an aspirational goal that can be shared and that needs to be shared if a peaceful discourse is to work towards determining the universal validity of truth-claims. Inspired by Hountondji, I take up this metaphor of a horizon to explore how the Forum crafted its 'audacious' vision and to examine this notion in relationship to the geometry that Benja puts forth, in which the notion of a horizon designates a limit to the view of both earth and sky. I assert that Hountondji's delineation of universality requiring a shared 'horizon', read together with astrophysics, opens fruitful perspectives on universality as a source of hope in an unequal world.

The GA in 'Africa': Sharing a Horizon for Astrophysical Research

The Forum met after the decision had been announced that the IAU-GA would take place in Cape Town in 2024. In South Africa, the scientific discipline of astronomy has a history that spans some 200 years and is entangled with colonialism and apartheid (Dubow 2018). Taking ownership of an existing prestige project, the post-apartheid government invested in astrophysics as one of the few select flagship disciplines, which, at the expense of others, were to promote 'world-class "curiosity-driven research"' and secure South Africa's position on the global map of cutting-edge science (Beinart and Dubow 2021:322). However, the Forum's discourse does not emphasize that the GA is taking place in South Africa; rather, it foregrounds 'Africa' as a whole. 'Africa' here is an epistemic object to which the participants of the Forum owned and attributed a lived reality (see below). It was also a geographical region that gave weight to Cape Town in standing out amongst the competing potential host locations for the GA. No other competitor could claim to represent an entire continent. And because it is being hosted for the first time in 'Africa', it is hoped that the GA will provide visibility to the vibrancy of astronomical activities across the continent and provide opportunities to integrate African astronomers more closely into the structures of global astrophysics.

The parallels with Hountondji's vision for African philosophers to take part in the philosophical discourse are noteworthy. Taking over Hountondji's vocabulary, one may say that in both cases the 'shared horizon', which is a condition for the processes of intersubjectively working towards universal validity of what is considered 'truth' or 'fact', was determined by the common discipline that people were trained in. The more people from diverse backgrounds contribute to the 'infinite horizon of [this] communal task' (Hountondji 2017:155), the more the scientific result will reflect universal validity. The decision of the Forum's organizers to portray the GA in Cape Town as an event in and for 'Africa' reflected an aspiration towards universality. If the narrative of the conference were to focus on 'South Africa', it would affirm a 'centre' from which the scientific discourse is shaped and would work towards bringing South Africa closer to this centre, moving away from all the places that continue to be marked as 'peripheral' to science. In contrast, a conference that is understood to take place in 'Africa' and for

which a Forum is organized so that astronomers from across the continent may take ownership of it appears to transcend the logic of centre and periphery. The investment in bringing the GA to 'Africa' and Hountondji's call for African philosophers to contribute to the philosophical discourse are both geared to putting the 'shared horizon' into practice. But the Forum also shows awareness that this is not easily accomplished.

Audacity: Horizoning Amidst Local Conditions

Preparing for the GA, the Forum worked collectively towards formulating a vision it describes as 'audacious'. The word 'audacious' enables a double move. First, it *acknowledges* that astronomers might feel uncomfortable with thinking big about science in 'Africa'. For the participants of the Forum, 'Africa' stood for the place-related conditions in which they found themselves and that they shared. There are economic, political, historical and social reasons, it was understood, why 'Africa' is not associated with cutting-edge science. The word 'audacious' also alludes to astronomers' self-conscious justification of astrophysical research in places that are discursively portrayed as overflowing with other, more urgent problems. We recognize how audacious it is, the subtext suggests, to advocate gazing into outer space when the conditions on earth are so dire. The word 'audacious' thus does not assume a South African privilege from which astrophysical research is supported politically. Instead, it seeks to include astronomers in other parts of Africa. The second main effect of 'audacious' is to *encourage* thinking and acting big, despite everyday challenges. It encourages the boldness to take astrophysics' claim to universality at face value, creating a vision of an African astrophysics that is able to collaborate and compete on the global stage. The participants in the meeting in which the vision document was worked on embraced the multiple connotation of such 'audaciousness'.

The organizers' deliberate preparation of an 'audacious' vision acknowledged that the universality of astrophysics had not yet been achieved, while deploying the ideal of science's universality to insist on inclusion. Turning 'horizon' into a verb, 'horizoning', Adriana Petryna has devised a 'wayfinding tool that plumbs the lines of a durable world' (ibid. 2022:152) for 'thinking about and responding to complex futures' (ibid. 2022:5). In the face of ecological disaster, she argues, horizoning is directed against an inclination to succumb to despair; it is directed at engagement 'in a mode of thinking that considers ecological disasters against a horizon of expectation in which [we are] still able to act' (ibid. 2022:150). Although deployed in the context of unequal global structures of participation in science rather than the ecological crisis, the Forum's invitation to partake in the crafting of an 'audacious' vision, I suggest, was also performing horizoning work. It took seriously but pushed back against the idea that Africa was not equipped to host cutting-edge astrophysical research. Instead, it focused on finding a path through local conditions that were perceived as obstacles to global participation in science, thereby contributing to the ideal of astrophysics' universality. By foregrounding and assembling the various astronomy activities that were already flour-

ishing, the Forum counted on the multiplicity of participants to do horizoning work collectively and envisage an ambitious, even audacious but attainable goal for 2024 and beyond. Although the Forum included formulations about having a 'legacy' effect and tried to prepare for what comes after 2024, it is inherent in the very notion of a horizon that one cannot see beyond it. As one learns from Petryna's discussion of 'horizoning', one needs to prepare for the unpredictable. Still, the Forum provided a platform for a collective delineation of a horizon. By carefully planning, supporting and monitoring activities leading up to the GA in 2024, it worked against despair by presenting various goals as achievable.

Of course, Petryna's 'horizoning' as the management of overwhelming ecological conditions is different from Hountondji's 'shared horizon' as a necessary condition for intersubjective work towards the universal validity of truth-claims. Yet, both speak to the Forum's overarching narrative of translating science's claim to universality into universal participation in science. While Hountondji aims to find a 'middle way' between 'universalism' and 'relativism', the Forum worked with and went beyond this duality. It showed that part of its 'horizoning' work involved turning science's 'universality' into a 'shared horizon'. Here, a literal understanding of 'horizon' becomes important.

Benja's Geometry: Overcoming the Limitations of Terrestrial Horizons

On the canvas of our visual perception, the horizon demarcates the limits of our vision. Depending on context, the horizon wiggles over houses, trees, or mountains. At sea, the horizon appears more or less as a straight line. Because the earth is spherical and non-transparent, our gaze can never reach beyond the horizon – we can only see that part of the earth on which we are situated. As we move, the horizon moves. Just close enough, it attracts our attention to whatever is beyond our visual perceptibility (see also Yoshimi 2016 on Husserl's 'horizon theory'). Considering planetary forces, earth's atmosphere, the weather and climatic conditions, the possibilities of perceiving one's horizon – as a clear line, blurred, or not at all – are influenced by the accumulation of activities of other people and more than human assemblages around the globe.

In one of our many conversations, Benja said that, before learning about astronomy, he had a sense of being situated in remoteness. From Madagascar, even if you go to its coastal shores, the next landmass is beyond the horizon. For Madagascar, the coastal horizon doubles as the state boundary. Despite the myriad connections forged across the Indian Ocean (Desai 2010; Sheriff and Engseng 2014), Madagascar's distance from 'the world' gave Benja a sense of disconnectedness. 'Technology helps a little', he said. But technology alone does not warrant meaningful connectivity; it helps, but does not provide. What really made the difference for Benja was finding 'a common point', a term that in this case can be taken quite literally.

Instead of searching for 'common points' on earth and allowing the horizon to restrict the realm of visual perception for phenomena on earth, Benja has discovered that astronomy 'can be a common point' that triangulates connectivity. Indeed, astronomy

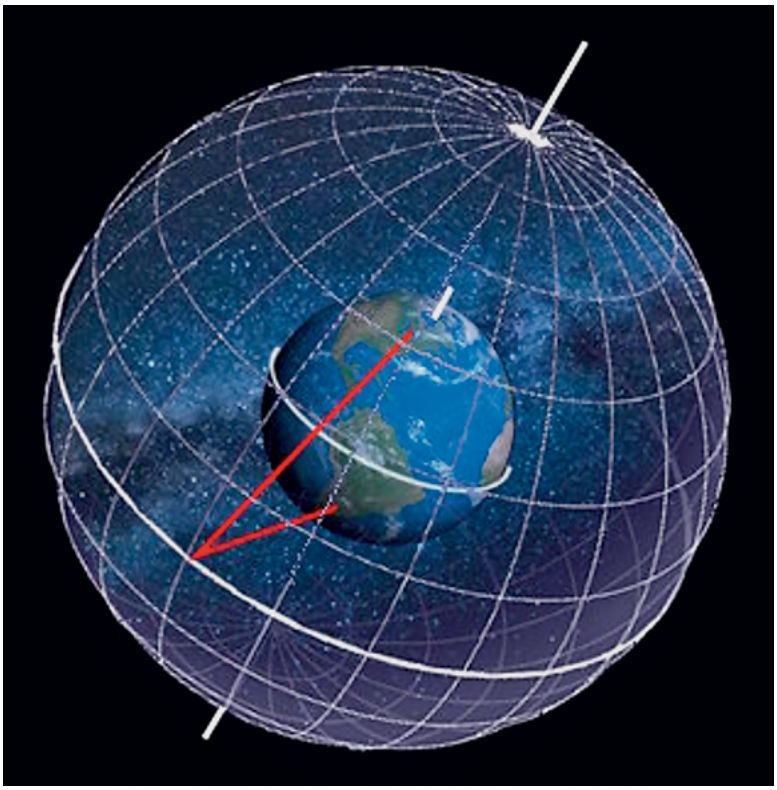

Fig. 2 Enveloping the earth, the night sky as seen from earth can be portrayed as another sphere. A light source in the night sky may act as a 'common point' that connects people at different locations on earth who cannot see each other (red lines connecting places on earth to a point in the night sky). Image by Pablo Carlos Budassi, Creative Commons Attribution-Share Alike 4.0 International license. Red lines added by author.

draws attention away from earth and thereby provides myriad points that may attract one's gaze: when it is dark (and not light-polluted or overcast), stars and galaxies appear as observable points of light. Any one point of light can be seen by people who on earth may be physically quite distant from each other. Benja takes the example of himself, in Madagascar, speaking to a person in France. In his example, the moon is visible to both, and so is Orion, because Orion is placed at the celestial equator. However, the Pole Star, placed almost directly above the North Pole, can only be seen from France in the northern hemisphere, not from Madagascar. While not all points of light in the night sky may act as a 'common point', they broaden the physical geometry for people to connect beyond 'the line where earth seems to meet the sky'.

Instead of lamenting the inability to see the earth beyond the horizon, Benja's geometry exploits the possibilities the horizon opens up. Situated on earth, we are able to

direct our gaze above the horizon and thus – via 'common points' on the celestial sphere and conversations about these common points with the help of technology – surpass limiting boundaries. In Benja's words, then 'there are no longer any state boundaries'. From the particularity of concrete terrestrial places, this geometry may not be able to connect all people around the globe. It may not provide universality, but it allows for *more* universality than a perspective on earth-bound events may suggest.

Universality is an ideal that remains forever incomplete. Even the study of the universe encounters and posits various horizons: the event horizon that marks the boundary beyond which events in outer space cannot reach the observer; or the cosmological horizon, which is the result of a calculation that marks the distance from which one could possibly retrieve information (the edge of the universe). Like terrestrial horizons, these horizons centre the position from where observations are done. For astrophysics, horizons are useful, a type of resource. They help us to appreciate the ongoing situatedness of observations and knowledge and to find methods to engage with them. This is also true for astronomy's more immediate 'celestial' horizon.

From any position on earth, we can only see the portion of the sky that the horizon permits. We cannot observe that part of the sky that stretches out below us. Put differently, the earth – that which is familiar to us – blocks a universal view into outer space. However, astrophysical research is interested in studying the universe in its totality, for which it has at least two strategies. One is to place telescopes in outer space, such as the Hubble or the James Webb Space Telescope. The other, and that will be of interest here, is to place telescopes in different locations on earth and network them.

Benja also touches on this in our conversation, linking networks of telescopes with networks of people:

> Astronomy is a cooperation. Without this cooperation, we couldn't do anything, since we would only have a single vision. But with others we will have many other visions; that is the principle of interferometry. To cover a grander surface, a better resolution, to see a bit more clearly, it takes many people of these [different] regions, many telescopes. We can also say, to have a grand vision of the world, we need many people.

This resonates with scholarship in the social sciences: whatever is familiar influences the perception of phenomena and possibly obscures them; from any one single viewpoint, knowledge is always partial and situated (Haraway 1988). But perhaps this limitation can be overcome not by universalizing a single gaze, but by multiplying numerous emplaced ones. As Benja says, 'To have a grand vision of the world, we need many people'. The perspective of each person may be limited by the celestial horizon, but in collaboration, these perspectives can come together and create something that approaches universality.

Benja translates astronomy's need to place telescopes around the globe as an opportunity for 'Africa'. 'This is an opening that we, here in Africa, must take advantage of', he says. In a separate conversation, Mamy, a physics student and friend of Benja's, also

addressed this relationship between scientific discipline and place, though she reverses the argument to foreground Madagascar's value for astronomy: 'Madagascar can contribute to the evolution of astronomy in the world'. Like the Forum's self-conscious affirmation of being situated in 'Africa' as an asset for astronomy, and like Hountondji's decidedly 'African' contribution to philosophy, Benja and Mamy's arguments blend the universality of science with the situatedness of scientists.

Conclusion

Benja, an amateur astronomer in Madagascar who mitigated his sense of remoteness by finding a connective 'common point' in the stars, and the participants at the Forum, astronomers in Africa who set out to collaborate in crafting a vision for their discipline, are keenly aware of their particular positionings within the unequal geopolitical structures of earth. Nevertheless, they care about universality as an attribute of science in general and astronomy in particular. Astronomy and its claim to universality, they show, does not contradict their experiences of marginality. Rather, astronomy can be utilized from their particular positions to act towards universality. Employing science's claim to universality as leverage, without this as yet applying to the conditions for participating in science, astronomers in Africa turn their position into an asset through which steps towards universality (both of science and of participation in science) may be taken. This resonates with the work of Paulin Hountondji, who advocates working towards the universality of science as an ideal that requires contributions from differently placed actors. Inspired by his work, I have read his notion of 'horizon' against its more literal meaning of astronomical observations. While horizons mark spatio-temporal aspirations and conditions of manageability, they are also implicated in geometries of global connectivity. As a figure to think with, horizons attend to concretely placed observations without disregarding an ideal of wholeness. They characterize an optics in which the earth meets outer space. In the case of astronomy in Africa, universality – read as a horizon – emerges as a method to tame the unfamiliar and provide orientations towards a future characterized by more inclusion, more participation, and in effect, better science.

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Camera Trapping Wolves and Ghosts: Sensing Universality in the Conservation Sciences

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Abstract: This article examines how scientists sense the rewilding of wolves in Italy through camera traps. Specifically, I elaborate on two cases when footage of these elusive animals did not allow scientifically sound conclusions but instead lent itself to storytelling about the fragility of human–wolf entanglements. Turning 'the haunted data', they collect in the wild, into ghostly tales on social media or conservation blogs becomes an important way for scientists to engage with wider publics. Taking a processual view of how scientists work with camera traps – from setting them up to capturing imagery and eventually turning their data into stories – the article argues that the uncertain and unreliable imagery of camera traps allows scientists to sense and narrate the fragile interconnectedness between humans and other species. Such scientifically inspired stories are used explicitly to counter widespread opposition to rewilding. On the basis of this case study, the article explores the more general question of how disseminating a narrative of universal interconnection has become a central mission of contemporary conservation science.
[conservation, wolf, rewilding, scientific universality, sensing technology]

> Infine ringrazio loro, i lupi, fantasmi in grado di svanire ed essere invisibili in un fazzoletto di terra, per avermi fatto camminare nelle loro tracce ed entrare nelle loro vite.
> Finally, I thank them, the wolves, ghosts capable of vanishing and being invisible in a patch of earth, for making me walk in their tracks and enter their lives.[1]

After capturing over three hundred camera-trap videos of wolves that are attempting to settle in the densely populated Parma plain, conservation scientist Chiara still finds their lives elusive. Despite extensive monitoring, as she writes in this blogpost on the website of an environmentalist association, the animals often remain invisible or vanish from the view of her lenses. The wolves that her cameras trap often seem to resemble ghosts rather than data, and she finds it difficult to assemble a clear image of their movements. But for Chiara, this uncertain vision also evokes a sense of connection with them, highlighting the fragility of their existence on contested grounds. Camera-trapping ghostly wolves allows her to 'enter into their lives' and become part of the complicated relationships that they consist of. Her scientific inquiry is dedicated not

1 Quote from https://www.iononhopauradellupo.it/racconto-di-una-famiglia-di-lupi-della-pianura-parmense-nel-periodo-2021-2022/ (accessed March 26, 2024). Translation by the author.

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just to assessing the rewilding of wolves and its impacts, but also to 'walking in their tracks', to involve herself this process and even to guide it. It is this sense of connection and gratitude that Chiara wants to convey when she disseminates her camera-trap data online, as in this blogpost.

This article is an ethnographic examination of how scientists sense and make sense of the rewilding of wolves through camera-trap imagery. Specifically, I elaborate on two cases when camera-trap footage of these elusive animals did not allow scientifically sound conclusions to be made but instead lent itself to storytelling about the fragility of human–wolf entanglements. In these cases, sensing technology does not allow scientists to capture an 'image of totality' of ecological processes, evoking both the scientific dream of universal knowledge and the dangers of conservation surveillance regimes. Rather, these cases illustrate another notion of scientific universality – the premise of universal interconnection – as an important directive for self-proclaimed 'mission-oriented'[2] conservation sciences.

Today, wolves have resettled in most parts of the Italian peninsula in a process called spontaneous or autonomous rewilding. Until the 1970s, the Italian subspecies *Canis lupus italicus* had been almost reduced to extinction, with only a small number surviving in the Apennine mountains. While the killing of wolves had previously been rewarded in some areas, hunting them has been forbidden since then. Wolves have been slowly spreading out over the country again, as their young leave the pack and find opportunities in areas which humans are simultaneously depopulating. But given the widespread opposition to these potentially dangerous animals, this spreading would not have been possible without legislative protection and continuous lobbying by environmentalist organizations.[3] For instance, the organization that Chiara works for (called *Io non ho paura del lupo*, 'I am not afraid of the wolf') states that wolves are the victims of 'an enormous campaign of discrediting and disinformation' carried out by some local and national media that do not support the rewilding of wolves.[4] Opponents of wolves are often people with vested interests against radical transformations of rural (often mountain) environments, such as hunters or farmers (Rippa 2021).

To counter their opposition, non-state actors like *Io non ho paura del lupo* often initiate scientific inquiries in the hope that the results will further legitimize the presence of wolves, for instance, by delivering proof of their positive impacts on the wider ecology. In this article, I investigate how these scientific missions find expression in scientists' interpretations of camera-trap images. However, such statements do not only focus on delivering what they call 'scientific evidence and technical information'. Rather, they often also use scientific data, including camera-trap imagery, to engage in storytelling designed to inspire affection for wolves (Fish 2022). As a result, they

2 See, for instance, the Society of Conservation Biology's self-definition https://conbio.org/professional-development/education-programs/conservation-biology-faq (accessed March 3, 2024).

3 Currently the 2002 Piano d'azione nazionale per la conservazione del Lupo.

4 https://www.iononhopauradellupo.it/en/comunicazione/ (English version, accessed March 26, 2024).

engage two different notions of scientific universality – as universal knowledge on the one hand, and as universal interconnection on the other.

To delve into these different understandings of universality, I draw on ethnographic interviews with two conservation scientists involved in camera-trapping Italian wolves, as well as materials gathered from online platforms on which both scientists and citizen scientists share and narrate their footage. My primary interlocutors, Anna and Chiara, are two young conservation scientists who are actively involved in non-governmental organizations. They have both recently monitored wolves in two neighbouring regions and have also used this material for online dissemination, which led me to examine the lively online communities in which camera-trap videos are shared. I collected this material in the context of a research project on European rewilding I conducted in 2023, for which I interviewed a range of people in several EU countries. This article does not seek to present an extensive ethnography of rewilding in the Italian context but rather to provide a micro-study of scientific practices in which multiple senses of universality intersect.[5]

The two interviews and my analysis of online camera-trap communities have led me to identify two different but interlocking understandings of universality that guide the scientific monitoring of Italian wolves. On the one hand, camera traps promise to generate an understanding of wider ecological coherences by aggregating singular images – even blurry glimpses of passing wolves – into a quasi-panoptical, quasi-omniscient perspective (Simlai 2022). On the other hand, camera traps can communicate the contemporary scientific premise that ecological processes are inextricably interconnected with each other by invoking deep immersions in the life-worlds of other species (Zimmer 2023; Thaler 2022).

Scholars have long pointed out the central but ambiguous role of scientific images in environmental visualization (Carruth and Marzec 2014; Mirzoeff 2014). Since the second half of the twentieth century, the conservation sciences have prominently illustrated ecological relations through so-called 'images of totality' (Jardine and Drage 2018:9, 11),[6] which Donna Haraway famously labelled a 'god trick' (Haraway 1988:581). Images like photographs of the earth from space or the graph of the Living Planet Index appear to be representations of a totality of ecological processes and relations (Callaway 2014; Lynteris 2017) condensed into 'a fixed instantiation of universal knowledge' about them (Jardine and Drage 2018:6). In this vein, the Italian ecologist (and wolf expert of national fame) Luigi Boitani finds that camera traps provide 'eyes wherever we wish to have them, for any time and under any condition' (quoted in

5 For a detailed and rigorous anthropological analysis of the rewilding of wolves in Italy, see Rippa 2021.

6 Boris Jardine and Matthew Drage define 'images of totality' as 'the tropic representation of totality or universal knowledge, for example, through a diagram relating the disciplines, a figure or personage attempting to synthesise all learning, or an (imagined or real) object or system that stands for or provides access to (at least) a vast number of other things.' (2018:9).

Rovero and Zimmermann 2016). Such images of totality are said to offer justification for authoritative policies (Helmreich 2011; Lekan 2014). Particularly in relation to conservation practices, it has been argued that the 'panoptical gaze' created by aerial photography, GPS, or drones underlies so-called conservation surveillance regimes (Simlai 2022; Simlai and Sandbrook 2021). Showcased in campaigns and spectacular media productions, such images are promoted as 'fostering certitude in order to generate a compelling, crisis-laden truth' (Chua 2021:122; see also Igoe 2020).

However, when monitoring the rewilding of wolves in Italy, this ambition is rarely realized in practice. Chiara and her colleagues often retrieve footage on which wolves are entirely absent or unidentifiable. Instead of forming 'total archives' that represent a complete system of knowledge (Jardine and Drage 2018), their databases become 'spectral archives' oriented towards an emerging potential (Blackman 2019). But far from resenting what technical literature calls undetectability, my interlocutors do not see producing authoritative images as the sole purpose of their studies. Instead, they utilize the elusive presence of wolves to express a second scientific understanding of universality: universal interconnection. Before the edited images are disseminated, the process of setting up and monitoring camera traps transforms technoscientific monitoring into an intimate act of witnessing. As Daniel Zimmer has argued, contemporary conservation sciences are built on the discovery of inextricable entanglements between ecological processes. Crucially, he highlights that this understanding of vital interconnection was formed in a context of plausible existential threat from thermonuclear weapons, as well as anthropogenic environmental disturbances: 'the universally interconnected, mutually sustaining flows of life on Earth were discovered against the backdrop of universal death' (Zimmer 2023:189). This version of universality proposes a new form of human universality which is quite different from the often criticized essentialist tendencies of Enlightenment humanism. Zimmer argues that this premise does not seek to define what all human beings essentially are (thereby obliterating, for instance, differences and power structures), but instead points towards what all human beings collectively do (ibid.:171):

> Whatever may be most essentially true about human beings resides not at the core of their substance, but arises actively in the mutually sustaining connections that they form both with one another and all the other systems that they inhabit and that inhabit them. (Zimmer 2024:190)

Ethnographic examination of scientific practice reveals how sensing technologies like camera traps invoke this pervasive but fragile interconnection by creating affective responses. This happens, for instance, when drone footage makes scientists feel complicit in damaging marine life (Fish 2024), when radio-tracking rare bird species makes them experience wonder (Lorimer 2015), or when mobile observation platforms immerse them in forest lives (Gabrys 2022). Alongside factual evidence, these affective dimensions help to formulate new purposes and politics for the conservation sciences. Accordingly, the Society for Conservation Biology defines itself as a 'mission-oriented

science' which is simultaneously 'crisis-driven' (Meine, Soulé and Noss 2006). Like many scientists, my interlocutors find that this mission requires more than the publication of peer-reviewed papers, so they engage in a form of science-inspired storytelling (Fish 2022). In various online forums, they disseminate camera-trap images in order to convey their own experiences of feeling entangled with the wolves' lives to the wider public. Scientists approach universal connectedness by narrating their own experiences of connections, and by potentially stimulating online users to create virtual connections to the invisible wolves in their vicinity themselves.

By enabling emotional storytelling about the fragile and often invisible rewilding of wolves, camera traps become 'bridges between meaning and materiality' (Corsín Jiménez and Nahum-Claudel 2019:384). Mathias Thaler calls such stories 'powerful allegories of universal connectedness', an expression of the utopian desire for multispecies justice (Thaler 2022:267). Thus, in blogposts, social media entries, or on their own websites, scientists evoke not just the spectre of universal death, but also the utopia of universal conviviality (Büscher and Fletcher 2019; Schroer, 2021; Van Bommel and Boonman-Berson 2022). In a context where many people would prefer to sever their ties with the rewilding processes that is transforming familiar environments, these visions of co-existence may themselves appear as elusive as the ghostly wolves. This article traces them by following how scientists encounter haunted data in the wild and then turn them into ghostly tales on the screen.

Senses of Universality

But how do ghostly encounters through the lenses of camera traps affect the relationships between animals and the scientists who trap them? And how do the imperfect and sometimes unreliable images of camera traps stimulate scientific explorations of universal connection?

Camera traps originate from hunters' traps and to this day invoke the 'uncertain game of alignment' between hunter and prey (Corsín Jiménez and Nahum-Claudel 2019), although nowadays they have accompanied the transformation of hunters and prey into stewards and protégés, or enthusiasts and objects of fascination. In the 1880s, the US forester George Shiras experimented with adding a trip wire and a flash system to his traps to take stunningly beautiful photographs of animals in Michigan: brightly illuminated deer dancing in the darkness, the blurry contour of a bear in the woods. These images then also found audiences worldwide when they were printed in *National Geographic* and shown at the 1900 Paris World exhibition. Shiras' method was soon taken up as a sport somewhat akin to (and often in combination with) big-game hunting, often by European personnel in the colonies, for instance, by Carl Georg Schillings in German East Africa, or by Frederick Walter Champion in British India (Kucera and Barrett 2011).

Since then, camera traps have become central technoscientific directives in the creation of management plans and policies for nature reserves and protected areas all over the world. When the decline of wildlife populations led twentieth-century colonial administrations increasingly to implement conservation measures (Lekan 2014), the traps used by big-game hunters were gradually replaced by the camera traps used by conversation scientists (Rovero and Zimmermann 2016). Even though camera traps are not designed to kill animals but to help them survive, they are also bound up with animal deaths and survival in complex ways, and any protection they offer is tied to biopolitical decisions about which populations get to live or die.

Environmental sensing technologies like camera traps (but also GPS, radiotelemetry, or microphones) guide these reasonings. Camera traps can provide a wide range of valuable data: on species and population (presence or absence, species richness, abundance and density, occupancy models) and animal behaviour (habitat use, activity patterns, migration patterns, foraging, nest predation, environmental impacts, species inter- and intra-actions) (Rovero and Zimmermann 2016). Apart from addressing site-specific questions, such as species abundance, camera-trap images can also be aggregated to inform the study of larger contexts, such as monitoring population abundance over larger areas, and even assembling a global assessment. In the latter case, camera-trap data from a large number of studies is combined with other types of data (ibid. 2016).

Since these data have become central to various ways of governing ecologies, scholars from the environmental humanities or STS have often critically regarded their potential to substantiate so-called conservation surveillance regimes (Simlai 2022; Adams 2017). Critics lament the fact that environmental sensing technology also provides data about people who live in protected areas, which not only invades their privacy, but may also be used to incriminate them, or even justify their displacement. Trishant Simlai and Chris Sandbrook (2021) have therefore attributed a panoptic gaze to these specific uses of camera traps. Francis Massé (2018) describes this seemingly all-pervasive, near-omniscient scope of powerful conservation projects by dissecting the multidimensional reach of different conservation technologies when employed together – camera traps provide horizontal control, drones add vertical control, etc. However, others point out that the panoptic potential of environmental sensing technology is rarely fully developed, and in many cases even severely limited. For instance, Adam Fish (2024:12) describes how 'the elementality of the ocean' frequently complicates efforts to control marine life with drones. The spontaneous rewilding of wolves is another highly dynamic and uncertain process that similarly evades the control of scientific investigation and technological surveillance, albeit not because of wolves' sheer elementality, but because of their elusiveness.

Indeed, technical literature on camera-trap methodologies quickly reveals that these apparatuses produce anything but a panoptic vision. Their data can help produce accurate estimates, but researchers are aware that there is much that they do not capture. Thus, they generally do not claim that camera-trap data sets provide a complete and authoritative representation. For instance, it is impossible to determine whether

multiple images of an unmarked, unidentified animal indicate a single individual repeatedly passing the camera or many different animals (Gilbert et al. 2021). In relation to larger terrain, the movement of unmarked animals can make it difficult to define the sampling area clearly enough and can indeed introduce *more* inaccuracies into the entire estimate (ibid. 2021). Recognizing these uncertainties, researchers have developed statistical methods to account for detection error, and they have continually sought to improve their analytical methods (Morin et al. 2022). However, they generally accept that perfect detection is rare in ecological data (Valdez et al 2023).

This illegible excess of camera-trap footage resembles what Lisa Blackman calls haunted data: the errors, misunderstandings, or 'weird' excesses which are often considered blind spots in scientific approaches, but which might develop affective potential of their own (Blackman 2019). Instead of a panoptic gaze that takes in the landscape as a whole, camera-trap images rather show an irregular, even haphazard glimpse of ecologies in motion, a view that is highly dependent on specific conditions, such as the unevenness of the terrain or the camera's sensitivity. As a result, only a small number of images can provide useful data. This inaccuracy is aesthetically accentuated by the often blurry, almost spectral look of the images, in which animals are often captured at odd angles or only as a pair of eyes glowing in the dark. Sometimes, the animals themselves obstruct their surveillance when they become curious about the apparatus and reach out to touch them: lenses are splattered with mud or even broken when animals remove the traps from the trees. Even though camera-trapped animals might sometimes appear elusive or even unreadable, such limitations, disruptions, or errors may also create unexpected glimpses of animal lives which preoccupy scientists' thinking as much as their research questions do.

Also speaking against the notion that camera-trap methodologies provide a panoptical gaze is the fact that researchers depend on contextual, situated knowledge (Haraway 1988). While camera-trapping does not directly rely on the sensing human body as a moving methodology to gather empirical data, whether through an 'arts of noticing' (Tsing 2010) or 'attentiveness' (van Dooren, Kirksey, and Münster 2016), they are still closely connected to the embodied experiences of researchers. In a how-to guide called 'Data in the Wild', wolf expert Luigi Boitani suggests that camera-trapping remodels the tracking skills practised by 'The hunters of traditional societies' (Rovero and Zimmermann 2016). Usually installed on trees, camera traps take close-up photographs and thereby show multiple intimate viewpoints that are deeply nestled in specific environments. To install the traps, researchers have first to explore the territory on foot to find suitable points, usually in places where they find many traces of animal activity. Once the cameras have been set up, researchers need to check them periodically to replace batteries and collect data, as well as read animal signs like tracks or faeces until they know the area well enough to choose suitable observation bases.

The technoscientific governance of environments might be incomplete and often unreliable, but since its knowledge gaps and margins of error are filled with immersive encounters, this inevitable closeness might preclude some of the more dystopian

predictions about conservation regimes. In his work on ocean drones, Adam Fish argues that such 'enhanced intimacy' has the potential to insert care into management projects, and it reminds scientists 'to embrace their complicity' and be more reflective (2024:21, 7). In a similar vein, Jennifer Gabrys (2019) shows how these technologically aided intimacies have become the basis for more democratized environmental action at numerous intersections of science and citizen engagement, for instance, on mobile observation platforms or in participatory apps. Conversely, Charles Bergman shows that such entanglements can also be experienced negatively, as when encounters with macaws through radiotelemetry transforms endangered animals into 'signs of their own disappearance' (Bergman 2005). In this article, I argue that, precisely because camera traps cannot easily lend, in Boitani's words, 'eyes wherever we wish to have them', they create a space into which scientists can insert their own intimate experiences of ecological fragility and their own sense of interdependence.

When scientists perceive themselves to be interrelated with the ecological processes they are studying, they are participating in an important scientific recognition of the last century, namely the prospect that these processes are all inextricably entangled with each other, mutually sustaining, and pervasively influenced by human activities in their interconnections (Zimmer 2023; Thaler 2022). Observing the ocean with drones, following the radiotelemetry signs of macaws or trapping wolves on camera can convey a sense of being enveloped in a mobile network of relations. Since, in most cases, scientific inquiry is directed at ecological problems, in most cases encountering such universal interrelations also means confronting the possibility of universal death (Zimmer 2023). This intimate sense of universality becomes more than a phenomenological aspect of scientific practice because it can also be used, as Andrea Ballestero suggests, as a 'conceptual resource' (2019:762). In self-proclaimed mission-oriented sciences such as conservation biology, the joint prospects of universal interconnection and universal death become a powerful directory for future research, influencing scientists' self-understanding and the purpose of their work.

Haunted Data in the Wild

I now turn to a series of ethnographic interviews I conducted with Anna,[7] a PhD student whose research monitors the return of wolves to a depopulated Italian region. A typical image that Anna finds among her captured data is a blurry night-vision shot of leaves, of empty ground, with no wolves or other animals in sight. While the camera was set up facing a trail on which wolves sometimes wander, this particular capture was triggered not by their movements but instead by leaves' swaying in the wind. Anna

7 Upon request, I have anonymized my interlocutor's name and changed aspects of her story and context to make her and her research unrecognizable.

estimates that this happened in about eighty percent of her entire images. The only information that these images convey about wolves is their absence.

This absence is not entirely misleading, since wolves have only recently started to return gradually to the Lunigiana region. To date, relatively little is known about the precise numbers, activities and impacts of these carnivores in this sparsely populated rural area, but the sense that they are returning is already stirring people. On the one hand, newspapers sensationalize ever more spectacular encounters with wolves, as when, in April 2023, a group of people saw a wolf attack a deer on the air-rescue runway of the hospital in Pontremoli and then tried in vain to transport the fatally wounded prey in an ambulance.[8] On the other hand, tourist guides, hikers and conservationists are finding that the number of wolves permanently settled in the Lunigiana is still relatively small, not least because they sometimes find wolves shot dead by poachers.

With the help of camera-trap images, Anna had been hoping to view the wider context of these as yet unknown transformations. Apart from assessing basic facts like how many wolves have settled in the area, she hoped to find out more about which places they frequent, or how they interact with wildlife or domesticated animals. Making this context visible is important not only in mediating regional conflicts between those who welcome wolves and those who dont't, but also in arriving at a more substantial scientific understanding of how wolves that return to newly depopulated areas impact these surroundings. According to current assumptions about rewilding processes, scientists would expect these large animals gradually to change the ecological relations around them. Anna's data would be a valuable addition to knowledge about passive rewilding that is currently happening all over Italy and many other places in Europe, which is still seen as an unprecedented event about which little is known.

However, despite almost one million camera trap images piled up on her GBIF (Global Biodiversity Information Facility) account, Anna chose to show me an 'empty' image and told me that she could not see 'anything interesting' in all of these data. When I spoke to her in March 2023, she was already halfway through her funding period, and when she showed me these images of leaves, she lamented that there was 'not much happening' in her field site. Based at a German university, Anna began the project in 2020 and has since travelled to the site every six months to pick up the new data that the camera traps have collected in the meantime. Each time, Anna was left disappointed about the images' lack of expressiveness. Having already tried several modelling techniques so far, she has not produced any findings that would be worth publishing. Half-jokingly, she said that she was also considering submitting to the *Journal of Trial and Error*, which publishes insignificant findings or failed experiments.

While the images she captures do not allow Anna to see the larger contexts, she gained some understanding of the Lunigiana's ecology when setting up her study, for instance, when installing the cameras. Ideally, she aims to place the cameras evenly at

8 https://www.ilsecoloxix.it/la-spezia/2023/04/11/news/lupi_sorpresa_in_lunigiana_esemplare_e_arrivato_elisoccorso_pontremoli-12747503/ (accessed 2 May, 2024).

the intersections of a grid that she imposed on the terrain, and which she locates on site via GPS. First of all, since the area is mountainous, it is sometimes difficult for her to reach these predefined sites by foot. And once she found them, she often cannot place the cameras at the exact location because there is no tree to fix them, or because she herself cannot access steep slopes. She then has to search for the closest opportunity, which of course can involve even more hiking or climbing. What is more, the predefined spots do not always coincide with the places where she has found traces of wolf activity, so she sometimes has to find animal crossings in the vicinity. Over time, she told me that she had developed a good feeling for the area, and laughingly adds that this does not necessarily find expression in her data.

As her knowledge of the terrain grows, Anna needs to adjust the camera mechanism constantly. For instance, in order to capture less 'empty' images that were triggered by the movements of branches in the wind, Anna was trying to figure out a better sensitivity setting for her cameras. When she first took over the project, she had them set on the highest sensitivity, but ended up getting too many empty frames. She then switched to medium sensitivity, but got significantly fewer images with animals. When we spoke, she was still dissatisfied but acknowledged that empty images cannot be entirely avoided. Even though Anna herself cannot make use of the empty frame images with only leaves and branches, she stresses that they might potentially still be useful to someone in the future – or at least for machine-learning. Therefore, she does not delete the animal-empty frames, even though she struggles to find the space to store them (since the GBIF server only hosts images with animals in them, she has not yet made the empty images publicly available).

Every individual image that Anna's camera traps capture – glimpses of wolves, as well as of swaying leaves – bears the promise and potential to contribute to an 'image of totality' that would show a bigger picture. Therefore, not even the most spectacular image captured by a camera trap is significant by itself, but only in relation to numerous other pictures. Usually, scientists turn the data from camera-trap monitoring into maps or diagrams that show, for instance, the species richness in a certain landscape or region. Theoretically, a large number of such processed datasets can be aggregated to detect trans-regional or even global trends. Considering how difficult it is for Anna to camera-trap animals even in a relatively small, confined area, aggregating a very large number of uncertain, even partially empty images is ever more challenging.

Therefore, conservation scientists declare the 'undetectability of global biodiversity trends using local species richness' (Valdez et al. 2023). In their study, Valdez et al. argue that, while data on species richness is recorded by many people and organizations all over the world, this is done under very different conditions and through different methods, which renders the totality of 'global biodiversity' ultimately undetectable. A main reason for this undetectability is error: there is simply no 'perfect measurement' but only an 'opportunistic collection of studies' that are rarely conducted in a standardized way (ibid. 2023:6). For instance, researchers might work with different sampling intervals, which come with different likelihoods of being able to represent a trend

in species richness (the smaller the interval, the more samples are required). Errors also occur when researchers do not observe species even though they are present, or when they mis-identify them. As the study found, even smaller than usual errors already severely affect the validity of the statistics and render them unreliable.

Dealing with such uncertain vision motivates Anna to work on aligning the images she captures with the experiences she makes while doing so. Even though she finds it hard to collect scientifically sound data, she told me that she knows that wolves are already transforming the environment, for instance, because she has noticed the changing behaviour of their prey. Smaller animals, she finds, have avoided the vicinity of those camera sites in which she has most successfully trapped wolves. She has not yet managed to find proof of this in her images because the cameras are not set up to answer this question. Still, the issue inspires her to experiment with her data, for instance, by trying out modelling techniques that her supervisor praised as somewhat unusual.

For mission-oriented conservation scientists like Anna, this motivation to innovate camera-trap methodologies is part scientific curiosity, part vocation. In our conversation, Anna was as much concerned with the technological challenges of making the rewilding of wolves visible and knowable as she was with her intention to aid and guide the process. This was also true for other conservation scientists I spoke to, many of whom expressed a sense of urgency in substantiating their experiences of ecological degradation with more convincing data in order to improve conservation successes. For some of them, the experience of species loss precedes its proof through scientific data. Starting with their undergraduate training, their careers lead them to travel a lot and to immerse themselves in different environments. Close engagement with data from all over the world also gives researchers insights, even expertise, on places where they have never been themselves. Therefore, Valdez et al. fear that, 'even with thousands of perfectly sampled sites, many species will likely go extinct before we can adequately detect any meaningful global biodiversity change' (ibid. 2023:8).

Rather than evoking a 'panoptical gaze' of conservation surveillance regimes, scientists like Anna often endorse the uncertainty and even undetectability they encounter. In the following section, I examine more closely how the uncertain elements of camera-trap data allow situated knowledge and storytelling to take the place of scientifically sound interpretations.

Tales of Ghosts on the Screen

In the blogpost that begins this article, Chiara Alessandrini recounts her experiences in camera-trapping a wolf pack in the Parma plain. Instead of using mathematical modelling techniques to turn camera-trap images into 'images of totality' that visualize larger contexts, Chiara offers a 'tale', *un racconto,* of the fate of an individual pack, as well as of her own intimate relationship with it.

Every video that Chiara chose conveys some pieces of information. A young wolf licking an adult's muzzle as a request for care shows that the pack had reproduced the year before. The dominant female marking a spot with urine is captured from a position that shows an infestation with mange (parasitic mites). A puppy that stands right in front of the lens and stares at it shows signs of hair regrowth, which indicates that it might recently have recovered from the same disease. Even though these videos usually last only a couple of minutes, they reveal enough details of the wolves' lives to allow Chiara to tell a tale, even if only in parts.

Although the Parma plain begins at the northern end of the Lunigiana mountains, the wolf pack found themselves in a very different situation than their neighbours. In contrast to this depopulated mountain region, almost the entire Po Valley is densely settled, industrialized and cultivated. The plain suffers from a range of environmental threats, such as one of the strongest pollution rates in Europe or persistent drought, with parts of the rivers disappearing for periods over hot summers. The pack was one of first to try to settle in the area, which Chiara suspects 'must not have appeared very inviting to their senses'.[9] During the time that Chiara and her colleagues monitored them, the wolves had to move their location, but also seemed to have found a way to nourish themselves by eating waste meat from the area's numerous farms.

Chiara conducted the monitoring together with a number of colleagues from *Io non ho paura del lupo*, which uses the data to generate and disseminate knowledge about these controversial animals. For this project, they investigated a territory measuring about ten square kilometres by distributing five to seven camera traps in places that the wolves marked repeatedly, and leaving them in place for as long as possible. Another trap was placed on a half-decayed wolf carcass. The team also searched for signs of presence like tracks and faeces. Between spring 2021 and spring 2023, they collected over three hundred videos. However, Chiara does not consider their data to be entirely scientifically sound.

The camera-trap footage is so patchy that she struggles to relate a complete account of the wolves' lives. For one thing, the monitoring team was not always permitted to install camera traps in the most suitable spots because most of the land was private property. Moreover, many of the wolves caught on camera are difficult to identify. Most of them do not have clearly distinguishable features or simply pass by too quickly. Chiara therefore remains unsure about central aspects such as the total number of wolves and their offspring, but assumes that there are at least four adults and three pups, one of whom later died. She recognizes and even names some of the wolves, but remains unsure about the identity of others. Once she recorded a female wolf with a very recognizable trait (a diseased eye that is not fully reflected in the camera), but the animal never appeared a second time and left Chiara wondering: 'I've asked myself countless times who this never before seen female was, where she came from and where

9 Quote from https://www.iononhopauradellupo.it/racconto-di-una-famiglia-di-lupi-della-pianura-parmense-nel-periodo-2021-2022/ (English version, accessed March 26, 2024).

she ended up after… Questions that will forever remain unanswered.'[10] For Chiara, such personal and emotional reflections often fill in the gaps of unseen images and unknown answers:

> I had the privilege of being able to witness glimpses of their lives, unforgettable for me, with the awareness that I could only be a silent and discreet witness of their dramas and their successes, but with the same certainty that, if there hadn't been someone to be able to tell them, for us it would have been as if they had never happened. This story is an attempt to describe what happened in the family of wolves that I have been following for over two years, and it is only the tip of the iceberg of their complicated and for us elusive, lives but above all I want it to be my thanks to them, because the time dedicated to trying to understand them without interfering has been a path of rediscovery.[11]

Alongside factual information and analysis, these reflections themselves amount to a tentative conclusion: even though her images show 'only the tip of the iceberg of their complicated and for us elusive, lives', these lives are connected to the grander aspirations of ecological recovery in an intricately entangled world. Admitting her inability to compile a total account of their lives does not lessen the importance of her work because, 'if there hadn't been someone to be able to tell them, for us it would have been as if they had never happened.' For her, the more neutral act of monitoring wolves becomes the endeavour 'to witness glimpses' and to 'be a silent and discreet witness of their dramas and their successes.' As bearing witness becomes valuable alongside collecting data, Chiara simultaneously takes on the contradictory positions that monitoring and witnessing afford – the first requires her to be detached, the second to become deeply involved.

When Chiara disseminates her camera-trap images on her organization's website, or when a substantial number of citizen scientists share their own footage, witnessing gives way to what Adam Fish (2022) calls scientific storying, or science-inspired storytelling, which is supposed to invigorate public interest and to act as a prerequisite for legal and financial support for conservation. In the Italian context too, researchers often share camera-trap data with citizen scientists and other wildlife enthusiasts. Some of these images are taken from the large backlogs of unprocessed images, which are often not necessarily directly relevant for specific studies or routine monitoring. Conservation organizations sometimes draw on these backlogs to upload spectacular or comical clips on social media.

For instance, in the caption for a camera-trap video of an 'extraordinary encounter' between a wolf pack and a deer, the NGO Rewilding Apennines declares that such

10 Quote from https://www.iononhopauradellupo.it/racconto-di-una-famiglia-di-lupi-della-pianura-parmense-nel-periodo-2021-2022/ (English version, accessed March 26, .2024).

11 Quote from https://www.iononhopauradellupo.it/racconto-di-una-famiglia-di-lupi-della-pianura-parmense-nel-periodo-2021-2022/ (English version, accessed March 26, 2024).

footage is a way to 'to make us live these emotions of wild nature'.[12] One of the account's most frequently viewed videos shows a howling wolf, which instils in its viewers an almost eerie sense of wonder. Accompanied by music or commentary, such videos open up complimentary interpretations of the diligent analysis of camera-trap images one finds published in journals. Another example are dedicated websites like fototrappolaggionaturalistico.it, which has a section dedicated to storytelling through camera-trap images. For instance, one story recounts the life of the wolf Luna, who used to be the dominant female until her pack fell victim to poaching and she grew into old age entirely on her own. Another, more light-hearted story recounts the male wolf Ventasso's coming of age after leaving his natal pack and finding a companion with which to start his own pack. The narration turns wolves into public personalities with almost human, but nevertheless still somehow wild, lives. However, the most-viewed camera-trap videos seem to be those uploaded onto YouTube without commentary, but with a lively comments section where people post mostly humorous remarks.

Such storytelling can be seen as part of the conservation sciences' self-declared mission to protect ecological life-worlds. By turning camera-trap images into tales rather than data, scientists narrate both the knowledge and the sense of being entangled with other species' lives and disseminate it to the public. According to Adam Fish, this is 'an ethically responsible act of reciprocity or giving back to the animals whose lives are disturbed by scientific data collection' (2022:864). He argues that, since the relationships between scientists and animals have become so much closer through sensing technology (or at least feel so much more intimate), scientists are now morally obliged to assume more profound responsibilities for the care of animals. This also seems to be the opinion of scientists like Chiara, who make it their mission to publicize the narrative of the fragile survival of wolves. As her organization writes on their website, they do this also explicitly to address what they call 'an enormous campaign of discrediting and disinformation' carried out by some local and national media that do not support the rewilding of wolves.

Conclusion

In this article, I have examined how two scientists turn the haunted data they encounter in the wild into ghostly tales in online worlds in order to narrate the fragile rewilding of wolves. The first example has explored the experience of setting up camera traps in uneven terrain and collecting unreliable, often unreadable images. In this case, what the technical literature calls undetectability translates into a sense of productive haunting: the invisible presence of wolves and the subtle rewilding dynamics that the

12 https://www.youtube.com/watch?v=5RUnvzdM54c&ab_channel=RewildingApennines (accessed March 28, 2024).

scientist experiences when immersed in her research surroundings motivate her curiosity and creativity. The second example has shown how uncertain images and elusive data can become the basis for scientific story-telling. Foregrounding the researcher's subjective experiences of witnessing partially unknowable, fragile and precious events, these stories resemble tales of ghosts rather than conventional scientific analyses. Besides generating evidence-based knowledge about the rewilding of wolves, communicating these subjective and affective dimensions of scientific practice becomes a central endeavour for the researcher.

The article uses these ethnographic perspectives to illustrate the scientific mission that motivates many contemporary conservation scientists. More precisely, I have argued that the uncertain vision of camera traps inspires my interlocutors to formulate and disseminate scientific stories that might motivate the protection of delicate connections. Similar to the notion of scientists as custodians of universal knowledge employing the god-trick of quasi-omniscience, here scientists also take on the role of powerful stewards burdened with the responsibility for universal survival. But my interlocutors' endorsement of the unknown and unseen aspects of scientific practice lend a different tone to their stewardship. Rather than seeking all-pervasive, quasi-omniscient knowledge in order to exert control, they emphasize fragility. How, then, does the notion of universal interconnection motivate conservation efforts in perhaps different ways than authoritative constellations of quasi-surveillance regimes?

On the one hand, the emphasis on multispecies intimacies could be read as a spirited counter to the possibility of universal death which Daniel Zimmer has highlighted as a central theme in the current conservation sciences. It suggests that scientists also harbour hope for what could perhaps be called universal conviviality, thereby evoking radical ideas like multispecies justice that anthropologists and humanities scholars have put forward in recent decades (Chao, Bolender and Kirksey 2022). The prospect of convivial coexistence is particularly developed in the ways in which scientific findings are communicated. Science-inspired stories are meant to sustain citizens' acceptance of or even support for conservation efforts, while visuals like drone and camera-trap videos illustrate such narratives. Adam Fish even argues that such story-telling is an act of care which itself contributes to a kind of reciprocity between humans and the other species that contribute to scientific knowledge finding (2024).

This seems true in the cases I have examined in this article. Wolves may have autonomously reclaimed the Italian peninsula, but they rely on supportive groups in order to be able to remain there against the clear opposition of concerned citizens. Science-inspired storytelling becomes a way of countering the demands to minimize the wolf population, which abound on social media or in the local press. These suggest severing the emerging ecological interconnection that spontaneous rewilding processes are beginning to create. A brief and blurry YouTube video of a wolf might be a way to foster affinities and thus to convince people to accept this potentially dangerous animal in their neighbourhood. And even ghostly encounters might be more effective than the iconic images of planet Earth which are nearly omnipresent in environmentalist image-

ry, but which may appear abstract and static rather than convey an immediate sense of belonging and connectedness (Helmreich 2011; Lekan 2014; Jasanoff 2001).

On the other hand, like the panoptical gaze of more authoritative conservation organizations, science-inspired notions of conviviality also exclude other forms of co-existence which may not favour wolves but might be too easily vilified. The scientific ideal of universal interconnection is not easily aligned with concerns about particular interconnections. As Alessandro Rippa finds, anti-wolf narratives do not set out to stigmatise wolves but instead signify 'the abandonment of the mountain' and 'a point of no return for mountain communities' social and cultural livelihood' (2021:949). As his ethnography shows, the people who speak out against the rewilding of wolves do not always do so on the basis of misinformation that must be debunked by means of scientific evidence. For wildlife hunters, the rewilding of wolves is one of the transformations that make their familiar environments less habitable. Therefore, people who oppose the rewilding of wolves do not reject close entanglements with other species outright; instead, they try to protect a very specific form of them, precisely, as Rippa writes, the 'multispecies communities that they have participated in shaping over generations' (2021:968).

The loss of the latter might also evoke a sense of haunting which is not captured in the lenses of camera traps and does not find expression in the scientific ghost stories that this article has explored. In conclusion, by turning scientific attention towards invisible and fragile rewilding which is yet-unknown and yet-unrealized, the ghostly vision of camera traps illustrates universal interconnectedness as another partial mobilization of scientific universality in fractured environments.

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Rational Sceptics: Contestations of Science and Conspiracy in the Czech Republic

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Abstract: Covid-sceptics in the Czech Republic relate strongly to the idea of universal science. They understand this universality as emerging through the participation of ordinary citizens in scientific knowledge-making. Rather than then belonging solely to the experts, science ought to be democratic and accessible. This article describes several ways in which Czech Covid-sceptics contest the boundaries of science and devise their own theories, observations and experiences as scientific. I describe how Covid-sceptics mobilize their embodied experience of the pandemic as evidence and intertwine this embodied knowledge with narratives of universal science. By relating to the notion of the rational, educated and self-informing citizen, they are able to enter into a relationship with science even despite the lack of formal expertise. Scientific universality becomes a point of contestation through which alternative knowledge is linked to the imaginaries of 'good science' and scientific authority.
[conspiracy theory; science scepticism; embodied empiricism; anti vaccine activism]

Rational Sceptics: Contestations of Science and Conspiracy in the Czech Republic

I am sitting in a large wooden hall, in a circle with approximately a hundred other people of all ages. It is summer 2022, the pandemic in the Czech Republic is subdued for now, and the afternoon sun shines through a huge cathedral-like window that stretches over the western wall. Those who have come to this weekend workshop share an interest in alternative medicine and a sceptical perspective on the Covid-19 pandemic. They believe that modern science is corrupted and that many aspects of modern civilization are controlled by various shadowy forces. Everyone here remembers the pandemic as a time of biomedical oppression and refuses to listen to the 'fake experts' any longer.

Covid-sceptics from across the Czech Republic have gathered for this particular workshop on survivalism, self-sufficiency and sustainability in order to establish personal connections and to share knowledge and information. Currently, everyone is listening to a muscular young man named Michal who is presenting a petition against 5G networks in the Czech Republic. '5G networks are just another part of the plan, another step they are going to take after the whole Covid business', he explains, describ-

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ing in detail how 5G transmissions influence biophotons, and how the holographic frequency of the broadcast information destroys human minds and bodies. According to Michal, much research has been done on this topic, and over two hundred and fifty scientists, some of them even Nobel Prize winners, all agree that 5G networks are dangerous and unhealthy. As he continues, his short lecture strays further and further from 5G and focuses more and more on the science informing his activism. He explains how modern research shows that various parasites can be killed with the light attuned to the right frequency, or how American genetics used light and energy waves to rejuvenate several women in their eighties to the point that their teeth grew back and they began to menstruate again. Michal tried some of these experiments himself, using copper wire and glass bottles in his cellar to measure the wavelengths produced by various electronic devices. After he finishes, people gather around him to sign the petition, chat with each other, and contribute their own observations and experiences. They don't need much convincing; they already know all about 5G. After all, they have done their research. Now the only thing which remains is for other people to realize what they have. 'They also didn't listen to Galileo when he taught that the Earth revolves around the Sun', commented one of the participants toward the end of the workshop: 'Well, we all know what the truth is. Now it's up to the others to start thinking logically as well.'

In this article, I follow Covid-sceptics in the Czech Republic, many of whom engage with claims and narratives that are usually labelled 'conspiracy theories'[1], and I explore the ways in which they and their views are entangled with science. The material presented here is based on ethnographic research I conducted over two six-month periods from 2022 to 2023. I entered the field at a time when the conspiracy milieu (Harambam 2020) had been significantly reshaped by the Covid-19 pandemic. The notion that the pandemic was somehow 'fake' consolidated the scene and drew in many people who had not engaged with conspiracy theories or similar narratives before. People from various social backgrounds engaged in Covid-sceptical activism, both online and in physical space. Some of them share an identity and see themselves as constituting a loose but interrelated community of critical and rational thinkers, all of whom are on a shared quest to understand and uncover the truth.

1 The term 'conspiracy theory' can be applied to multiple phenomena (from narratives about chemtrails to theories about a sinister cabal of lizard people who are controlling world governments behind the scenes) and analyzed in many possible ways. For a general overview of multiple possible approaches, see (Butter and Knight 2020). In this article, I follow an approach which assumes 'conspiracy theories' to be a form of knowledge that does not assume any inherent essential difference from other ways of knowing, and which foregrounds relations of political power to specific types of knowledge in the process of labelling certain theories and narratives as 'a conspiracy theory.' (Pelkmans and Machold 2011). In short, the difference between 'conspiracy theory' and 'theory' depends on the position of the actors in the given political context, rather than on concrete subjects or forms of such knowledge.

I had met some of my interlocutors during previous ethnographic work conducted for my master's thesis,[2] which focused on practices of alternative healing during the pandemic (Bečka 2021). During that time, I encountered people who tried to resist what they perceived as 'biomedical totalitarianism' and who were often labelled 'Covid-deniers', 'Luddites' or 'anti-science' (Hotez 2021; Miller 2020). But they rarely saw themselves as rejecting science entirely; rather, they considered themselves to be true experts, people who remained open to all possibilities, gathered data and conducted experiments. In my subsequent research, I sought out people who were active members of organizations that presented themselves as fighting against the hegemonic understanding of the pandemic and the biomedical response to it. These included groups resisting vaccination, lockdowns and mask-wearing, as well as five groups that could be characterized as 'conspiritual' (Ward and Voas 2011), which had broader goals beyond Covid-sceptical resistance alone. In total, I conducted 35 in-depth interviews during this period and engaged in participant observation during workshops, seminars, ceremonies and protests organized by my interlocutors. During these events, I introduced myself to the participants as a researcher and obtained verbal consent to my presence, except in situations when this was not logistically possible (for example, gatherings with a larger number of people), in which case I sought verbal consent from the organizers. I also followed the posts of my interlocutors on social media and engaged with the online content they recommended to me, or which was shared by the groups and organizations they were part of. All the names in the article are pseudonyms.

The organizations I engaged with were quite small, usually having only around a dozen stable members and a high turnover of others. However, many other similar organizations and groups that emerged during the pandemic exist in the Czech Republic.[3] Despite little political or organizational unity, and the often very fractured nature of Covid-sceptical activism, my interlocutors nevertheless express a feeling of shared identity. They frequent similar online spaces, engage with the same media and understand themselves as belonging to a group of specific people who saw the pandemic for what it was. These connections and networks still linger after the pandemic, and even as their members mobilize around different issues (the war in Ukraine, the New Green Deal), the Covid-19 pandemic still remains a foundational event which brought them together.

My interlocutors position themselves against what they perceive as the scientific 'mainstream', arguing that they are the true experts who are able to 'uncover the truth'. Such forms of scepticism and 'truth seeking' in times of epistemological uncertainty carry within themselves a risk of never-ending critique and an inability to provide answers beyond narratives of general doubt and suspicion (Pelkmans 2024). However,

2 Which encompassed six-month fieldwork in the Czech Republic from September 2020 to February 2021.

3 Unfortunately, there has not yet been any significant study on this topic, which would provide a more cohesive idea about the number of such groups and organizations.

Czech Covid-sceptics attempt to move further than that, and the idea that science can produce universal knowledge plays an important role in this process.

I argue that Covid-sceptics in the Czech Republic produce *alternative knowledge* and that they mobilize the notion of scientific universality to do so. Their criticism and distrust of science need to be understood within a larger discourse of what constitutes good and reliable scientific practice, since Covid-sceptics connect their political and activist projects to scientific knowledge and its authority. They understand themselves to be rational sceptics, whose suspicions are in some ways closer to what science should represent than the practice of scientists themselves. In their perspective, science helps them to find the truth they seek and lends support to their sceptical position, but they consider scientific findings relevant only if they are aligned with individual embodied experience and observation, and only if science remains accessible to criticism of informed and sceptical citizens like themselves.

I begin with setting Covid-sceptics and their relationship to so-called conspiracy theories within the larger context of scholarship. Covid-sceptics are active participants in the production of alternative knowledge and strategically claim the authority of science, similarly to other actors who do so in other related contexts. Drawing on the notion of embodied empiricism (Weston 2017), I describe how Covid-sceptics observe their own bodies and the bodies of other people around them during the Covid-19 pandemic, and how they relate them to scientific theories and biomedical understandings of Covid-19. In the moments when tests and diagnosis misalign with embodied experience, Covid-sceptics trust their own bodies more than the scientific authority, and they position their distrust as a rational and empirically sound choice. Through embodied empiricism, they not only attempt to produce evidence for their sceptical understanding of the pandemic, but also argue that the biomedical management of the pandemic has been harmful and oppressive.

I will follow this by elaborating on the type of expertise Covid-sceptics claim. They do not understand themselves as scientists per se, but rather as concerned and questioning citizens who are able to navigate between various sources of information and truth claims, some of which are disputed. By rejecting certain theories or narratives about the Covid-19 pandemic as unreliable, as 'too far out', or by labelling them as 'conspiracy theories', Covid-sceptics perform the role of sceptical and rational citizens who remain educated about matters that concern them, and they take an active role in creating the boundaries of knowledge they produce. Finally, I turn to the understanding of scientific universality as something that is reached through participation and democratization and argue that Covid-sceptics require science to be universal in the sense that it should be accessible and inclusive. Science is imagined as a practice that is potentially open to everyone. Through this discursive move, Covid-sceptics attempt to situate their claims and narratives as a natural part of the scientific endeavour to produce universal truth.

Producing Knowledge, Claiming Science

The phenomena labelled as 'conspiracy theories' have usually been interpreted as pathological (Hofstadter 1964) and dangerous (Popper 1966). Alternatively, they have been treated as a form of social critique of power or modernity (Fenster 1999; Aupers 2012; Knight 2000), that is, as a response to an epistemological crisis (Fassin 2021). Recently, some scholars have begun to approach 'conspiracy theories' as a form of alternative knowledge (Boullier, Kotras and Siles 2021), focusing on their production and on the self-understanding of the actors who create and disseminate them.

Alternative forms of knowledge, such as witchcraft or traditional medicine, have long been the subject of anthropological debates (Meiser 2017). Applying this concept to so-called conspiracy theories (Rabo 2020) makes it possible to step away from normative value judgments and situate them in a larger context of meaning-making, thus allowing us to better capture their multiplicity and variety. Harambam and Aupers (2017) stress the multiple and relational character of what they call the 'conspiracy milieu', which they suggest approaching as a set of relatively fluid networks within which so-called conspiracy theorists negotiate specific identities in relation to the knowledge they produce. More than being just passive consumers, their active engagement and participation give a tangible quality to alternative knowledge (Tripodi, Garcia, Marwick 2023).

People produce such alternative knowledge in multiple ways. For example, Tripodi (2018) shows how American conservatives use techniques of close reading that they have learnt through Bible study to navigate the media landscape. When they produce 'alternative facts, they confirm the information by adhering to scriptural inference by paying close attention to 'original texts' such as Trump's speeches, just as they would do when they read and study the Bible or the USA Constitution. Similarly, QAnon supporters participate in collective knowledge-making. They weave together different theories on chat boards to gradually build up a cohesive narrative with an established canon of 'verified sources' to which they refer when they do their research, rejecting and policing contradictory accounts as irrational or illogical (Marwick and Partin 2022).

When producing such alternative knowledge, Czech Covid-sceptics also relate to science, usually by taking a critical position towards what they describe as 'mainstream science' while at the same time strategically evoking scientific knowledge and authority. Dutch 'conspiracy theorists' position themselves as true scientists and claim that the limited perspectives of scientists and their entanglements with business interests[4] corrupt and distort scientific research (Harambam and Aupers 2015). The notions of revolutionary science and paradigm shifts (Kuhn 1970) become rhetorical figures which they use to lend support to their own theories and narratives. Similarly, Baker and Rojek (2020) describe the 'native expertise' of lifestyle gurus and influencers, who

4 Production of scientific facts can indeed be influenced by the interests of corporations (Oreskes and Conway, 2010).

selectively work with scientific evidence, rejecting 'mainstream science' and presenting their own knowledge as more grounded and as supported by everyday experience. They take the position of sceptical individuals who are simply trying to figure out things by themselves, able to determine which scientific facts are real and which are not, seeing common sense and individual experience as a source of truth, a move which they share with other similar actors (Van Zoonen 2012).

Science remains a politically contested category (Harding 1991). The difference between 'good science' and its bad other, pseudoscience, can be understood as a product of boundary work (Gieryn 1983) which is never quite finished, and with uncertain and shifting limits (Harraway 1991). As multiple actors contest and construct boundaries of scientific knowledge, some claims, theories and practices are left out, while others come to be considered as knowledge and acquire a hegemonic position (Rathjen and Stähelin 2022). Such conflicts were prevalent during the pandemic (Drążkiewicz 2023), but they have a much longer history. Gordin (2021) situates 'pseudoscience' as a historical phenomenon that has long been part of political and social life, from phrenology and astrology to theories of water memory.[5] Even though they are often framed and rhetorically positioned as a 'search for the truth', these endeavours cannot be always assumed to be entirely innocent. Attempts to stake out the position of a rational sceptic, standing against corrupted scientific elites (Mede and Schäfer 2020), must be understood within a larger political context, as should the struggle to push them outside the boundaries of 'proper' science. To claim the status of 'science' is not only to claim knowledge but power as well.

Covid-sceptics in the Czech Republic relate to science in distinctively similar ways as other actors who try to connect their alternative knowledge to scientific authority. They are critical of the 'scientific mainstream', engage in boundary work and notice when science becomes intertwined with the interest of states or corporations. They point out inconsistencies, question methodologies and present their own knowledge as more reliable and superior. This is done not only by discursive critiques of science, but also by embedding their knowledge in everyday embodied experience and appeals to common sense.

In vaccine hesitancy movements, intuition, experienced as embodied (and gendered) feeling, plays an important role (Baker and Walch 2022). People often combine their 'gut feelings' with discursive criticism of 'mainstream science' (Ten Kate, Koster, Van der Wall 2021). This attentive position towards one's body can also be aligned with the notion of good science. Kath Weston argues that scepticism rooted in bodily knowledge cannot be dismissed outright as ignorant or wrong (Weston 2017:108-115). Using one's body as evidence has long been an accepted method in the scientific community, and to some degree it still remains a valid practice. In the history of science, the very

5 In the context of history of Western science and negotiations of its 'fringe', it might also be useful to point out developments in Western esotericism and its relationship to science (Hanegraaff 2012) and rationality (Hammer 2019).

bodies of scientists become an instrument through which knowledge is produced, and self-experimentation often plays a central role in imaginaries of scientific work, despite a gradual move from the use of the body as an instrument towards other techniques of knowledge production (Gal and Morris 2010). But the body still remains a site of compelling evidence, especially in the context of citizen science (Kimura 2016).[6] When Covid-sceptics challenge science as being too detached, mired in the complex and confusing network of technical experimentation, which they consider too vulnerable to the corruptive influence of states or corporations, their attention to embodied experience can be linked to this historical tradition of science. Weston shows that climate sceptics, who reject computer models and prediction and prefer to 'trust their bodies', in some manner continue this tradition.[7] In the following section, I turn to Czech Covid-sceptics who mobilize their embodied experience to produce evidence not only for their sceptical position towards the seriousness and danger of the virus itself, but also for the pandemic as an expression of state control and 'biomedical tyranny'.

If Covid is Real, Why Am I Not Dying?

I met Lucie during an excursion organized by a Covid-sceptical group she is part of. An energic woman in her fifties, she works as an education specialist, developing secondary school programs focused on environmentalism and ecology. She agreed to an interview, and we talked a couple days later in her office about her experience with Covid-sceptical activism. Originally, Lucie had quite a different view on the pandemic. In early 2020, she was very careful and considered the virus quite dangerous. She thoroughly washed her groceries, did her shopping in plastic gloves, always wore a mask outside and avoided physical contact with her elderly mother. But eventually she realized that about a month before the Covid-19 pandemic erupted in the Czech Republic, she had come down with a 'strange flu'. This was quite unusual for her, since she was almost never ill. 'I have almost never been sick – I grew up in the village, running outside all the time… I thought that this must have been Covid for sure,' she explained to me. She had heard about a medical study measuring levels of antibodies in the blood. Lucie went to have her blood taken and checked, but she learned that she had not had Covid after all. It must have been something else. 'That started to really mess with my head, and I started searching for more information.' Her disease had not been serious,

6 Despite existing contestations around the possibility of participating in the production of scientific knowledge within citizen science, the criticism of 'mainstream science' by citizen scientists often differs from Covid-sceptics' claims. In general, citizen scientists are much more open to collaboration with scientific institutions, often seeking to extend its capabilities and power.

7 However, Weston still maintains that embodied empiricism has its limits and that it can be used to argue and evidence different things, including the reality of climate change.

but certainly unusual to her; it had felt different. This strange discrepancy between Lucie's own bodily experience and the medical authority set her on her path toward an alternative perspective on the pandemic. She trusted her own body more than 'some cheap Chinese test kit', as she put it. Clearly, scientists did not know everything. She might as well try to figure things out herself.

It is not entirely unreasonable that to some this sort of embodied empiricism (Weston 2017) can be more convincing than reliance on computer models, imprecise tests and uncertain predictions. Like many others, Covid-sceptics ensure that their knowledge is reliable and trustworthy by paying attention to their bodies, but they also link this embodied knowledge with the notion of *good science* and claim that true knowledge can be gained only if it aligns with personal experiences and observations.

Many Covid-sceptics interpreted their own, usually mild experience of Covid infection as clear evidence that the disease was not so dangerous after all. Since the diagnosis was usually determined through testing, and the test kit could show a positive result even without the presence of clear symptoms, it was not unusual to find oneself in a situation where bodily state and test result disagreed. Covid-sceptics often mention that they or their family members felt completely well, but the test results were positive, or the other way around. When navigating such uncertainties, they turned to their bodies and considered them a more reliable source of knowledge than the anti-gen or PCR tests, or even more specialized examinations, as in Lucie's case.

But suffering and sick bodies still existed and demanded an explanation. At the gathering mentioned at the opening of this article, I run into Hermína, teacher, dance instructor and Covid-sceptical activist. During the pandemic, she offered legal support to parents who refused to test their children in school and agreed to meet me for an interview to share her experience. While we talked, she repeatedly touched on the issue of ailing bodies and confirmed that in 2020 everyone around her did get sick, but not from the virus. At that time of the year, the valley she lives in had been covered in thick fog for a couple of weeks. 'It must have been the arsenic clouds that they spread out of the planes. The arsenic gases have a similar consistency, and the symptoms of arsenic poisoning fit as well', she explained to me. Covid-sceptics often carefully watch the bodies of relatives and friends and note how their health and well-being changed during the pandemic, and they usually relate such changes to vaccination or the lack of it. Hermína claimed that her husband began to suffer from various health complications when he was vaccinated, and she compared her unvaccinated mother's Covid progression with her vaccinated brother. 'He had it much worse than my mum, but he still thinks that vaccination protected him. What can I do?'

For many Covid-sceptics, including Lucie or Hermína, illness (or the lack of it) was not the main bodily experience of the pandemic. Rather, the ubiquitous restrictions and hygiene practices such as mask-wearing became its defining aspect. The Covid-19 pandemic was multiple, and it could mean different things (Mol and Hardon 2020). From the perspective of Covid-sceptics, one's breath was much more threatened by the

mask than by the virus; sometimes my interlocutors had literally felt suffocated by the biomedical regime.

'I just can't breathe in these muzzles', Viktor told me, an urban shaman enthusiast whom I met right at the onset of the pandemic and followed online for a while. He had gradually begun to engage in online activism, sharing informational videos and trying, as he described it, 'to educate people online.' During ongoing lockdowns, we met repeatedly in his home and discussed the recent pandemic developments over a cup of tea. For Viktor, wearing a mask was not only an unpleasant physical experience for him; it also represented oppression, control and dominance:

> I saw a post where they showed pictures from Guantanamo, in the American base where they held terrorists, and this was one of the ways they tortured the prisoners – they gave them masks. The soldiers walked around with guns, and the prisoners wore masks. … I can't even look at it. I have this unpleasant feeling, when I see someone wearing it, for example, on TV, I have to avert my eyes, I still can't stand it.

When Viktor had tried to rebel against this perceived injustice, he describes it as a strong bodily experience as well. He didn't usually wear a mask on public transport, and sometimes he was confronted by other passengers. 'Somebody asks you why you are not wearing a mask, and your heart starts to beat – bang bang bang, and you almost have a heart attack … .' The feeling of control and oppression came to dominate his daily life. He linked his experience to scientific knowledge through the articles he read. 'I saw studies where they measured CO_2 levels, and after ten breaths under the mask, the concertation of CO_2 will suppress all imaginable norms!' His own body became undeniable evidence of such studies. Because Viktor *felt* the biomedical tyranny with his own body, he could not consider the science that denied these feelings sound. He simply knew that what experts said about mask-wearing – that it is a safe, reasonable and necessary hygiene practice – couldn't be right. Instead, he turned his attention to other sources of information.

I encountered a similar moment when a suffering body became an instrument through which a biomedical oppression often discussed by Covid-sceptics could be felt during a small workshop focused on spiritual growth and Slavic national political emancipation. Petra, one of the participants, recalled a tale of her own hospitalization during a collective discussion. As she was talking about what had happened, she became visibly frustrated and angry. She had done everything right, her immunity had been strong, she had avoided any negative thoughts and refused vaccination – but nevertheless she had almost died. She knew that Covid, if it even existed, was nothing to be afraid of and that the whole pandemic was overblown nonsense. And yet she had found herself in a hospital bed, struggling to breathe. Her lungs collapsed, and she suffered helplessly, surrounded by nurses and doctors. It had been a dangerous combination of overmedication, second-hand panic and poor care that had brought it so far, Petra claimed. Death and fear were all around her, and when one night she saw the woman next to her being put in the body bag, she decided that this had to end. 'I

didn't wish to end up as toxic waste', she explained. She refused to take any medication, which was difficult to negotiate, but she eventually ran into a sympathetic doctor and was eventually allowed to remain in the hospital without taking any medication. She reported that her condition had improved rapidly from then on. She had survived, but only just.

Viktor and Petra relate their suffering bodies to the oppression and malpractice of biomedical authorities and stress the importance of their own agency and bodily autonomy, insisting that their own observations and bodily feelings are more authoritative than the opinions of experts. Embodied empiricism can be used to argue different things, and different interpretations of bodily experiences and states are always available. However, by relating such individual experiences and personal observations to the imaginaries of good and reliable science, Covid sceptics are able to scale them up beyond the constraints of the individual. Everyday moments of disgust, unpleasantness, anxiety, or illness are transformed into signs of biomedical conspiracy or tyranny. Embodied empiricism also offers an opportunity to experiment and to test alternative knowledge. By being attentive to their bodies and bodily feelings, Covid-sceptics can argue that some information or claims are more reliable than others. Embodied empiricism becomes a useful tool through which they make sense of pluralized media discourses.

Responsible Citizens

Covid-sceptics do not imagine themselves to be scientists but rather embrace the notion of rational scepticism, and of an educated and informed citizen who can use common sense, follow logic and navigate a modern media landscape that they see as frequently influenced by powerful actors with ulterior motives. To them, the ability to maintain this critical distance is not necessarily determined by education or expertise. Rather, it is a matter of choice, or concern (Latour 2004) – everyone should be able to think independently, take responsibility and figure out the truth for themselves.

This critical distance extends toward (some) contra-hegemonic claims which appear in the Covid-sceptical milieu as well. Covid-sceptics subscribe to the notion that we are living amidst an 'infodemic' (Bridgman 2021; Mourad 2020). They often express the view that current media are overflowing with disinformation and 'fake news,' but they remain confident in their ability to determine the difference between truth and falsehood, even if absolute certainty can never be reached. 'You can never really tell if it is right or wrong', explained Viktor when I asked him how he determined the reliability of his information.

> One useful way of thinking is not to trust anything you read online. But the truth usually does not need too much energy. Truth just exists. But lies always need

> someone to defend them, push them on to you… But still, I approach everything sceptically. I don't trust everything I hear.

During a meeting of a group of Covid-sceptics who had recently begun to organize themselves into an activist cell, the discussion shifted to a Telegram channel managed by the leader of a rival organization, where various stories about global conspiracies, prepper tips and alternative medical advice were shared. Some people were uncertain about the information shared there, finding it 'too rough' and 'negative'. However, others argued that it still might be useful to keep oneself informed and consume such media despite these concerns.

'Well, I am not very active there', explained Pavel, a middle-aged IT specialist and one of the most active members of the group.

> A lot of information there is not so great, some of that really is a conspiracy theory, really wild stuff. That's not very useful. But I still visit the channel, and some of the articles they share are interesting. You just must be able to determine what information is reliable and what is not.

Taking a sceptical position and refusing some theories or information as too fringe is one of the ways alternative expertise can be created. When Pavel rejects some of the content he encounters online as 'conspiracy theories', he participates in boundary work (Gieryn 1983) and positions himself as an expert, refusing the identity of 'conspiracy theorist' and assigning it instead to other actors in the field (Rakopoulos 2022). Pavel does not have the ambition to completely uncover all mechanisms and relationships beneath the 'fake pandemic', but he strategically chooses which topics and information are relevant to him, stressing the need to remain educated and informed. Viktor and Pavel, like many other Czech Covid-sceptics I met, echo the notion of a responsible individual who educates themselves about the state of the world, one's body and health, the political situation and current scientific developments. They stress that they are responsible for their well-being; they are not content with being passive listeners who follow expert advice, and they demand the right to participate in the production and management of knowledge that concerns them.

The notion of an active, information-seeking, self-governing subject who has a duty to remain informed and educated can also be related to neoliberalism (Trnka and Trundle 2017), or modernity. Andrew Barry (2001:4, 29) argues that in what he calls a technological society, information must not be ignored, and modern citizens are expected not only to understand but to actively engage with scientific research and technological advances in general. Barry shows that navigating online spaces in search of reliable information and engaging with citizen-organized networks and organizations which help to educate and inform is an integral practice of modern citizenship in Europe (Barry 2001:153). In this sense, Covid-sceptics could be described as an example of such modern technological citizens as well.

Calls for individual responsibility for one's health (and the health of one's children), as well as the active need to dig out the truth and resist harmful authorities (Big Pharma, oppressive government), are integral parts of the Covid-sceptical movement in the USA, where the specific local context of the race and civil rights movement also plays an important role (Baker, McLaughlin and Rojek 2023). Bernice Hausman (2005:174) shows how the discourse of biocitizenship resonates among vaccine-sceptical people in the USA and argues that 'anti-vax' sentiments are deeply intertwined with its sensibilities. Modern (bio)citizens are increasingly expected not only to keep themselves informed about the options and possibilities biomedicine (and science in general) offers to them, but also to classify and evaluate information from a position of critical distance. Covid-sceptics embody this mode of active, responsible citizenship – they keep themselves informed and educated, approach the information available to them as rational sceptics and develop their own expertise.

Such an attitude is applied to moral demands and judgments as well. Individual responsibility for and the management of one's health are linked to the very possibility of living a good and valuable life. Covid-sceptics often contrast 'the non-awakened' or 'sheeple' with this image of an informed and responsible individual. For example, as Viktor explained to me during one of our talks, he can't stand people who, as he says, 'passively watch television broadcasts and wait to be fed information by the authorities'. His parents are just like that, and they have a very different position on the Covid-19 pandemic than himself. Viktor thinks this is due to their lack of interest in learning and actively searching for information:

> Maybe they occasionally read some newspapers or something, but mostly they just watch the news. And all the time. It's the only source of their information. They are just afraid all the time, don't leave the house, only go shopping for groceries, and feel that if they catch something, they will die. … They live such shallow lives. … Why are they even alive?

wonders Viktor.

> Or take my mother-in-law, for example. She completely devastated her organism, and now the public healthcare which we all pay for will have to take care of it … . And there are millions of people who live like that. It doesn't make sense … .

This mode of sceptical, critical, rational and modern citizenship allows Covid-sceptics to approach science from a specific angle. As they contest biomedical expertise and frame their own experiences and rational subjectivity as more important, they de-centre experts and assume a position in which they are the ones who can determine what research or fact is logical, reliable, or not. They frame their doubts, suspicions and scepticism as crucial to the well-being of the whole society. The expertise which Covid-sceptics claim is different from the expertise of the scientists, but it is related to science and to the notion of a responsible, active and modern citizen. It also depends

on the notion of science as a universally accessible knowledge-making practice in which rational and modern subjects can (and should) participate.

Universalizing Through Participation

In the spring of 2022, I attended the launch of a book published by a small group of Czech Covid-sceptical activists.[8] The conference hall where the event was held was packed with over a hundred people. The book's co-authors, Covid-sceptics from various parts of the world, organized a small conference panel for the launch and presented lectures on several topics. One of the authors, a New Zealand YouTuber and medical specialist, could not attend, but she sent a short, pre-recorded video.

In her message, she described her gradual awakening during the pandemic, referenced all the research she had done, and touched upon the moments when it had finally all begun to make sense. 'I was blind to anything outside of germ theory', she explained: 'I had no idea about the corruption within the medical pharmaceutical complex, and I was oblivious to the nefarious globalist forces at play behind the scenes.' However, that soon changed when her YouTube followers began asking her questions: Do the masks work? What is the evidence for social distancing? She decided to do her own research so that she could educate others. Her curious and naturally sceptical followers, not trained medical experts by any means but ordinary people, posed questions which were difficult to answer in a satisfying way. Eventually, she ran into scientific evidence and theories which questioned established paradigms, and she finally developed a better idea of what the pandemic was really about. She questioned her original assumptions, opened her mind to new evidence and came to a new conclusion:

> I decided that I could no longer take any scientific facts for granted. I would trace back research as far as I could follow it, even if I would have to read papers from 1800, so I was certain of its accuracy.

Similar narratives of gradual discovery and realization were present in all of the other lectures I heard that day. All of the co-authors presented their research as scientific while at the same time emphasizing that anyone in the audience could verify their claims. 'It is primarily the people themselves who need to take back the responsibility for their own health', explained one of the experts, a German journalist:

> Most medical doctors just don't understand their own discipline. They fully believe in virology, microbiology, and so on. … And this paradigm is comfortable to many because they don't have to take responsibility for their health and education.

8 For reasons of anonymity, I do not include the name of the book, nor the additional information about the conference.

During the Q&A, the experiences and observations shared by audience members were acknowledged by the speakers as additional evidence. One woman shared a story of her grandfather, who, despite his tuberculosis diagnosis, lived with his family until his death. But nobody else was infected. Could this also cast some doubt on the relevance of the germ theory? Might there be another reason why people fall ill? Another participant recalled that she was vaccinated before travelling to the tropics and that the negative side effects almost killed her. 'It took years before I was fully recovered', she insisted. Similar stories and testimonies, including personal theories about the mechanisms behind 5G networks or chemtrails, were largely acknowledged by the panel of experts not only as confirmation of their Covid-sceptical stance (shared by the audience), but also of the ability of participants to take scientific matters into their own hands.

The overarching message was clear: anyone willing to dig deep enough and question established truths is able to claim the mantle of expert. Scientific truths should be potentially discoverable and verifiable by anyone, anywhere, and they should be based on logic, common sense and embodied observation. According to this perspective, the messy nature of scientific research (Law 2004) can be avoided, and universal truth can be reached. Such appeals have a long history. In the 19th century, when George Combe, a proponent of phrenology, began to be increasingly questioned and his methods were largely deemed 'unscientific', he summoned similar notions to his defence. 'Observe nature for yourselves and prove by your own repeated observations the truth or falsehood of phrenology', he advised his lay audience (Gieryn 1983).

Covid-sceptics localize the universality of science primarily in notions of accessibility, lay participation and individual observation and experimentation. The *universalizing* in which they participate depends on granting authority over boundaries of scientific knowledge to individuals, who are imagined as rational subjects able to observe the world as it truly is, by observing the Nature around them, being attentive to their bodies and remaining sceptical, yet open to all possibilities. As they 'do their research' – searching for information online, questioning established scientific research, or using their bodies as evidence of a global conspiracy behind the pandemic – their alternative knowledge is related to the production of universal truth.

In this understanding of scientific universality, science is not only open to lay participants; it *requires* their involvement in order to produce reliable and veritable knowledge. Such an imaginary of scientific universality has wider implications because it allows Covid-sceptics to position themselves not only as concerned citizens, but also as producers of knowledge, which, despite being labelled 'pseudoscience', can be framed as part of a scientific endeavour. It allows them to understand themselves as natural scientists, as the Galileos of this age. In her study of chemtrails narratives, Bakalaki (2016) notices the universalizing effect of the photographs people use as evidence. Always taken from a particular place, but pointing above the horizon into the same sky, the local difference disappears and chemtrails emerge as a universal object, threatening the whole Earth. Similarly, using the notion of scientific universality, Covid-sceptics are able to scale up their individual observations and experiences to argue that they

point to a larger, hidden truth, reaching beyond the general notion of critique and suspicion (Pelkmans 2024).

Conclusion

In this article, I treat Czech Covid-sceptics who engage with so-called 'conspiracy theories' as producers of alternative knowledge. Some of them understand themselves to be part of a community of rational sceptics who are searching for the truth behind the pandemic. I argue that, while doing so, they relate their alternative knowledge to imaginaries of good science. Covid-sceptics mobilize science and its universality to lend authority to their activism and political projects. The *universalizing* they participate in is done by framing science as an activity that is not bound by the authority of established experts. Rather, the mantle of 'doing science' can be claimed by anyone willing to 'question the paradigms' and 'search for the truth'.

Covid-sceptics turn to their own embodied experiences when they attempt to produce evidence for their claims that the pandemic was an expression of deeper oppression and tyranny. Using embodied empiricism (Weston 2017), they frame their observations not as mere intuitions or hunches, but as part of a sound, empirical, scientific practice of research. Covid-sceptics do not claim to hold the same expertise as scientists themselves. Rather, they adopt the position of responsible and informed subjects who have a right, indeed duty, to be informed and educated, and to resist expert opinions. Finding themselves in a media space in which no information can be fully trusted, they develop their own individual expertise, rejecting some claims and theories while turning to those which are aligned with their embodied experience. Their criticism of 'mainstream science' also contains an underlying argument: science should not be influenced and controlled by states or corporations, but should be the endeavour of rational sceptics, open to everyone.

However, while such calls could be interpreted as a desire to democratize science and make it more accessible, they always depend on who counts as 'everyone' and who is excluded. While Covid-sceptics demand to be included in the production of scientific knowledge, they also participate in boundary making (Gieryn 1983); they claim the mantle of science for themselves and portray others as either 'the corrupted elite' or 'sheeple' who blindly follow the authorities. Only some are allowed to participate in the production of universal knowledge, and boundaries around 'good' and 'bad' science are established anew.

Not all bodies count as reliable evidence to the Covid-sceptics. But who gets to establish this hierarchy of embodied experiences? Certain claims and theories made by some Covid-sceptics are rejected by others. How is the legitimacy of various actors, and of their knowledge, negotiated in this space? Rejecting others within the conspiracy milieu as 'conspiracy theorists' and casting oneself as a 'rational sceptic' might seem

to align with the boundaries of particular groups. Nevertheless, these groups are in flux; their boundaries are often re-negotiated, and Covid-sceptics can mobilize around a variety of political identities. Rakopoulos (2022) argues that a conspiratorial milieu enables people to negotiate multiple political positions and suggests seeing 'conspiracy theories' as political projects. Seeing contestations of science among Covid-sceptics in the Czech Republic in the context of their political ambitions and struggles might be necessary to unpack questions of the legitimacy and authority of their alternative knowledge. However, further research is needed in order to explore such political ambitions in detail.

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Ambivalent Allies? Environmentalism and Science in Contemporary India

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Abstract: Science played a crucial role in the early days of Indian nationalism. This has not changed since India's independence. With recent political transformations, the significance of science has acquired a new dimension. Contemporary apologists of Hindu nationalism have recognized the value of appeals to science, whether they are trying to legitimize claims to supremacy or to prove that ancient Indian scriptures attest to the presence of 'modern' science at their time of writing. Such mobilizations of science oscillate between particularism and universalism, whereby calls to reject 'western' universalism as culturally specific and therefore limited live in tension with efforts to universalize 'native' achievements, thought of as always already modern.

Complicating matters, this tension cuts across fields and political camps. The appeal to science also serves the critics of Hindu nationalist aspirations, whether they challenge the 'hindutvaization' of environmentalism or seek to substantiate socioecological concerns scientifically. The problem: recourse to (allegedly universal) science not only tends to depreciate 'non-science' achievements, it also situates one's claims in a hegemonic political discourse that privileges some voices and concerns over others.

In this article, I use the example of environmentalism to decipher the ambiguous role of science as a source of legitimacy in contemporary Indian politics, where it creates both friction and unexpected alignments. To conclude, I attempt to outline a timely 'grammar of environmentalism' capable of addressing these tensions.

[environmentalism, science, cultural politics, legitimacy, Hindu nationalism, grammar]

Introduction

In the prologue to *Holy Science: The Biopolitics of Hindu Nationalism*, Banu Subramaniam writes:

> This book is dedicated to the belief that we do not have to choose between binary logics. We can instead embrace science and religion, nature and culture, human and nonhuman to imagine worlds that defy imperial Western logics and nativist religious nationalisms (Subramaniam 2019:xiii).

Without a doubt, we can imagine such worlds. Indeed, we must if we are serious about the quest to decolonize modern science. But how can such an embrace be realized in a given society, in this case India, two decades into the twenty-first century? What would this entail in terms of epistemology, cultural politics, and social critique? These

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questions are not new, to be sure, nor is the 'belief' described above. However, given the current popularity accorded to such visions, especially in anthropology, it seems worthwhile to drill a little deeper and illustrate some of the potential pitfalls involved. For science and religion are more than just world views or explanatory systems; they are contested resources for establishing political legitimacy. Using the example of environmentalism in contemporary India, I intend to show that the road to harmonious coexistence may be a little rockier than we would like it to be. Bearing in mind that it is crucial whose voice – or action – is considered legitimate for the environmental cause, I will address possible complications that arise from invoking science (faced with religion) in order to substantiate one's concerns and position in the field.

To be clear, my hesitation is not about the welcome effort to move beyond binary approaches or to challenge established contrapositions that have too often led to unhealthy epistemological hierarchies. Likewise, I commend Subramaniam's attempt to free mythology from its 'oppressive genealogies' and to harness its progressive potential for alternative visions of society (ibid. 2019:222). However, two things give me pause. The first concerns the possible scope of such visions in light of the Hindu origin stories; the second is what they connote in the current historical moment. The basic question I ask is whether (any) religion or mythology can be liberated from its historical and sociopolitical baggage and acquire a quasi-universal meaning, even for those for whom it was never part of their episteme.[1] More specifically, I wonder under what conditions this process could happen (now), and whether some stories might offer more inclusive, i.e. more universalizable, potential than others.

While the issue at stake is of global relevance, India is a particularly sensitive case after a decade of Hindu nationalist governance. And since today's nationalists seem to have mastered the repertoire of postcolonial language perfectly, it no longer seems enough to reject binaries and feigned universalisms; it is also crucial to pay close attention to who else is doing so and to what ends, if only to avoid entering into involuntary alliances, be they rhetorical or practical. Concepts such as 'nature' and 'culture' are charged with new meanings that need to be addressed, which may require us to reconsider our own use of them. With the politicization of landscapes in contemporary India, as in exclusive claims to Hindu sacred land or rivers in the Himalayas, for example, 'nature' has become a contested arena of restricting belonging.[2] This transformation affects regional environmental mobilizations as much as environmental discourse as a whole.

Before I delve into these intricacies, I should share the following about this article: the reflections offered here are based on many years of research on environmental issues in India. My involvement with 'the politics of dams' (Werner 2015) has afforded me a window into one of the most contentious areas of postcolonial development debates. It has also taught me a great deal about the scope and prospects of socioecological move-

1 For a critique of Subramaniam's account as Hindu-biased, see Shaik Ali 2022.
2 On the 'spatial strategies of Hindutva', see Deshpande 1995.

ments in India's contemporary political landscape. Questions of voice, identity and legitimacy in environmental conflict continue to shape my research today. This paper revolves around these key concerns, which have recurred throughout my ethnographic work, and juxtaposes them with conceptual reflections on the science-religion-environmentalism conundrum. It is a piece about a particular context at a particular historical juncture and at the same time an invitation to the reader to extend the reflections presented here to other places. Much of the literature discussed here cautions against the growing proliferation of Hindu nationalism in the environmental domain; however, the perceived 'gateways' are as diverse as the proposals for dealing with this threat. One aim of this paper is to reconsider the various academic and/or activist currents in terms of their offers for a 'grammar of environmentalism' capable of responding to the social and political challenges of the present, which I outline in the concluding part.

The paper is divided into three parts. The first part situates environmentalism, itself an ambiguous term,[3] in both contemporary Indian politics and scholarly debate. Drawing on a quote from a renowned environmental activist, this section introduces the key themes of this paper, namely science in tension with (politicized) religion, and environmental justice. Section two discusses how science has been mobilized in the context of Indian nation-building up until the present government's agenda, and how this affects India's current environmental politics and constrains environmentalist discourse and practice. The third and concluding section of the paper then considers options for dealing with these constraints. Building on reflections on environmentalism's 'susceptibility' to political cooptation and 'involuntary alliances', I introduce a draft grammar of environmentalism as an ethnographic and conceptual tool geared towards a more justice-oriented environmental politics.

Situating Environmentalism

There are several aspects to consider when thinking about environmentalism in terms of political mobilization: the question of (adequate) means and methods; the problem of audibility, i.e. of obtaining a speaker's position deemed legitimate; and the question of alliances – needed, strategic, coincidental, auspicious, involuntary – that emerge in the process. In the following, I will situate these aspects in the context of contemporary environmental conflict in India, focusing in particular on the role of science and religion as argumentative figures in environmental debates. Concerned about the 'saffronization' of environmentalism in India, scholars and activists are confronted with the question of how to deal with religious or religiously framed involvement in

3 For a critique of the label 'environmental' due to its implicit reduction of 'complex socio-cultural and political struggles … to the level of elements of the natural environment', see Kothari 2009.

environmental politics.[4] An interview with the late environmental activist Vimal Bhai (1962–2022), a prominent figure in India's social and environmental movements for decades (see also Sinha 2022), came to mind as I pondered Subramaniam's quote with which I began this paper. The interview, titled *Keep Religion Out of River Movements*, concludes with the statement:

> I would also like to add that movements are being directed, often misled by people of faith and religion. Take for instance the Hindu saffron brigade. During the previous regime these groups were vociferously supporting the anti-dam movement, talking of river health and the spiritual need for free-flowing rivers. Where are these people today? They are silent now that the Hindu right wing, which continues to be hand-in-glove with the hydropower lobby, is in power. I feel this is dangerous, and we need to keep communal religious groups out of save the river movements. The movement must be guided by principles of justice and sound science (Seth 2016).[5]

I read three points of interest in this quote, regarding Vimal Bhai's use of 'communal', 'justice' and 'sound science' respectively. I deal with each of these in turn.

Vimal Bhai's use of the word 'communal' here could be interpreted in at least two ways.[6] On the one hand, the statement may be in line with those who advocate a clear distinction between Hindutva (literally 'Hinduness'), or political Hinduism, and more syncretic and tolerant versions of Hindu eco-consciousness, including sacred and secular sources alike (Baviskar 1999:30; on 'Hindu ecology', see e.g. Chapple and Tucker 2000; Gosling 2001; Prime 1992). However, given that the statement begins with 'movements are ... often misled by people of faith and religion' and concludes with 'the movement must be guided by principles of justice and sound science', another reading suggests that religion *per se* is a potentially problematic driver of environmental movements. Clearly, the politicization of religion plays a key part in this.[7] The issue here, in my reading, is not only that the boundaries between the concerns of environmental movements and the political agendas projected onto them are not always as

4 The color saffron is associated with notions of divinity and purity in Hinduism, but in critical approaches it has become essentially synonymous with Hindu nationalist aspirations. The neologism 'saffronization' refers to the efforts of the Hindu right to reshape India into a *Hindu Rashtra* or Hindu nation; see also Singh 2021.

5 Set in the context of global and nationwide struggles against the adverse ecological, social and cultural impacts of large dams and other interventions in the name of development, the debate over hydropower projects on Indian rivers takes on a particular flavor as Hindu nationalist forces enter the terrain and invest in making the preservation of 'sacred rivers' a religio-political affair.

6 The term 'communal' or 'communalism' has a very particular regional meaning; see e.g. Pandey 1990 on its colonial construction. Here it will suffice to define it as an identity-based attempt to construct closed and demarcated religio-ethnic communities.

7 'Religion' is a deeply problematic concept in the South Asian context, being burdened with a monolithic colonial reading that the Hindu right readily embraces and conflates with its 'cultural' or 'ethnic nationalism'.

straightforward as one would wish, but also that key concerns such as livelihood and distributive justice may be eclipsed by prioritizing religious (or seemingly religious) matters. This is precisely what has happened in the disputes over hydropower projects on the Ganges, to which Vimal Bhai is presumably referring. I will return to this below.

Before coming to the second point of interest in Vimal Bhai's quote, I shall add a few words about the academic responses to the problem I have just described. The last two decades have seen a number of publications that have problematized the alliance of 'green and saffron' in India (Mawdsley 2005, 2006; Nanda 2004; Sharma 2002, 2009, 2012). These contributions reflect the concern that environmental movements have been increasingly coopted by Hindu nationalists, undermining these movements at worst. This literature was preceded by publications on the neo-traditionalist bias of Indian environmental historiography and the possible proximity between 'post-colonial populism' and the political right (Nanda 2001; Sinha, Gururani, and Greenberg 1997; see also Brass 1994, 2000). Two insights offered by these accounts are crucial to consider here: first, the processual character of appropriation, which makes it difficult to predict or control. Mukul Sharma's statement about the anti-Tehri dam movement in North India illustrates this process:

> … environmentalists and social-religious leaders provide cultural and imaginative representations of the Ganga and the Himalaya in varying degrees. These representations often get Hinduised and become essential parts of environmental politics and identity. … The ecological reasoning is blurred and goes beyond logic, eliciting Hindu support, patriotism and xenophobia (Sharma 2002).[8]

The second takeaway from the literature concerns a more general problematization of 'neo-traditionalism', including its resonances in postcolonial theory. In a nutshell, the critique is that neo-traditionalist approaches are typically based on a romanticization of precolonial life and essentializing 'East-West' dichotomies that enable them to create the image of an 'authentic, traditional, indigenous, ecologically sensitive India' that is positioned against colonialism and postcolonial developmentalism alike (Mawdsley 2006:383). For obvious reasons, then, the 'susceptibility' of environmentalism to Hindu nationalist appropriation has been a topic of debate. The plea for the preservation of culture and 'tradition', the tendency toward an essentializing view of nature and the critique of modernity's discontents − themes central to many variants of environmentalism − fit neatly into their agenda.[9] To compound matters, these issues find audiences across the political spectrum, raising the question of 'involuntary alliances'. Two decades into the twenty-first century, the possible compatibility of environmentalism

8 As this article goes to press, Mukul Sharma has just published a revised and updated edition of *The Green and Saffron*, showing that his earlier analyses are more relevant than ever; see Sharma 2024.

9 The observation that environmentalism can be compatible with right-wing politics is certainly not new and is not limited to India (for Germany, see e.g. Bramwell 1989; Olsen 2000). In terms of temporal and spatial analysis, when, how and where debate becomes political practice is crucial.

with a right-wing agenda is no longer a matter of selected groups or bad premonitions; the Indian government has long since embraced environmentalist imaginaries, if only rhetorically, and has seamlessly fused them with its political ideology.

However, one should be wary of prematurely pigeonholing movements into political corners. As many have pointed out, it is important to note the difference between the portrayal of environmental movements by academics, movement leaders and other 'spokespeople' and the perceptions and practices of the grassroots (Chandhoke 2001; Forsyth 2007; Fuchs 2000; Linkenbach 1994, 2007; Sinha, Gururani, and Greenberg 1997). This is certainly not to suggest that right-wing persuasion is exclusively a top-down affair, but such a perspective allows for questions of cooptation and the formative power of social movement literature. This perspective also illustrates the double bind of environmental activists: the task of paying attention to internal dynamics and resisting outside appropriation.

This brings me to the second point of interest in Vimal Bhai's quote: the emphasis on justice as a primary concern of environmentalism. As critics have noted, contemporary 'mainstream' (urban, middle class, upper caste) environmentalism in India lacks a social justice and solidarity orientation above all else, and they argue that it should be put center-stage (Asher 2020; D'Souza 2022). The focus on justice also points to the limitations of current versions of environmentalism. These include constraints on scope (the 'not in my backyard' or NIMBY variant), epistemology (the science-above-all option), and diversity (the culturalist approach). At their worst, these limitations result in 'ethical ignorance', discrediting, stereotyping and cooptation, respectively. This applies not only to environmentalist practice but also to discourse. Environmental mobilizations raise their concerns, but they do so within a political setting that accommodates some voices and concerns more than others. And then there are the academics and writers who add their readings, for better or worse. The purposes and directions ascribed to these movements are decisive not only for the way they are perceived, but also for their prospects. To cut to the chase, if writers confine themselves to highlighting, say, religious dimensions rather than environmental justice, it is likely that such narratives will not only shape outside (and possibly self-) perceptions of the movements, but will ultimately develop into a momentum of their own, potentially leading to biased environmental histories (see also D'Souza 2022).

The third point concerns Vimal Bhai's plea that movements should be guided by 'sound science'. What are the implications? And what distinguishes 'sound science' from 'unsound science'? The latter question is not just a matter of conceptual distinction; those whose contributions are not deemed 'sound science' have much to lose and could even be entirely excluded from the discourse. How does one respond to claims to universality when one does not share the same relation to the world as the claimant? How to create a basis for common discourse? The (global) challenge lies especially with world relations and knowledge bases, indigenous or otherwise, that are inspired by sources other than what has become hegemonic as 'modern science'.

Drawing on its use in political debates, I do not seek to unpack 'science' here but to point to its use as an abstract, unambiguous concept (opposed to whatever is portrayed 'non-science') that establishes hierarchies between systems of knowledge or belief. Such a generic discursive deployment of science is not unique to current political elites but was an essential part of postcolonial nationalist aspirations. As Gyan Prakash reminds us, '... the Indian nation-state that came into being in 1947 was deeply connected to science's work as a metaphor, to its functioning beyond the boundaries of the laboratory as a grammar of modern power' (Prakash 1999:7). As will be detailed below, there is a remarkable tension between the invocation of science as a universal metaphor and its often – implicit reduction to 'applied science' as technology and planning in the context of modern governmentality. Subramaniam (2019) has convincingly demonstrated that the governmental use of science has taken on a new dynamic in the biopolitics of Hindu nationalism.

Vimal Bhai's call for sound science also questions the boundaries between science and religion. When and for what purpose are they conceptualized as separate or intertwined domains? Here we can take inspiration from scholars who have demonstrated their juxtaposition in practice (see e.g. Thomas 2018, 2022). Following Latour, Renny Thomas questions the binary of 'conflict and complementarity', the origin of which Thomas locates in 'the West', and he captures science and religion as 'two different modes of existence' (ibid. 2018:55 et passim; ibid. 2022:71 et passim). His ethnography of a laboratory in Bangalore shows how scientists live with religion and science side by side, reserving separate domains for them so that they neither conflict nor need to be reconciled. Subramaniam's and Thomas's accounts offer food for thought when read together. Drawing on a science and technology studies perspective, both offer individual responses to the conflation of science and religion in contemporary Hindu nationalism. While Subramaniam draws on 'speculative fiction' (Subramaniam 2019:40) to explore the possibility of reconciliation beyond Hindu nationalist appropriation, Thomas's is explicitly ethnographic and emphasizes the different epistemological and value-based foundations of religion and science. Consequently, he alerts us to a political assertion of 'co-existence' whereby 'the alleged natural co-existence of science and religion is used for the purpose of cultural nationalism' (Thomas 2022:175). To trace how claims to science (and religion) operate, let us now look at how science has been mobilized within the Indian nation-state since its inception and how this affects India's current environmental politics.

Mobilizing Science

In this context, three levels seem relevant: those of the state, of governance, and of the practice of people, here in particular of environmentalists. The first level concerns the way in which the state, as de facto and discursive hegemon, generally sets the bound-

aries of what is accepted as science, and therefore references to science tend to stabilize statist legitimacy. The role of science in the formation of the Indian nation-state is crucial here. The second level concerns the government's cooptation of science for its own agenda. When a government regularly mobilizes the entire range of disciplines from archaeology to biology to history not only to propagate but also to 'scientifically' legitimize a majoritarian cultural nationalism, as in the case of the current Indian government, this aspect takes on a particularly critical dimension.[10] The third level relates to the invocation of science as part of environmentalist practice. Environmentalists themselves (must) move between the realms of science and its others – be it religion or something else. Sometimes the boundaries are clear, but often they are not. The problem, I argue, is the fact that politics is made on and with these very boundaries. In what follows, I will address each of the three levels and situate them within the context of environmental politics in India. The conclusion considers options for environmentalism within, vis-à-vis, and through the politicization of science.

To understand the current Indian government's efforts to mobilize science at various levels, 'science's association with the state' (Prakash 1999:8) must be traced back to the colonial period. The British exertion of power rested to a considerable extent on the implementation of modern scientific knowledge through institutions that '… staged science as an aspect of colonial power, and sought from Indians the recognition of Western knowledge's authority' (ibid. 1999:8). Science thus served as an amplification rather than as the source of British hegemony. Freed from the need to fulfill legitimation purposes, it could be employed for governmental ends (ibid. 1999:10). From the perspective of late colonial Indian nationalists, the embrace of modern science was an ambivalent endeavor, confronted as they were with the dual task of responding to science's claim to universality while also locating that universality within their own cultural repertoire.[11] As Prakash shows, religion was an important source in the attempt to hegemonize Indian culture; the quest for an 'archaic science' took off with the colonial Hindu elite, '… for it was in the representation of a scientific past that they sought to locate a Hindu universality in Hinduism' (ibid. 1999:8). As the nation concept gained importance, the '… lasting consequence was the identification of Hinduism as the cultural texture of the nation, as a national religion' (ibid. 1999:9).

For the newly independent Indian state, science, unlike for the British, played a key role in legitimizing India as an equal state within the international community. State and nation coincided for the first time, with modern science becoming a key narrative, precisely because of its claim to universal applicability and transferability. At the same time, science was used to justify and expedite interventions in the name of progress and the pursuit of modernity. Incidentally, this dual function of science also helps explain

10 For 'the making of Hindutva archaeology', see Avikunthak 2022.

11 Intended as a contribution to the social theory of science, Dhruv Raina's works offer a comprehensive 'historiography of science and modernity in India'; see Raina 2003.

why and how cultural nationalism and developmentalism go hand in hand (see also Werner 2015).

Today, the situation is different. Since independence, (applied) science as part of governmentality and (abstracted) science as a concept of legitimacy have run in parallel and even reinforced each other. But since the era of master narratives necessary to justify postcolonial state-formation is over, science is no longer needed to legitimize the state as such. In terms of the plausibility of the (new) national narrative, however, the legitimizing function of science is still crucial; the contemporary Hindu nationalist concept of the nation has been stripped of its earlier ambiguity and is characterized by a strong tendency towards centralization, i.e. it is drawn to the level of the state and transformed into a homogeneous idea of language and culture. One, if not the most important means in this respect is science – or what is conceptualized as science.

Inaugurating the 'Centre-State Science Conclave' in Ahmedabad on 10 September 2022, the Indian prime minister Narendra Modi, who was present only virtually, said: 'Science is like that energy in the development of 21st century India, which has the power to accelerate the development of every region, the development of every state'. He then went on to list the country's great scientists from the past, not failing to rank them with their European counterparts, saying, 'when we celebrate the achievements of our scientists, science becomes part of our society, it becomes part of the culture' (*New Indian Express* 2022). This was far from the first occasion on which Modi emphasized the importance of science. Since the current government came to power in 2014, it has been talking incessantly about how science and technology will lead India into a prosperous future. By aligning the merits of science with national progress and highlighting its significance for the country's development, Modi joins a line of post-independence Indian statesmen who have taken a similar stand. India's first prime minister, Jawaharlal Nehru, is known for praising the crucial role of science in India's postcolonial development, as evidenced by numerous accounts, including his own writings.

While some aspects of the debate have remained the same, notably the linear view of progress and convergence on the means to achieve it, under the present government the claims have taken on a new tone. The understanding of what science is and does and should do for the nation (and what that nation should look like) have also changed considerably. In the new India, the origins of modern science are placed in ancient India. Shortly after taking office in 2014, Modi told his listeners at the inauguration of a private hospital in Mumbai how the epic scriptures attest to the presence of modern (medical) science at their time of writing: 'We all read about Karna in the Mahabharata,' he said. 'If we think a little more, we realize that the Mahabharata says Karna was not born from his mother's womb. This means that genetic science was present at that time. That is why Karna could be born outside his mother's womb.' Modi then referred to the elephant god Ganesh and said: 'There must have been some plastic surgeon at that time who got an elephant's head on the body of a human being and began the practice of plastic surgery' (Rahman 2014, cited in Subramaniam 2019:5–6). Regardless of the plausibility of this particular statement, the claim that India has

always been (more) modern (than the West) has prominent historical antecedents. The quest for self-reliance according to modern, but not western, standards is expressed in Nehru's early nationalist dreams, but even more so in the rhetoric of Gandhi and his followers (Zachariah 2005:158–159). However, there is a crucial difference between current attempts to rewrite Indian history as exclusively Hindu (with a clear vision of what majoritarian Hinduism should look like) and the decolonizing efforts of the early Indian nationalists, with their ambivalent embrace of 'western science' and their formulation of an equally universal 'Hindu science' comprising various indigenous sources. As Prakash notes, the aspiration of these intellectuals '… was not nativism, but a carefully formulated proposition, arguing that the concept of science was culturally located' (Prakash 1999:228).

While the current government never tires of emphasizing how much it invests in the promotion of science (Modi 2024:vii), actual levels of investment say something else. Young scientists are often not paid sufficiently or on time, permanent positions are rare, and many posts, even in high-ranking institutions, have been vacant for years. The state not only exerts the power to define science and determine what science is considered 'sound', but also how much money is invested where, which indicators are considered relevant for producing, for instance, population statistics – in short, which knowledge bases are relied upon. But there is another issue: the fact that science is part of the political economy also has a bearing on factors such as who is appointed to scientific institutions and committees, or who is consulted as a policy advisor or 'expert' on specific topics. Commentators bemoan the prevalence of corruption and the fact that new appointments are based on political persuasion rather than scientific achievements (Menon 2022; Sundar and Fazili 2020). The remodeling of academia goes hand in hand with the concerted spread and institutionalization of a systematic historical revisionism aimed not only at rewriting India's history, but also at locating the origin of all scientific achievements in ancient India. Given the historical antecedents, it is not without irony that such politically promoted nativism is not only dressed up in a decidedly decolonial garb but is also marketed internationally. The debate over the export and promotion of yoga as part of the Hindutva enterprise is a notable example of this (Puri 2019).

Let us now turn to the third level, the role of science in environmentalist practice, both as an indispensable resource and as an ambivalent reference. In 2018, Modi was awarded the title of 'Champion of the Earth' by the UN 'for his bold environmental leadership on the global stage'.[12] There is not much evidence of this in his conduct. Just recently, the prime minister stated that environmental clearances for infrastructure projects should be issued more quickly, calling it 'a win-win situation for both the economy and ecology' and an accelerator for development (cited in Nandi 2022). The manner in which these clearances are granted has been a constant point of contention

12 See https://www.unep.org/championsofearth/node/50, accessed March 21, 2023.

in Indian environmental politics. Research groups, NGOs and other civil-society actors continually publish reports showing that environmental impact assessments are commonly neglected or inadequate in their approach (see e.g. Pradhan 2020). In my conversations with environmental activists and project-affected communities in the western Indian Himalayas, people often described how they were not properly consulted prior to project approval, never saw the documentation, or were left to deal with the adverse consequences of 'development projects' without adequate compensation. Environmentalists' reports and documentary films paint a similar picture (see e.g. Sahu 2019). While it is not surprising that the implementation of, say, hydropower projects is based on economic and political interests that benefit only certain segments of society, it is remarkable how a rhetoric of sustainable development and common good is maintained to win acceptance of such projects in mainstream society, which thinks of itself as 'environmentally conscious'.

However, not only are there many discrepancies between the government's environmental rhetoric and the reality on the ground, the form that hegemonic environmentalism has taken in India today has had, and will continue to have, significant impacts on environmental mobilizations. In a recent article on *Environmental History of South Asia in the Time of Hindutva*, Rohan D'Souza argues that '[w]ith the grammar for environmental politics in India having … been profoundly altered under conditions of Hindutva populism, scholars of EHSA [environmental history of South Asia]' – and I suspect he would not mind me stretching this to other disciplines and environmental activists – will need to 'reconsider and revisit several of the existing perspectives' (D'Souza 2022:630). Drawing on Amita Baviskar's work, D'Souza notes that '[t]he sustained engineering of mistrust and animosity between communities through the play of Hindutva …' has led to an '… erosion of social solidarity … [that] can often cut off the political oxygen required for mass mobilization on environmental issues' (ibid.). In light of Vimal Bhai's appeal to 'keep religion out of river movements', what then are the 'existing perspectives', discursively and practically?

Two positions are of particular interest here: commitment on the basis of 'faith' and on the basis of 'science' (here: ecology). It should be added that these positions are juxtaposed for analytical purposes, with no intention of disregarding the variations and fluid transitions that actually exist. There are three dimensions of differentiation. The first is the question of what primarily motivates ecological engagement, whether the focus is on protecting ecosystems or preserving sacred landscapes. Second, each approach will highlight different 'facts', for example, whether the most crucial aspect is the destruction of a river's ecology or the impairment of its divine qualities. Religious and scientific rationales can overlap in such cases, as when hydropower company officials insist that the construction of their dam has not affected the sanctity of the river (Werner 2015:160–161). Third, the approaches can differ dramatically in the methods they employ to achieve their goals, ranging from legal action to appeals to the ruling party's religious sentiments, each approach producing quite different possibilities for mobilization. I am not suggesting that the concerns listed are mutually exclusive or

that alliances between different groups cannot be beneficial in terms of common goals. However, recalling the literature on the growing convergence between the environmental movement and the Hindu right, it is important to note that success (in this case, the cancellation of hydroelectric projects on 'sacred rivers') sometimes comes at a price.

The debate over G.D. Agrawal (1932–2018), or Swami Gyan Swaroop Sanand as he later called himself, is a prominent example of this quandary. Agrawal is a clear representative of the first position. Starting in 2008, the former engineer undertook a series of fasts to protest hydroelectric projects on the Bhagirathi, the upper stream of the Ganges. While these were successful at first, his 2018 fast for the cleansing and unimpeded flow of the river ultimately led to his death. Agrawal has been characterized as a 'scientist and rishi' (Gautam 2008), but he always prioritized faith over ecological concerns and used science primarily to confirm his faith-based convictions. In line with my construction of the two positions, Agrawal makes a clear distinction between two rationales for rejecting the projects on Bhagirathi, namely those pertaining to 'our Faith, Culture, Tradition and Sentiments' and those based on 'Environmental/Scientific considerations', relegating the latter to 'meaningless auxilliaries' (Agrawal 2008:2; capitals his). While Agrawal's commitment was generally welcomed in activist circles, some commentators criticized his exclusive focus on preserving the Ganges as a sacred Hindu river. In *A Critique of Loharinag–Pala, Pala–Maneri and Other Hydroelectric Projects on R. Bhagirathi*, Agrawal had explicitly stated that the Ganges was '*no ordinary river*' for Hindus – not so for members of other religions, whose '[cultural] ethos is in no way linked to the *land* and geography of India' (ibid. 2008:2–3; underlinings in the original replaced by italics). Although Agrawal may not fit the characterization of 'communal religious' people mentioned in Vimal Bhai's quote, and his death sparked fierce criticism of the Modi government for not conceding to his demands, his case represents the inherent dilemma of using 'faith-based' or 'culturalist' arguments in environmental conflict and the unfortunate alliances that can result – at worst, pandering to the Hindu right (for detailed accounts of his role and the reception of his involvement, see e.g. Drew 2017; Werner 2015).

Turning now to the second position, the reliance on 'science' to support the environmental cause, it is faced with at least two challenges: first, the incongruity within science, i.e. the incompatibilities or contradictions that different scientific disciplines may produce on the same subject (while all claim to be part of the same universal or universalizable scientific undertaking); and second, the relationship between science and concerns that are located outside the realm of science. That is, even if something is considered 'reasonable' or 'scientifically sound' by all sides, those who suffer from its application may not agree that science should be given precedence over non-scientific concerns in the matter at stake. A prime example would be the implementation of a scientifically accredited 'development' infrastructure project resulting in the forced relocation of thousands. As for incongruence, contradictions may arise from the fact that different disciplines might be part of the same universal endeavor but differ significantly in terms of their methods and goals. A geologist and climatologist may have

a different view of the planned construction of a dam in an earthquake zone than the engineer commissioned to build it or the economist responsible for calculating its profitability. Finally, while experts in applied science, predominantly engineers, may make 'sound' scientific claims, the incentives for and consequences of those claims are political.

Without engaging in such politics, however, environmental activism is unlikely to make itself heard, at least not when it comes to improving the conditions of project-affected people in the short term. To achieve the best for those whose livelihoods are threatened by the implementation of large-scale 'development' projects, one has to provide numbers, prove (scientifically) that the projects result in massive environmental damage, prove that the project-affected areas have become uninhabitable and calculate the value of their land. This is where environmentalism needs science. Without scientific argumentation, one cannot deal with the science of the other side. Scientific reasoning helps to translate and 'validate' people's knowledge for an audience that adheres to scientific registers. People recognize and articulate the changes in their lives. But they may find it difficult to get a hearing for how the implementation of hydroelectric projects will induce landslides and dry up local springs without a universalizable episteme that places their concerns in a broader context of infrastructure failure and climate change. And yet science is an ambivalent ally. After all, it may be the same science that suggests that large dams are the best solution because they provide climate-friendly energy. Scientists from the same discipline might argue that monetary compensation has provided a much better deal given the barrenness of a group's ancestral lands (ignoring the affective quality of the lands because that is not measurable).

Many of those engaged in environmental NGOs, think tanks and activist groups have engineering backgrounds, have worked as policy advisors, and have graduated from the same institutions as those now in government positions with whom they are at odds. They likely share the same epistemological premises, but remain unheard for reasons that have little to do with their scientific merits. Even if the demands of all stakeholders are part of the same epistemic universe and they agree on the same scientific standards, the discourse is hierarchized. And this hierarchy is not necessarily ranked in terms of the degree of universality of the claims. Universality is not simply 'out there', it is not a thing to be owned. Rather, claims to universality are often part of a legitimizing strategy. I echo Vimal Bhai's call for the environmental movement to be guided by sound science and justice; unfortunately, decisions about what counts as sound science often have little to do with science itself. And even less to do with justice.

Reconciling Science and Environmentalism?

So far, I have discussed the challenges facing environmentalism in the scope of politicized science. In the remainder of this article, I will talk about options. Here I do not mean to make condescending suggestions to environmental activists for possible

'improvements' to their practices. Rather, the following is my attempt to draft a timely 'grammar of environmentalism' that has something to offer to the current ecological, political, and societal upheavals. This attempt builds on both an ongoing dialogue with people involved in environmental conflict and scholarly efforts towards 'rethinking environmentalism [by] linking justice, sustainability, and diversity' (Lele et al. 2018).

Let me briefly recall the problem. As we have seen, the relations between science claims and politics in India are manifold. First, science is often used to justify political interventions; second, the decision about what constitutes 'sound science' is usually limited to institutionalized authorities. The power of definition that the state claims in such matters, and the way in which it establishes the boundaries of legitimacy in terms of method and content, is crucial here. Remember that state consolidation is based on 'science's work as a metaphor', as 'a grammar of modern power' (Prakash 1999:7; see also p. 113, this article). Epistemological nuances and disciplinary specifics are readily neglected when science is mobilized in this way. Its use as an abstraction also blurs the distinction between science and applied science, with applied science tending to have the upper hand in development interventions. Science – as in environmental science, physics, seismography, biology, and others – is vital to assessing the impact of so-called development projects. Reducing science to the level of an assessment tool, however, obscures the fact that there is no such thing as a 'neutral' reference to science. For one thing, the paradigmatic premises of development interventions are not up for debate if measuring their impact is the sole concern. Second, such reduction conceals the fact that the question of who can assert their scientific approaches and findings over others is often a political one. A telling example of this is the notorious practice of environmental impact assessments being repeated by different groups of 'experts' until the desired result is achieved. To make matters worse, science is regularly used as a killer argument against concerns that cannot be measured. Without scientific support, critical voices in environmental disputes are stripped of legitimacy and are even more likely to be dismissed. One might assume that this would also marginalize religious interventions, but this is not necessarily the case. The boundaries between scientific and religious positions are not as clear-cut as the cliché of modern science would have us believe, either in the Indian context or in most other places. In an effort to give modern science a distinctly homegrown flavor, their integration is also high on the political agenda. As we have seen above, in India today, religion enters the realm of science in many ways. It is even made measurable when it is convenient. But it is not just about reconciling epistemes: it is about the assertion of power. The salience that 'science's cultural authority' (Prakash 1999:7) has acquired in contemporary India has been detailed above. If today's Hindu nationalists have their way, there will be one version of one religion, synonymous with one cultural identity, that defines India. This is where grammar comes in.

Grammar is an appealing metaphor when it comes to political discourse, but what I have in mind here is more than metaphorical. In addition to using grammar as an analytical tool to describe hegemonic political discourse, I intend to explore the po-

tential of 'grammar-based interventions' to challenge that discourse.[13] Here I draw on the usual distinction between normative or prescriptive and descriptive grammar. By setting a binding standard, normative grammar tells you right from wrong for any given communicative act. The normative approach helps us understand how hegemonic discourse operates by determining what is 'correct' and therefore legitimate to say (and do), and by structuring communication accordingly. Descriptive grammar, on the other hand, tells us what people express and how they express it, whether through speech acts or other forms of communication. The descriptive approach is crucial for challenging standard grammar in that it can reveal communicative acts and writings within a multitude of 'sub-grammars' that literally undo hegemonic grammatical rules.[14] While 'the grammar of environmental politics [has] been profoundly altered' in today's India (D'Souza 2022:630), it may be rewritten from its margins.

What is involved in such a rewrite? In breaking down what has been said about the ambivalent invocation of science and religion in contemporary Indian environmental politics, two aspects are crucial: the contextualization of the argument or, more generally, the communicative act within a particular 'sub-grammar'; and the political implications that emerge from serving these grammars, be it in terms of audibility, representational authority, and/or involuntary alliances. It is not only what is said and how it is said, but also who speaks on behalf of and with whom. Contributions from non-hegemonic world relations have the potential to disrupt and enrich mainstream perceptions, but they also run the risk of being appropriated and adapted to, if not actively allied with, the currently dominant political ideology.

Emma Mawdsley, who has written extensively on the points of convergence between the Hindu right and the environmental movement, expresses these risks quite clearly when she poses the question of 'guilt by association?' (Mawdsley 2006:388). While I agree with her caution against 'neo-traditionalism' and the need to deconstruct the idioms one uses, I wonder if warning environmental movements against serving right-wing ends by using compatible semantics is not putting the cart before the horse. An argument readily appropriated by the right is not necessarily right-wing itself. Admittedly it can be, and often is. The crucial question, then, is what the semantic proximity of arguments employed for very different political purposes means for the need and/or possibilities of redefining and reclaiming the language we use. As Ashish Kothari has convincingly argued, this is not a matter of definite either-or, but of con-

13 This is my first attempt at developing grammar as a critical concept, which I intend to expand on in the future. My aim in harnessing grammar in this way builds on earlier reflections on the historicity of political language and how this affects the scope for social critique; see Werner 2015, in particular pp. 201-202. I have hardly come across any works that use grammar for ethnography. Christopher Kelty's *The Participant* (2019) is a notable exception.

14 However, hegemonic grammar tends to extend its normativity to the level of sub-grammar, as when culturally specific places and practices experience shifts in meaning through processes of Sanskritization. For how this happens in Kinnaur in the western Indian Himalayas, see Negi and Werner 2023.

textual choices: 'Re-define, re-signify, re-imagine, depending also on the distortion and cooptation that happened' (Del Bene 2014).

A grammar of environmentalism capable of facilitating such choices would have three things to offer: a semantic sensibility that not only juxtaposes or reconciles conceptual claims, but derives their respective meanings from their contextual use; a renewed focus on justice and solidarity, not standardized but ethically universal/universalizable; and a greater space for the voices, literally the words, of those who suffer from their absence. Turning a blind-eye to the concerns and needs of the people directly affected by environmental degradation in the landscapes they inhabit is not an option. Manshi Asher, environmental justice activist and part of Himdhara, an environment research and action collective, gets to the heart of the matter:

> The problem with mainstream environmentalism? It separates us from nature. … [W]e may stop considering ourselves the "saviours" of nature and truly understand how we are a part of it' (Asher 2020).

A romanticizing, ahistorical and decontextualized ontologization of nature is not particularly conducive to a less harmful way of living in and with it. In an ideal world, environmental/ist grammar is a collective effort based on ethically universalizable claims that may or may not originate in the realm of science.

With its focus on justice, the grammar I envision builds a bridge between normativity and description. Any claim to justice as desirable ideal is normative. As part of a non-hegemonic grammar, however, such normativity would feed on different worlds and remain open to debate, reflecting a 'minimal common' in terms of concerns and ethics, rather than a definite target state. In this respect, then, my grammar is also descriptive, in so far as it situates calls for justice in the lived practices of those involved in environmental conflict. Science and religion may be a part of this grammar, but they no longer operate through universal hegemonic claims. To put it more concretely: as an abstract appeal to authority, science, like religion, is an instrument of power. In the grammar of environmentalism I have in mind, however, science will find its place by virtue of its pluralistic, contextual diversity. Such a placement also allows us to position modern science alongside other kinds of situated knowledge, both 'non-western' and 'western', thus 'provincializing' the claim to its universality (see also Chakrabarty 2000). Expert knowledge would not necessarily have to be labeled as science in order to gain legitimacy. I have certain reservations about the tendency to call any kind of knowledge science, not because I devalue it; on the contrary, it strikes me that the pursuit of the label 'science' − albeit often with adjectives limiting its scope, such as 'citizen' or 'indigenous' − is still informed by the same exclusionary premise that no knowledge outside science really counts (see also Subramaniam 2000:84). It would be redundant to list all the historical confluences and ways in which modern science has been influenced by various scientific traditions, many of which preceded it. But it is equally important to recognize that not all knowledge must belong to science in order

to matter. Science, on the other hand, may need to open up to 'non-measuring' disciplines such as aesthetics and anthropology.

Let me conclude where I started. As for rejecting limiting binaries, I am completely on Subramaniam's side. I also share the hope she places in global movements that strive for justice, not least through counter-hegemonic mobilizations of knowledge and science (Subramaniam 2019:226–227). And while for most of us the nature/culture divide has long since been obsolete, I am ready to agree, if need be, that science and religion can be reconciled as well. As I have tried to show, it is the 'how' that gives me pause, even more so in this day and age. Science and religion have always been intertwined with cultural politics. Now that right-wing cultural politics is disrupting democracy in India and around the world, even more caution is in order. As for the embrace of science and religion, I suggest that in each context we need to examine carefully what the implications are, what the relationship between the two is, and whether hierarchies are involved that make one the acolyte of the other. As for the invitations we extend, intentionally or not, we need to be clear each time what – and whom – we might be embracing. Finally, and perhaps most importantly, if we seek reconciliation, we must strive to understand why people resort to a particular conceptualization of the world, which is reflected not least in the grammar they use.

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Population in Fragments: Inclusion, Risk, and the Anticipatory Universality of Postcolonial Genomics

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Abstract: In recent years, genomic medicine has invited critical attention for its potential to include diverse population groups and therefore expand the clinical relevance of global genome databases in diagnosing diseases. Population geneticists across the Global South demand being included in this process by translating their national populations into geneticized fragments that move back and forth between laboratories, databases and sites of diagnosis and care. Taking the case of postcolonial India, this article explores how the scientific universality of genomics becomes contested, only to produce an 'anticipatory universality' oriented towards public-health futures. Drawing on Ruha Benjamin's concept of 'postcolonial genomics', my argument is three-fold. First, I critique analyses that have explained population genetic studies in India as an exercise in fostering nationalism, showing instead that geneticists are increasingly interested not in the 'Indian' population as a whole, but rather in its 'fragments'. Second, through a case study of the Lambadas in Telangana, I show how the material formation of these fragments highlights the limits of genomic universality, where the haplotype[1] is treated as the ultimate fact in tracing both ancestry and disease risk. Third, I argue that it is partly due to the financial dependence of postcolonial geneticists on state bureaucracies that they enact an 'anticipatory universality' for genomics, which, even if severely limited and often harmful in the present, promises to be universally applicable in the future.
[postcolonial genomics, inclusion, scientific universality, geneticization, caste and tribe, anticipatory futures]

In the summer of 2022, I was sitting in the office of Dr. Vinod Scaria, a leading Indian geneticist known for belonging to the team that sequenced the first 'Indian genome' in 2009. As an ethnographer interested in how genomics is making inroads into India's public-health programmes, I had landed in Scaria's office through a series of media reports following the state of affairs in genome sequencing and surveillance. Since 2015, Scaria's lab, based at a leading government-funded institute of genomics,[2] had been working as part of a collaborative team of geneticists, clinicians and public-health experts with the aim of using genomics to identify rare and undiagnosed diseases and

1 A haplotype is a set of alleles that are inherited together on a single chromosome. Once they have accumulated from both paternal (Y-chromosome) and maternal lineage (traced through mt-DNA) it can be used to identify both ancestry and disease susceptibility through specific combinations of genetic markers. An allele is a variant of a sequence of nucleotides found at a particular location on the DNA molecule.

2 https://www.igib.res.in/, Accessed March 25th, 2023.

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develop public-health solutions for genetic disorders. While speaking about genomics and its utility in meeting public-health needs, Scaria recalls the most celebrated finding of the consortium: the discovery of the novel 'Nalband' mutation.

In 2015, Shamsudheen KV, then a PhD student working in Scaria's lab, came across a media report that was as intriguing as it was tragic. In the city of Agra, Uttar Pradesh, Mohammad Nazir, a father of eight, had written a petition to the President of India pleading for six of his children to be euthanized. The reason was a 'mystery' disease that had caused them to become progressively paralysed below the neck, rendering them unable to carry out daily tasks independently. As the undiagnosed condition gradually reduced their quality of life, managing their physical needs became increasingly unaffordable for the family. For the parents, euthanasia was the last resort; they wanted to put themselves and their children out of their misery.

Suspecting a genetic condition, Scaria's team decided to collect blood samples not only from the affected family but also their immediate neighbours, who belonged to the same ethnic community, identified as the Nalband. The Nalband are a group of Sunni Muslims spread across parts of India, Pakistan and Iran whose history in India can be traced back to the 15th and 16th centuries, when the first Nalband migrated to present-day north India from present-day Iran. Scaria and his team spent two years sequencing the whole exomes[3] of both affected and unaffected individuals from the community to trace 'the tapestry of genetic relatedness' (Koshy, *The Hindu* 2017).

Ultimately, the team was able to find the novel and rare mutation on chromosome 21, close to the MLC 1 gene, that causes a debilitating neurological condition called megalencephalic leukoencephalopathy with subcortical cysts (MLC). Having identified the exact mutation, the geneticists reached out to the children's clinician, who put them on prophylactics as part of a targeted therapy that improved their quality of life in the absence of a cure. Talking to me in his office, Scaria zooms back to the crucial role of population genetics in enabling disease diagnosis, especially when rare, unidentified, mutations are involved. 'Population genetics is the baseline for medical genetics', he said:

> India has about 4000 endogamous communities who have their own specific marriage practices, which makes them genetically distinct. In the last seven years, we have found many communities who are prone to certain diseases.

Because they had not found this mutation in any other Indian population group, Scaria continued: 'we concluded that the Nalband were a "founder population" for this specific mutation on MLC 1, which we named the "Nalband mutation".'

Scaria's comments reveal a common practice among geneticists to identify founder populations for specific disease mutations and concentrate public-health screening on

3 An exome is a protein-coding region on a genome. Whole exome sequencing is a common, more cost-effective method of detecting mutations on the selected DNA sequence compared to whole genome sequencing.

those identified as such. This article explores how geneticists in India mobilize the universality of genomics to craft populations and make them available for public-health interventions. In doing so, the geneticists not only include themselves in the global knowledge production of genomics, but also claim inclusion for Indian population groups in disease gene databases, a move that promises to improve diagnosis and ultimately therapeutics closer to home. To achieve this, they see it as their task to decipher the genetic ancestry of India's population, which is not only diverse and unique but also under-represented in genome databases worldwide.

As the case of the Nalband shows, genomic medicine ties together questions of genetic ancestry and incidence of disease in such a way that one becomes the 'baseline' for the other. While genomic medicine depends on global regimes of knowledge, its practices take on particular expressions in places where state-funded research institutes and public health rather than market-driven privatized medicine are the dominant sites of diagnosis, care and innovation in medical technologies. Anthropologist Ruha Benjamin captures this configuration of research and medicine under the label of 'postcolonial genomics', a particularly public health-oriented form of genomics that has emerged in postcolonial states and that requires practitioners to calibrate their research in ways that 'can simultaneously advance the science, foster public support, and produce health and economic goods' (Benjamin 2009:343). Some of these concerns are implicit in the naming of MLC 1 as the 'Nalband mutation', which simultaneously inscribes an Indian group as the origin of a genetic marker, contributes to gene disease databases by adding a novel rare mutation, and frames the Nalband as potential subjects of public-health interventions.

Extending Benjamin's insights while decentring the nation in a social-scientific critique of genomics, this article contributes to this special issue by asking how universality is produced and contested through articulations of population in the postcolonial contexts where populations are always already marked by colonial knowledge regimes. Drawing on scholarship in anthropology and science and technology studies (STS), this article addresses three interlinked questions. First, if populations in human genetics, as elsewhere, are not given but turned into biological and social entities (Bangham and Chadaverein 2014; Gannett and Greisemer 2004), what purpose do they serve for the practitioners of science? Second, how do classificatory practices advanced by population geneticists shape how populations are interpreted in public health interventions? And third, what kinds of inclusions and exclusions come into effect once they re-inscribe populations as biological entities?

Methodology

The article is based on thirteen months of ethnographic fieldwork from 2021 to 2023 in laboratories, clinics and a teaching institute for human genetics in the south Indian

city of Hyderabad, supplemented by interviews with prominent geneticists, then based in Delhi.[4] I draw on my interaction with geneticists, their own publications, and my discursive and ethnographic engagement with one particular ethnic group in the state of Telangana, the Lambadas, who were identified as a high-risk group for thalassemia, one of the inherited blood diseases (IBDs) that were the focus of my fieldwork. IBDs are fast becoming routinized in India's genetic surveillance programmes, which seek to reduce the burden of these diseases and are often directed at lower-caste and tribal groups, who supposedly are at higher risk of being affected by them. In section iii), I draw on my interactions with laboratory technicians, genetic counsellors and clinicians, who repeatedly articulated this risk towards the Lambadas. My own positionality as an upper-caste researcher also allowed me access to many families, including Lambadas who were receiving state-subsidized care for thalassemia.

Postcolonial Genomics: Whose Genomes, Whose Diseases?

The recent development of public health-oriented genomics in postcolonial states accompanies calls for diversifying existing genome databases to include groups of non-European ancestry. Indeed, under-representation of the non-European genome has been a running concern in several studies (Chambers et al. 2014; Fatumo et al. 2022; Landry et al. 2018; Jain et al. 2021; Wu et al. 2019). Notably, such calls are often led by practitioners who themselves belong to these very excluded groups, thus contesting simple binaries between the scientific researcher of the Global North and the research subjects of the Global South (Lyons et al. 2017; Kowal, Radin and Reardon 2013; Anderson 2009).

Thus, scientists from the postcolonial world become important political actors within the global knowledge hierarchy. A bias towards people of European ancestry in global genome databases, they argue, limits the benefits of clinical findings to reach those from diverse ancestral backgrounds. Following such calls for diversity, conscious attempts are being made to move away from the extractive nature of human genome projects of the past.[5] Ethical concerns raised during the Human Genome Diversity Project (HGDP) and the following HapMap project criticised that DNA samples collected from indigenous and other non-White communities were only incorporated

4 Well-known scientists working in labs in the two cities have collaborated on various national genome projects, such as the Indian Genome Variation Consortium, or Indigen, which sequenced 1008 individuals in India for the first time, and more recently the Genome India project, which planned to sequence 10.000 genomes by the end of 2023.

5 See the section entitled 'Diversity, Equity and Inclusion at NHGRI' on the webpage of the US-based National Human Genome Research Institute: https://www.genome.gov/about-nhgri/leadership-initiatives/Diversity-Equity-and-Inclusion-at-NHGRI. Accessed March 25th, 2023.

in so far as they furthered the differences in ancestry and haplogroup analysis, not because they addressed specific health needs of those from the communities (Radin 2018; Reardon 2009).

Critical engagement with new genetics and genomics has thus argued that the shift from racial types to populations, ancestry and DNA frequencies has not led to the abandonment of race and racialization in science and medicine (Fujimura and Rajagopal 2011; Fullwiley 2011; Haraway 1997; M'charek, Schramm, and Skinner 2014; Montoya 2007; Reardon 2009). Rather, it has brought into effect what Nadia Abu-el Haj (2007) has termed the 'genetic re-inscription of race'. As risk and 'ethnoracial' differences are increasingly being calculated at the molecular level, they also become profitable commodities in the bioeconomy, giving rise to a concept of race that is no longer reducible to the object of twentieth-century eugenics (ibid.). Claims that non-European genomes are under-represented then become part of the same kind of 'vital politics' (Rose 2001) that gave purchase to the demands of ethnic minorities and women of colour in western countries to be included in medical research (Epstein 2009). This politics renders genomic medicine a universalist project that constantly accumulates more and more different genomes.

Ultimately, as genetic technologies become more widely used in establishing one's 'true' identity, it is not just race that becomes re-inscribed in genetic terms, but also religion, nationality, ethnicity and even citizenship (Burton 2018; Tamarkin 2014; McGonigle 2021; Mukharji 2023; Schramm, Skinner and Rottenburg 2012). Against this backdrop, genomics in India presents an important case study for 1) its aspirations to participate in global science regimes and be included in disease gene databases; 2) its particular deployment of admixture and endogamy, which tends to ascribe genetic risk to historically marginalized groups; and 3) its orientation towards public-health solutions.

Attending to these aspirations, discursive and material practices and motivations, my argument in the following sections is three-fold. First, I challenge scholarly analyses that have explained population genetics in India as an exercise in fostering nationalism. By contrast, I argue that the geneticization of admixture and endogamy have led to the fragmentation of the national population, and that it is these fragments that are currently at the forefront of genomic medicine. Second, through a case study of the Lambadas in Telangana, I illustrate how the population fragments are constituted in an epistemic and linguistic environment pertaining to risk, which in turn proclaims the limits of genomic universality in which haplotypes are taken to be objective facts. Finally, I explore how aspirations to translate genomic knowledge across public-health domains anticipates the universal applicability of genomics to future health governance.

Between Admixture and Endogamy: The Indian Population and its Fragments

While India did not participate in the Human Genome Project, transnational networks forged by a few Indian geneticists had already started investigating the genetic basis of the Indian population in the 1990s. Among these early internationally trained geneticists was the late Dr Lalji Singh, popularly known as the 'father of DNA fingerprinting' in India. While Singh in many ways pioneered DNA-based population studies, it was his long-time collaborator, Dr Kumarasamy Thangaraj, who took the lead after the former's untimely death in 2016. During my brief re-visit to Hyderabad in 2023, I had the chance to meet Dr Thangaraj, who is now a leading population geneticist in India, and is based at the Centre for Cellular and Molecular Biology (CCMB).

In recounting their journey to publishing their famous 2009 paper in *Nature*, entitled 'Reconstructing Indian population history', Thangaraj noted how it all began with a workshop on DNA fingerprinting organized by Singh in 1994. One of the workshop participants was Edwin Southern, the British biologist whose research lead to the invention of the Southern Blot test.[6] Southern informed and encouraged Singh and Thangaraj to collaborate with another British geneticist, Chris Tyler Smith, who was at the time working on Y-chromosome polymorphism and applying it to understanding migration patterns in human evolution. Singh and Thangaraj complemented this research with their own studies of both Y-chromosome and mitochondrial DNA markers in selected Indian population groups to include 'heterogeneity in the network analysis' and 'population specific haplotypes and alleles'[7] (Thangaraj, Ramana, and Singh 1999).

Their broad inclusion of a diversity of origins was followed by a series of population-specific studies, particularly of the Great Andamanese, who were first studied as India's 'vanishing population', a group that the researchers later hypothesized were the first modern humans to have migrated out of Africa (Thangaraj et al. 2003). 'This paper published in *Science* got so much attention and eventually made David (Reich) reach out to us. Then we started collaborating with him,' Thangaraj told me while recalling the journey towards the 2009 publication. The publication was significant not only because it was led by David Reich, the prestigious population geneticist based at Harvard Medical School who had carried out similar investigations in other parts of the world,

6 The Southern Blot test is an essential technique used in electrophoresis to separate DNA fragments from any sample that tests it against a DNA sequence probe, and thus offers quantification of which sequence is more prominent in a sample. It is also widely used in detected single-gene disorders whose mutations have been deciphered and are known.

7 When geneticists speak of 'population-specific haplotypes' that can identify disease-gene linkages, they are referring to haplotypes inherited over generations due to endogamy.

but also because it had the potential to reframe highly contested debates around caste and indigeneity in India's public and intellectual discourse.[8]

The Reich et al. study (2009) suggested that population groups in India show high levels of variation, as well as 'a gradient of proximity with West Eurasians' (Reich et al. 2009:491), which they called the 'Indian cline'. Following the logic of 'population specific haplotypes', the geneticists hypothesized that different groups have different proportions of ancestry from two somewhat distinct founder groups, whom they named the 'Ancestral North Indians' (ANI) and 'Ancestral South Indians' (ASI). The two clusters, ANI and ASI, were themselves conceptualized as 'models' rather than as homogenous. The authors go as far as to add a disclaimer about the modelling of these clusters:

> We caution that 'models' in population genetics should be treated with caution. While they provide an important framework for testing historical hypotheses, they are oversimplifications. For example, the true ancestral populations of India were probably not homogeneous as we assume in our model but instead were likely to have been formed by clusters of related groups that mixed at different times. However, modelling them as homogeneous fits the data and appears to capture meaningful features of history. (Reich et al. 2009:492)

In his study of Latin American genomics, Peter Wade (2017) argues that constructions of purity and mixture are co-produced. While the *mestizaje* or mixed-race identity is the national norm in Latin America, particularly in Brazil, indigenous people figure as 'relatively pure' and are made to stand in as ancestral populations for present-day humans. In the broad context of genetic studies, then, the Andamanese emerge as 'pure' but also as different from the ancestral populations of the present-day peoples of India. The Reich et al. study in fact denies ascribing homogeneity even to the ancestral populations, while presenting the ANI and ASI as homogenous models. In this context, these researchers' use of the 'Indian cline' is interesting precisely because in evolutionary genetics a 'cline' differs conceptually from a 'class' (Fujimura et al. 2014). While the latter is seen as a set of static characteristics that carries the spectre of pure races, a cline describes a pattern of biological variation against which one can measure the expression of particular traits.

While most groups cluster along the Indian cline, according to these researchers, the ancestry of six 'outlier groups' reflected considerable differences from the Indian

8 These debates particularly revolved around what had come to be known in India's public discourse as the Aryan Migration Theory. These studies posited genetic incursions in reconstructing evolutionary migration, the 'peopling' of India, the introduction of agriculture, the spread of languages, and social stratifications based on ethnic, racial or caste lines, and that have either directly referred to the Aryan migration as a historical event or taken one or the other position in the debate (Cavalli-Sforza 2001; Bamshad et al. 2001; Wells et al. 2001; Sahoo et al. 2006; Indian Genome Variation Consortium 2008; Reich et al. 2009).

cline. These were Siddi with African ancestry, the Nayishi and Ao Naga, who cluster close to the Chinese, the Great Andamanese and the Onge, who have some parts of ASI ancestry but none of ANI, and the Chenchu, a tribal group from present day Andhra Pradesh and Telangana who were found to be closer to Native Australians. This classification of 'outliers' points to a similar tendency in the study of 'religious isolates' that Projit Mukharji (2023) observed in his historical account of race science in India. Mukharji notes that in the immediate aftermath of decolonization, Indian researchers conducting blood variation studies framed groups such as the Cochin Jews, Muslims and Parsis as having migrated to India from elsewhere. Unlike North American contexts, where the dominant figure of genetic difference is indigeneity, Mukharji makes a case for how 'exogeneity' defined genetic difference in the Indian context, in turn legitimizing national territorial belonging. Pertinent to the definition of the 'religious isolate', however, was a biohistorical notion of endogamy that enabled the group's isolation before and after migration. Indeed, endogamy was the defining element that enabled caste, tribe, religion or any 'group' to be studied as a biological 'population'.

The genome mapping studies of more recent years have taken this biohistorical construction of endogamy for granted while re-directing their interest towards improved diagnoses of disease. In that capacity, the dominant articulation of population in postgenomic studies are those of admixture and endogamy. Both of these forms are again reflected in another foundational study conducted by the Indian Genome Variation Consortium (IGVC), which sought to further disease-gene explorations in Indian populations. While it classified its population sample according to language, geography and ethnicity, grouping on the basis of ethnicity showed 'significant differentiation' (IGVC 2008:8). The study concluded its published report with the following statement:

> We note that the people of India are referred as 'Indian' in many population genetic studies. The implication of such usage is that the Indian population is genetically homogeneous, which, as the results of our study indicate, is evidently not true. However, we have also shown that it is possible to identify large clusters of ethnic groups that have substantial genetic homogeneity. (IGVC 2008:17)

This finding of 'substantial genetic homogeneity' within ethnic groups came at the same time as findings of variation across national genetic populations. STS scholar Banu Subramaniam (2019) has criticized this configuration in population genetic studies to suggest the formation of 'an indigenous nation transnationally bound'. According to her, what unites genetic studies reconstructing population history, genetic explanations of caste differences and the discovery of disease by banking Indian DNA is an ideological discourse of 'bionationalism', that is, an imagined community brought together on the basis of shared biological ancestry. The notion of bionationalism also concurs with Benjamin's (2009) observation that postcolonial genomics in India has made use of the particular rhetoric of nationalism summarized in the age-old adage of 'unity in diversity'.

While regimes of bionationalism continue to inform knowledge practices in postcolonial genomics, my interest here is slightly different. Without eschewing criticism, I want to take seriously my interlocutors' claims that calibrating populations in a way that geneticizes admixture and endogamy can aid in testing individuals for identified or candidate genes, and eventually set up public-health programmes. Following these public-health orientations in postcolonial genomics, it is clear that what geneticists are increasingly interested in is not so much the 'Indian' population itself but what, following Partha Chatterji (1993), can be called its 'fragments'. For Chatterji, if the postcolonial nation was not a single imagined community but was rather constituted differently through its various regions, castes, religions, histories etc., the supposed universality of the nation state as a form of political authority was called into question.

In a similar vein, approaching postcolonial genomics through the lens of nationalism occludes the material, epistemic and linguistic environments in which populations are fragmented, particularly for the purposes of developing public-health programmes. Those who have highlighted a similar fragmentation of the national population have noted how the 'molecularization of categories of belonging' (Egorova 2009:7) engenders hierarchical knowledge regimes that allow researchers to accept claims of self-identification that fit into their research design and goals and reject those that do not (ibid.; Mukharji 2023). Still others have highlighted how the calibration of endogamous populations in both the Global North and Global South become national resources in the global market of genomics R&D and further the creation of biocapital (Sundar Rajan 2006; Tupasela 2021). Advancing such granular analyses, I elaborate on how 'populations in fragments' are articulations of risk that are regional and place-based, and thus unsettle the universality of genomic medicine.

Materializing the Fragments: The Case of the Lambada in Telangana

> After admixture in the last 2000–4000 years, in the last 2000 years, everybody is following endogamy. So, we wanted to look at the effects of endogamy, not only in India, but in South Asia like Pakistan, Sri Lanka etc. Then we realized that one-third of the populations that we had analysed are expected to carry population specific disease, or rare diseases. In fact, we found quite a few disease mutations that are exclusive to certain groups. So once we identify the mutation, screen the population, do prenatal diagnosis, then only we can see the disease burden reducing. The impact can only be seen after two to three generations. (Thangaraj, K., personal interview, 2023)

From my conversations with both Scaria and Thangaraj and in their own publications, it was abundantly clear that an active need to translate research findings into public-health solutions underwrites the practice of genomics in India. In this context, endogamy is

posited as the main factor that has determined genetic drift and population stratification in recent evolutionary history of South Asia, as the above quote by Thangaraj suggests. Endogamous marriage practices are seen to produce a founder effect that gives rise to smaller population subsets as they become differentiated from the larger group, leading to what geneticists call 'inbreeding'. An extreme form of such inbreeding occurs when the group practices consanguinity: reproducing within the bloodline by practising cousin marriages. However, this interpretation of social norms defining genetic norms assumes that the norm is the same everywhere and is always obeyed. Such claims in genetics are deeply troubling, not only because they reify the social boundaries of intergroup relations into biological difference, but also because they ignore forms of marital and caste admixture that have always existed and continue to do so, as historians of South Asia have argued (Egorova 2009; Mukharji 2023; Thapar 2014).

When I asked Thangaraj if endogamy is also used as a model (referring to the quote from his own publication cited above), rather than a norm that is universally practiced, his answer was a resounding 'no'. Emphasizing that within India and other parts of South Asia caste endogamy is almost always followed, his implicit suggestion was that biological reproduction takes place within the caste group. When I persisted with the question of whether the norms of endogamy are always followed, Thangaraj's reply was more assertive: 'Even if two people may not say that they are related, we can check if they come from the same ancestors.' Ascribing an infallible authority to DNA, he concluded, 'Haplotype is the ultimate fact.'

Without reiterating the critique of endogamy in South Asia that historians have put forward with sufficient evidence, I ask what happens when populations move out of the realm of models to become fragments marked by risk. I illustrate this with a case study of the Lambada, a marginalized community whom I encountered during my fieldwork on genetic screening programmes in the city of Hyderabad, southern India. As they become fragmented in postcolonial genomics, populations are neither pure social entities of caste, ethnicity or religion, nor biological entities of population groups demarcated by shared ancestry. Rather, I contend that fragments emerge when 'genomic articulations' (Tallbear 2013) of caste and ethnicity meet 'demographic articulations' of genetic risk. By demographic articulations, I am referring to epistemic practices that pursue non-genetic factors such as those of fertility, marriage, birth and migration to predict or explain risk. In what follows, I demonstrate how this fragmentation of Lambada as a population bound by risk materializes and is experienced on the ground.

The Lambadas are a traditionally nomadic community whose members are today spread across multiple states in India. Their major occupation in the pre-colonial and colonial periods was transporting goods like grains and salt, sometimes over very long distances. In the pre-independence princely state of Hyderabad, the Lambada served as major caravan traders and merchants from at least the 17th century, according to historical accounts (Bhukya 2010; Vaditya 2019). The introduction of railways in British India effectively destroyed their source of livelihood, leading to widespread dispossession and a transition to peasantry. This transition from a nomadic to a settled life

was, however, accompanied by periods when the Lambadas were known to indulge in dacoity (banditry), particularly in times of drought and famine. In response to their 'rebellious' behaviour, the British colonial state classified the Lambada as 'criminal tribes' under the Criminal Tribes Act 1871, a law whose underlying logic was that criminal behaviour tends to be hereditary in nature.

The postcolonial Indian state 'de-notified' the previously criminal tribes but re-classified them as 'habitual offenders' under the Habitual Offenders Act 1957. Members of these tribal groups continued to be identified as such until as recently as 2007, when the UN Committee on the Elimination of Racial Discrimination asked India to repeal the act and rehabilitate all the enlisted tribes. The Lambada, however, through a series of political and social assertions, were included in the 'Scheduled Tribes' provision of the Indian Constitution in 1971 by the then united state of Andhra Pradesh (of which Hyderabad was the capital till 2014). This inclusion is seen by many Lambada to have granted them much needed political representation and opportunities for upward social mobility.

Recounting this social history of the Lambada is crucial in situating their current inclusion in genetic research and screening programs as a 'high-risk' group for thalassemia, an inherited blood disorder that leads to perpetually low levels of haemoglobin in the blood and thus creates dependence on regular blood transfusions, reducing the quality of life in multiple ways. Although internally diverse in terms of class, education and status groups, many Lambada continue to live in poverty, lacking access to proper health care and education, while many Lambada women particularly have become easy targets of indiscriminate surgical operations, rendering them one of the most 'bioavailable' groups in the region (Cohen 2007; Mamidi and Pulla 2013).

During my fieldwork in Hyderabad, I met numerous experts, including doctors, nurses, medical geneticists, genetic counsellors, lab technicians and biological anthropologists, who repeatedly mentioned the Lambada in the context of thalassemia and their burden on the state of Telangana. When I asked them how the Lambada were identified as a high-risk group, I was given several answers. While many just held that opinion without backing it up with any particular evidence, one of the major factors cited by geneticists and clinicians was the high incidence of parental consanguinity found in the community. According to this explanation, the Lambadas predominantly followed the practice of cross-cousin marriage, which leads to an increased risk of birth defects over generations. This claim also rested on a long history of anthropological studies of tribal customs that was often accompanied by an anxiety towards 'high rates of inbreeding' in southern India (Roy Choudhury 1976; Saheb and Naik 1983; Sanghvi 1996).

A strong connection between genetic risk and marital practices was also the finding of a recent study conducted by a team of geneticists, clinicians and biological anthropologists in the state of Telangana (Rao et al. 2021). The study suggested that, while thalassemia is prevalent in 31 out of 33 ethnic groups in the state, five of them show a considerably higher rate of incidence for the disease, citing consanguinity as

one of the risk factors. Ultimately, they identified five high-risk groups, namely the Lambada, Sunni Muslims, Mala, Madiga and Mudiraj, all of whom are designated tribal, religious and caste minorities respectively by Telangana state. The researchers used the method of tracing the pedigrees of existing patients, recording the unaccounted deaths of family members, their places of birth and their marriages, which included calculating marital distance and the type of marriage tradition followed. Based on their findings, the study also recommended genetic screening to be concentrated on the identified groups, as well as 'high-risk districts' in the state.

In respect of other explanations, though less often invoked than consanguinity, the biological anthropologists and molecular geneticists I met at the teaching institute noted that it was because of their long history of migration that the Lambadas may have been exposed to regular outbreaks of malaria. As a result of natural selection, they developed the thalassemia-causing mutation, which also provides natural immunity against the parasite (Roberts and Williams 2003). This line of reasoning draws a causal link between the risk of a disease mutation and the geographical area in which the community is known to reside. While the Lambada were only known to have settled in their present location in recent years, other tribal groups were also assumed to share the risk of thalassemia because they lived in heavily forested regions where the incidence of malaria was considered a routine public-health problem (Corrêa et al. 2017; Rambabu 2016). This group of experts used the tribal identity of the Lambada as an example to propose further genetic screening of other tribal groups in the state.

Finally, one overarching factor often mentioned was that the low levels of literacy and awareness in the community made them ignorant of their own health conditions. The Lambada often delayed visits to hospitals, did not 'maintain' their haemoglobin levels and thus their overall health, and were generally non-compliant even when asked to follow their strict diet and medication routines. Even though this was not an explanation for risk, this line of reasoning was followed by the clinicians and genetic counsellors to predict the incidence of the disease in unreported cases. At their worst, such reasoning forecloses any possible benefits of genomic or demographic articulations, as they become caste-based articulations of risk that denigrate the whole community. One moment from my field particularly exemplified this when a clinician juxtaposed the community's recent upward mobility to their health status, remarking, 'These Lambada trouble us a lot! They are so good with their money, but when it comes to their health, they don't pay any heed.'

As scholarship on social medicine in India has observed, complaints about non-complying patients are often informed by entrenched notions of caste and class, especially when providers themselves come from upper-caste backgrounds (Nayar 2007; Thapa et al. 2021). Contrary to such complaints, the numerous Lambada families whom I met in Hyderabad were receiving state-subsidized treatment for thalassemia and complying with their own genetic surveillance by asking family members to be tested for the disease. However, they were unsure why they carried the risk of the disease. As one Lambada couple whose child was thalassemia-affected asked me, 'Why do

you think we got this disease? We are both Lambada, but we are not cousins. We did not get married within the family. Why, then, is our child affected by it?'

The case of the Lambada in Telangana reveals the multiple ways in which the fragmentation of the Indian population becomes operational in a wider epistemic and linguistic landscape, and why it exceeds genomic articulations of population that DNA-based population studies provide the basis for. While population geneticists take recourse to the language of modelling, and rightly so, they can generate deeply stigmatizing effects when they project their data back on to communities. These effects are particularly intensified when a community historically criminalized by the colonial and postcolonial state is unilaterally diagnosed as at risk. As part of state-led genetic-screening programmes, more and more Lambada are currently being recruited to be tested, a trend which studies like Rao et al. (2021) only exacerbate. However, as I observed in the city of Hyderabad, those found to be affected by the condition are eventually asked to travel to the capital city from faraway regions to receive blood transfusions to manage their health condition. Infrastructure and inequalities of health between different regions of the state remain so glaring that a new gap emerges between diagnostics and therapeutics.

The Anticipatory Universality of Postcolonial Genomics

What does the context of postcolonial India reveal about the universality of genomics? First, it pushes us to ask difficult questions about the universal applicability of genomics that geneticists from non-Euro-American contexts have been affirming in their demands for inclusion. While genomic medicine aims to become more universal by accumulating different genomes, postcolonial realities on the ground, as illustrated in the case of the Lambada, sound the limits of its universal applicability, and in turn force us to ask to whom it is applicable. Does genomic knowledge apply to the Lambada, or does the knowledge of the Lambada apply to genomics?

Furthermore, it reveals how knowledge practices also emerge at the edges of scientific universality. In population genetics, population-specific haplotypes are seen as the key that unlocks the mysteries of disease mutations transmitted down the generations. And yet, in their translation from the lab to the clinic or the health camp, the iterability of the haplotype is possible only through recourse to risk articulations that exceed genetic factors. Much like DNA fragments in the lab that require the addition of reagents to be extracted, isolated and intervened in, as well as moved out of laboratories (Latour and Woolger 1987), population fragments require something other than genomic articulations to come into existence and become mobile entities.

Finally, in this case the Lambada become a fragment not only because they are an ethnic group but also because they are an ethnic group at risk, which is understood to be actualized in vital processes of marriage, birth, fertility and migration. These

contingent demographic articulations of risk become scripted on to the colonial and postcolonial state's classification of them as a 'criminal tribe' and are crucial to sustaining their health surveillance on the ground. At the same time, these articulations also enable their inclusion into disease gene databases by breaking them into mobile population fragments. The Lambada were recently included in the GenomeAsia Phase2 database one of the 'South Asian medical cohorts' (Wall, Sathirapongsasuti and Gupta et al. 2023). In other words, population fragments that emerge within postcolonial genomics anticipate the universal applicability of genomics, hoping that it will be relevant in the future, even as they sound the limits of its actuality.

Discussing the anticipatory dimension of contemporary technoscience, Adams, Murphy and Clarke (2009) propose that anticipation has an epistemic value as actuarial practices of science are replaced by speculative forecasts which then animate the present for further optimization and preparedness. Given its public-health orientations, postcolonial genomics enacts such anticipatory logics not only in the way it articulates the Indian population and its fragments, but also in how it frames its research agendas to make them amenable to health bureaucracies. I briefly share a snippet of my conversation with Vinod Scaria that exemplified these anticipatory logics. A highlight of my conversation was how Scaria described genomics as helping to develop solutions for public health in a country that is highly stratified in terms of its population structure and resources. Scaria was painfully aware of this social stratification not only among all citizens, but also between different federal governments:

> Place also matters. If you go to Uttar Pradesh or Bihar, and tell the government to do newborn screening[9], no one is going to listen to you. For them, diarrhoea is a bigger problem. Their infant mortality rate is from fifty years back. But in a state like Tamil Nadu or Kerala, their infant mortality has reached global standards … attending to genetic disease burdens will significantly improve their metrics.[10] So, governments have an incentive here.

Thus, apart from identifying risk populations and disease genes that would be given a priority in public health programmes, Scaria had introduced the third factor of place. However, this was not the 'place' of high-risk districts that we encountered in the Rao et al. study (2020). This was the 'place' of well-performing state bureaucracies that could afford and be interested in translating genomic knowledge for public health. 'So,

9 Newborn genetic screening is a set of laboratory techniques aimed to test a series of genetic conditions in a newborn. Typically, the tests are performed on a blood spot collected through a heel prick in an infant. For further information, see: https://www.genome.gov/genetics-glossary/Newborn-Genetic-Screening Accessed March 25th, 2023. While newborn screening is becoming more routinised in India, there are no nation-wide guidelines for the same.

10 Scaria compares UP and Bihar, which often perform poorly on human development indices such as life expectancy and disease mortality with Tamil Nadu and Kerala, two of the leading states in those same indices.

you're saying that genomics is not for everyone?' I ask him. 'It will be … just not yet.' Situating genomics in the realm of statecraft, Scaria's concern implicitly demonstrated the accountability of geneticists like him working in publicly funded institutions for the state. Even when state bureaucracies are interested in investing in public-health programmes such as newborn screenings, it is the task of geneticists to demonstrate the value of such programmes through association studies that identify risk populations and diseases. 'It's better to show the government that these people actually exist, rather than showing them data', Scaria added.

Thus, genomics in its present technoscientific form in India was 'not yet' applicable to everyone because of limited resources, the inequality in health standards and metrics, and the lack of incentives for states that lag behind. 'But it will be' because of improvements in its technology, scale of use, and cost efficiency. But more importantly, because it is anticipated that as more and more populations become risk fragments and are included in disease gene databases, it will become easier to identify what kind of diseases afflict what kind of people, leading to the further specification of public-health programmes. This specification will then bypass any need for iterative studies that construct model cohorts to represent those actually at risk or affected by diseases.

Scaria's response of 'not yet, but it will be' suggests a gradual scaling up of genomic studies and brings the argument of anticipation centre-stage. In many ways, this goal of making genomic medicine universal by accumulating different genomes is driven to make its applications more specific, targeted and precise. Even though the grounds of postcolonial India delimit and visibilize the harms of this universality, postcolonial genomics continues to enact an 'anticipatory universality' to see results in the present. This anticipatory universality was directed towards transforming genomics into not only a universal technoscience but also a universal technopolitical form, ready for deployment in future health governance.

Conclusion: Anticipating Inclusion, Articulating Exclusion

If universality is necessarily unfinished and mobilized by actors to fulfil their particular agendas, as the introduction of this special issue suggests, then it is precisely the unfinished state of genomics that postcolonial geneticists mobilize in order to include not only themselves but also the populations they fragment into globally circulating knowledge regimes. While disease gene databases form one end of this material archive of inclusion, which promises to capture the universality of humanity and make medical genomics applicable for all, postcolonial geneticists such as those in India are also accountable to state bureaucracies for developing public-health programmes. In this article, I have detailed the discursive terrains, epistemic practices and linguistic environments in which population groups in India that are taken to be 'genetically

homogenous' materialize as risk-carrying fragments and become mobile entities circulating between the lab, the clinic and the database.

Following the work of Indian geneticists and their positioning in transnational networks of population and medical genetics, I ask whether bionationalism is the most appropriate or most timely intervention for describing the discursive terrain in which science is practised. Rather, I take their claims of under-representation to be symptomatic of a larger shift in medical, health and scientific research towards the pursuit of inclusion. And yet inclusion does not mean the same thing for the geneticists and the populations they fragment. As I argued through the case study of the Lambada, their inclusion in genetics research and public-health programmes comes at the cost of reiterating historical stigmas, a process that therefore goes beyond the universal authority of haplotypes in articulating disease risk. Ultimately, the inclusion of populations in disease databases and geneticists' agendas in health bureaucracies highlights a new kind of discursive formation that I have referred to as an 'anticipatory universality'. By deferring the applicability, benefits and established methodology into the future, postcolonial genomics can justify the exclusions brought about by its current technoscientific limitations. As such, the Lambada of Telangana are testament to what happens if globally circulating scientific regimes are not accompanied by place-based ethical norms. More pertinently for this special issue on 'universality in pieces', this case reminds us of the 'postcolonial hybridities and heterogeneity' (Anderson 2009:389) of regimes of knowledge, to which I hope this article contributes.

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Afterword: The *Sites* of Universalities: Ethnographic Engagements with/of Sciences

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Contextualizing Universalities

How do we do an ethnography of universalities? Is it possible to reconcile local specificities with universalities through/in ethnography? That is the question the authors in this special issue ask and engage with. If ethnography is about specificities and specific locations, about contexts, how can we imagine an ethnography of 'universals'? The question sounds simplistic at the first glance, but it becomes more complex as we address it in relation to the articles in this special issue. The topic is of importance since it reinforces the tension between universal truth claims and relative interpretations of the world through scientific reasoning. It has been exacerbated by media technologies. Political authorities who either have both feet firmly on the ground of scientific majority's opinion or question it for their own benefit face resistance from globally networked communities. The old debate between mostly Marxist-positioned empiricism and postmodern relativism is taking a new turn in these digital times.

It is clear from the ethnographic accounts in this special issue that universality works differently in different locations. As the introduction demonstrates, the narrative of a seamless and coherent reading of universality as a whole has its limitations. This special issue allows a useful reading of universality beyond dogma. The articles lay emphasis on the importance of universality as an aspirational greater horizon, following Paulin Houtondji (2017). By combining the works of Veena Das (2007), Anand Pandian (2008) and Marilyn Strathern (1992) in the introduction, the authors design an epistemic that aims to accumulate the fractals and fragments of particular positions through their ethnographic engagements. In that way, following Dörte Bemme (2019), the authors wish to contribute to an aggregated vision of a world that is allowed to be incomplete but that strives for universalism.

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Claudia Lang and Sonali Sathaye's article investigates the alleged universality of psychology through ethnography. They show that psychological universality works in its context by looking at the experiments and questioning the 'boxed universality' embedded in the development of psychotherapy chatbots in Bangalore, India, and the Wysa algorithm. Julia Vorhölter pushes these insights in her article on Ugandan psychotherapy, focusing on a science that considers research and therapy as two different sides of a discipline that meanders between social and natural scientific epistemics on the one hand and the culturally embedded application of treatment on the other. The quest for a Ugandan framework of psychotherapy that is in harmony with a universalist concept but acknowledges local specificities shows how universality falls into pieces when it gets down to the local. Julia Vorhölter discusses this phenomenon especially against the background of the decolonization of knowledge and the establishment of North American concepts of mental health. In Hanna Nieber's article on Astrophysics in Africa, readers observe the interlocutors from the field engaging with the possibility of universality as a welcoming tool to deal with global inequalities of knowledge production. Her piece invites us to think about the political possibilities of universality for astrophysicists organized in the "Forum on Astronomy in Africa" in order to become involved in the 'range of perception or experience' that is created by horizoning 'geometries of global connectivities'.

Desiree Kumpf shows how camera traps serve science through interconnectedness and thus create a notion of universality on the level of media technology. Conservation science aims to create reliable data in local environments, but the camera traps are media technologies at best, trapping wolves and ghosts alike and thus destabilizing universalist claims. Kumpf demonstrates how sensing technologies and concepts of interconnectedness are introduced as narratives to counteract the ongoing destabilization of universalist claims through illusion-prone technologies such as digital data and digital camera traps. Becka Hynek studies Covid sceptics in the Czech Republic through the lenses of alternative knowledge and embodied skepticism. Their personal experience of Covid does not correspond to the claims made by scientific authorities. Dissatisfaction with politics and a global pandemic coincides with culturally embedded concepts of rationalism that generally understand science as a mode of skeptical reasoning. Any claim to scientific universality erodes even faster in a simulation-based world with a diversified social media space. Understanding themselves as the true rationally spirited, Czech Covid skeptics fall prey to the depth of illusions caused by computer-simulated knowledge production and align their insights with alternative theories to those of the political class.

Hanna Werner comes across similar frictions of authority and scientific claims by investigating environmentalism in contemporary India. While science was always one of the cornerstones of modern India, in a Hindu nationalist framework, scientific claims feed hegemonic power structures and disparage local practices that might present alternative knowledge with reference to universalist claims that are tightly connected to a Hindu vision of India. Werner argues that science and environmentalism

need to be reconciled in contemporary India: a grammar is needed to bring together ecological, political, and social demands. Samiksha Bhan's contribution looks at the case of biology, specifically trying to understand how the detailed gathering of genomic databases in India is decentralizing nationalist interpretations of genomics and fostering fragmentations of population, even questioning *universalist* genomics. Research undertaken in India is fostering, in her opinion, an anticipatory universality, universality as a promise to be realized in some kind of future, but that cannot be found or attained in the heap of fragmentary data.

In short, the authors of this special issue are dealing with very different actors and actants in their ethnographies, evoking various concepts of universality and notions of science. But all their research shows that context matters: local specifics are usually brought into harmony with universal claims of science. Furthermore, and unfortunately still not well enough understood, their work points to the impact of how media technologies, from interconnections to simulations, shape the concept of universalism and its fragmentations.

The *Sites* of Universalities in/of Sciences

As a whole, this special issue offers insights into the multidimensionality of what science and scientific practice mean today. Since the figurations of science that each article displays are so various, one might ask what science and scientific practice mean in our times. Is there still a coherent concept of science, such as that suggested by Laura Nader (1996) as a three-cornered constellation? Nader writes:

> Science may refer to a body of knowledge distinguishable from other knowledge by specific methods of validation. It may define a self-conscious attitude toward knowledge and knowing that embodies curiosity with empiricism. In Western society, science also connotes an institutional setting, a set of concerns ruled by the notion of ordered rationality, a group of people united by a common competence. Science is systematized knowledge, a mode of inquiry, a habit of thought that is privileged and idealized. Much about science is taken for granted – its bounded and autonomous nature, its homogeneity, its Westernism, its messianic spirit. (Nader 1996:1)

This special issue goes beyond Nader's definition. The authors find the self-fashioned claim of science as universality to have fallen into pieces. They also give voice to various actors, from scientists to programmers and psychotherapists to environmental activists and Covid skeptics, who strive for universality while exposing the fragile nature of scientific knowledge when it leaves the realms of mathematical descriptions and algorithmic tools to enter the chaotic and cosmogenic realities of what is the subject of ethnographic fields.

Feminist STS scholars like Banu Subramaniam have demonstrated that even the most 'universal' of theories, such as the Darwinian theory of evolution, have been based on pre-established assumptions that produced particular stereotypes about gender and race (Subramaniam 2014). Historians of science have discussed in detail the particular ways in which universal theories like evolution have been received differently in different *places* and *sites*, showing that there is no 'universal' reception or reading of these 'universal' sciences and theories (Livingstone 2014). However, this special issue goes one step further. The authors question science beyond "objectivity" (Daston and Galison 2010) by shaking the epistemic ground through situating knowledge as bound to the concept of universality. They follow a strain of reasoning established by anthropologists such as Jane Bennett, who in her seminal work on 'vibrant matter' shows that even at the atomic level of physics, universalisms fall apart (Bennett 2009). New materialist insights on the constant exchange and diffraction of agents, which are not pre-established entities but emerge out of dynamisms framed through the concept of intra-action (Barad 2007), also support the results gathered in this special issue from a philosophical perspective.

Bringing the articles into dialogue, it becomes clear that each contribution can be understood as a symptom of a wider paradigm shift in humanities and the social sciences that acts against both monistic and dualist principles when it comes to understanding 'what is going on'. This is even more the case, since the authors are deeply committed to the decolonial and critical impetus of re-thinking anthropology today.[1] In this way, they are sensibly dragging the rococo debates around science and objectivity out of the dowdy battlefields of the 1990's 'science wars'.

If there isn't a universal way of receiving a theory, what is *universal* about these sciences? The special issue looks for the possibilities of thinking about universalities beyond a binary reading. Following the tradition of STS, but not merely looking at scientific laboratories, the articles in the special issue talk about the lives of universality beyond 'universality in science as a given' (Latour 1983:167). The contributors in the special issue show how 'universal' identities offer the possibilities to think about questions around equality, freedom, belonging, dignity, and care. They attempt to reach their goal by introducing new perspectives on the ethnography of universalisms and universalities. The collection of studies in this special issue illuminate the problems emerging out of anthropology and ethnography as method and mode of writing by analyzing relational personhood, distributed agency, and the interdependence of subjects and objects. They therefore contribute to the critique of western epistemology by questioning holistic and reductionist approaches. These ethnographic investigations reach the central question: can there be a conjugation of universalities within the sciences?

In addition, readers of this special issue will find new perspectives on the established conceptual terms of the discipline, such as parts, whole(s) and relational conceptions.

1 For a recent discussion on decolonizing anthropology, see Gupta and Stoolman (2022), Baviskar (2023).

Not only universality, but especially the term 'fragment' is put into a new *perspective* on the science in/of/as world, and on what has been erased since the origins of science: its imperial and colonial contexts. How do we rethink the problems created by *universitas* in times where universality falls into pieces from its media apriori (Dippel and Warnke 2022) to its everyday practices (Thomas 2021)?. That is the current task of anthropology as a discipline. This special issue carefully addresses these concerns.

Towards Ethnographies of Universalities

The epistemic problems of how to re-think humans' attempts to universalize and fragment and of how to describe different ways of aggregating universality can be considered a core epistemic challenge of anthropology when engaging with the articles in this special issue. In that way, the authors are taking a thread of discussion that is fundamental to the discipline. In the American tradition, the work of Franz Boas or the Sapir-Whorf hypothesis had already introduced universalist concepts and, based on initially German anthropological traditions, developed an anthropology of the diversity of human experiences through culture and language while acknowledging a universal concept of humanity based on biological and linguistic commons.[2] The approaches of Gregory Bateson and Margaret Mead to a cybernetic vision of how societies function can be read as a figuration of universality and fragments and as a mode of aggregation that allows us to understand the horizons and limitations of universalist conceptions.

In the French tradition too, Emile Durkheim's work on community and religion can be read as attempts to overcome these tensions. The discipline, together with its subjects, is double-bound from its beginnings, because humans and their way of being cannot be framed in law-based concepts such as physics or chemistry. The Indian social anthropologist Kamala Ganesh argues that anthropology's aims for universality arise from different faculties of the 'university' (an institution that claims by its name to have a holistic authority when it comes to knowledge about the world) that is itself aggregated by fragments of *humanitas* and the sciences (Ganesh 2022).[3] From philosophy to biology, from philology to physics, anthropology has to draw on all disciplines and deal with everything in this cosmos in relation to humans, but much more than ever human. Once anthropologists enter empirical fields, they start to observe fragmentations, partly because of the subject-centeredness of the ethnographic method. By understanding singularities through ethnography, the concept of universality in anthropology is liable to be plural.

2 For a history of German anthropological traditions, see Barth, Gingrich, Parkin, and Silverman (2005).

3 For a discussion on how anthropology as a discipline straddles the world of sciences and humanities, see Ganesh (2022). Also see Marks (2009).

It is at this point that our initial question begins to be answered by the special issue's ensemble of contributions: by combining ethnographic material with the concepts of Dörte Bemme (human aggregates beyond the dichotomy between universality and particularity), Paulin Hountondji (universality as the value of a horizon) Olúfẹ́mi Táíwò (locality as potential) and Veena Das (assembled fragments of observation as illustrations of the *impossibility* of imagined wholes), this special issue allows us to push new epistemic currents into one of the core debates of anthropology as a discipline assembled from the fragments of an imagined whole. And it does so by circumventing elegantly monist and dualist positions, as it gets by without the creation of a seamless horizon (Pandian 2008, Strathern 1992).

The 149th volume of the *Zeitschrift für Ethnologie/Journal of Social and Cultural Anthropology* in its 125th year of existence therefore contributes to a new, broken horizon, one that provides insights into the world during a paradigm shift that the humanities and social sciences are witnessing, not always modestly. Hence, this special issue reaches far by shifting perspectives on the multitudes of universality and aggregations of knowledge in science. Even the anthropological reader who does not engage with science as a research topic can become enraptured by the content. It might help readers to re-think the deployments of universality, singularity, particularity, perspective and fragments in their own fields. By engaging with the theme of 'universality in the sciences', therefore, this special issue is also an exercise in engaging with 'universality in anthropology'. The articles in this special issue will attract specialist readers in anthropology and STS, as well as draw novices in the discipline to think about methods in anthropology.

The contributors in this special issue carefully engage with existing scholarship to offer new directions in which to think and imagine the complexities and fragmentations of 'universalities' in and of science. More importantly, these articles should be seen as an invitation to do more ethnographic work on the everyday lives of universality in science. Philosopher of science Isabelle Stengers's book *Another Science is Possible: A Manifesto for Slow Science* (2018) invites us to imagine science differently and explores the possibility of a slow and democratic science. Taking Stengers's call as a metaphor, and following the rich literature that this special issue has produced, we suggest that '*another universality is possible*', one on which the idea of universality can be seen as conjuncture of conjugations connecting parts and wholes. Here universality becomes a tool to deal with global inequality in knowledge production, and to think about freedom, hope and care, universality as a multitude of singularities, as a series of complexities that provide a sense of belongingness in many worlds. In this regard, the articles in this carefully curated special issue represent not only a welcome addition, but a much-needed intervention in thinking about universalities in sciences through a variety of ethnographic experiences and engagements.

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Ute Röschenthaler Obituary (1960–2024)

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Together with numerous colleagues in Germany and abroad, we mourn the loss of our highly esteemed colleague and friend Ute Röschenthaler, who passed away unexpectedly on 18 March 2024 at the age of only sixty-four. Ute was associated with the Department of Anthropology and African Studies at Johannes Gutenberg University, Mainz, since 2009 as senior lecturer (Privatdozentin) and since 2014 as adjunct professor. She held a number of interim professorships, teaching numerous courses that were highly appreciated by students at the universities of Bayreuth, Frankfurt am Main and Mainz. She supervised many bachelor's and master's theses with great expertise and personal commitment. Her doctoral students also benefited from her friendly yet critical academic support.

Ute Röschenthaler was an internationally renowned researcher on material culture in general, on ritual practices and 'purchasable associations' in Cameroon, on copyright in Africa, on trade networks in the Global South and on various aspects of African entrepreneurship and advertising. She was fascinated by global product histories, such as those of green tea and cloth and, most recently, popular music. In addition to Cameroon, Nigeria, Mali and Ghana, her transregional and transcontinental fieldwork took her to China, Malaysia, and South Korea.

After studying social and cultural anthropology at the Freie Universität Berlin (1980-86) and writing a master's thesis on African masks (1986), Ute Röschenthaler spent several periods of fieldwork with the Ejagham in southwest Cameroon. Her doctoral dissertation in 1992 was devoted to the arts and festivals of the Ejagham and published as *Die Kunst der Frauen* (1993). In her postdoctoral research, she expanded this topic to explore the emergence and distribution of purchasable cult associations in the Cross River region of southwest Cameroon and southeast Nigeria. Institutionally, she moved from Berlin to the department of anthropology at the Goethe University,

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Frankfurt am Main, and conducted her West African fieldwork in the context of a research project supported by the DFG (German Research Foundation) (1998-2001). Following this project, she was employed as assistant professor in the Frankfurt anthropology department and continued working at her habilitation thesis (thèse d'état), which she submitted at the faculty of history and cultural studies at Mainz University in 2009. With its focus on purchasable cult associations, the thesis offers an innovative approach to the history of a previously under-researched region and makes a significant contribution to the study of pre-colonial trade networks in stateless societies.

Ute Röschenthaler's habilitation thesis was published in 2011 with Africa World Press (Trenton) under the challenging title *Purchasing Culture: The Dissemination of Associations in the Cross River Region of Cameroon and Nigeria*, offering a seminal preview of the originality and creativity of her scholarship. Her reflections on the economy of Cameroonian cult associations and complex processes of cultural appropriation and diffusion attracted international attention far beyond the field of anthropology.

Already during her PhD fieldwork with the Ejagham on the border between Nigeria and Cameroon, Ute Röschenthaler was surprised that with them, as in the whole Cross River region, there was a lively traffic in associations and cult agencies that were 'owned' by communities or sometimes by persons and were 'sold' to other villages. This proved to be a seminal starting point for her post-doctoral research. It made her develop an original style of mobile research that allowed her, through a detailed overview of the entire Cross River area, to show how the buying and selling of associations could create a flexible but also tight network for trading and for government. Her research continued the interest of leading German social scientists like Max Weber, Heinrich Schurtz and Georg Simmel in *Bünde* and specifically *Geheimbünde* (secret societies, cult agencies). But her detailed fieldwork masterfully lifted the veil around the working of these associations.

The area where she worked was of old a challenging environment for this theme. From the sixteenth century, the European presence on the coast relatively quickly exerted a deeper impact on the hinterland, particularly through the ever-widening scope of the slave trade. The people of the Cross River area served as intermediaries in the trafficking of slaves from the plateaus further into the interior, notably the Grassfields, and on to the coast. However, in contrast to other areas of intense slave-hunting, in the Cross River area this did not promote state formation. On the contrary, in this area trade developed through a network linking independent communities. The emerging cult associations used their secrets to exercise the necessary control, imposing fines on traders who refused to pay their debts, providing protection for trading missions and settling disputes. Europeans, both traders and missionaries, were ill at ease with this form of mostly secret control, but until direct colonial rule was established towards the end of the nineteenth century, they were forced to respect the *Geheimbünde*'s rules and demands. To single out just one remarkable achievement of Ute Röschenthaler's research, her chapter on the *Ekpe* society, whose hidden 'fetish' growls like a leopard, offers a most clarifying analysis of its origins and the way it spread over a wider region.

This is no mean achievement, since *Ekpe* has for a long time been one of the riddles of this area to outsiders. *Ekpe*'s regional role was severely undermined during direct colonial rule, but interestingly it has been coming back since independence as a hidden form of government and dispute-settling. Clearly, the cult agencies can have great resilience.

Precisely because of its impressively wide-ranging empirical basis, Ute Röschenthaler's analysis poses seminal theoretical challenges. It shows most eloquently that the functioning of the cult associations, and the way they worked with mystical power as a public secret, undermines conventional premises of social science. It is striking, for instance, that the very practice of 'owning' and 'selling' cult secrets – including their material expressions such as masks and cult objects – raises issues of intellectual property with implications that differ strongly from Western settings. In the Cross River area, the whole process of commoditization followed its own trajectory. It may have been triggered by the presence of European traders on the coast, but the key role that the associations played meant that 'normal' distinctions were erased. For instance, economy and politics cannot be separated; in many respects the trading associations assume the role of a government. But even more importantly, fundamental sources of enrichment are based outside production and plunder; instead, they come from culture or even magic. This is why *Purchasing Culture* is such a beautiful title for this challenging book, which will continue to serve as a rich source for theoretical debate in our discipline and in social science in general well into the future.

Cultural mobility, transregional trade relations and aspects of copyright in Africa were also at the centre of Ute Röschenthaler's research projects in the years following her habilitation. Added to this was her interest in advertising and product design, in which she returned to questions in art and media anthropology that had already occupied her in her master's and doctoral theses and in a postdoctoral project at the Musée de l'Homme in Paris. These new research projects have resulted not only in numerous publications – for instance, *Africa's Agency in China's Tea Trade* (2022) and *A History of Mali's National Drink* (2022) − but also in exhibitions and a highly illustrative virtual museum on green tea.

In particular her two 2022 books on how Chinese green tea became the national drink in Mali illustrate the global possibilities of the style of research that Ute Röschenthaler developed during her study of cult associations in the Cross River area. One could say that she adopted a similar approach for these books, but now on a global scale, turning this project into an original exercise in world history. The *gren* – an informal get together of several men, mostly fairly young ones who leisurely prepare and sip their tea following a fixed ritual – may be an everyday scene in Mali, but Ute shows that behind this common event is a complex historical trajectory full of contingent convergences. The tea is green tea from China, yet it is very strong since it is brewed several times over and drunk with a lot of sugar. How did Chinese tea become so popular in everyday Mali? The two books together offer an intercontinental history of green tea: from China, via Portugal and England to Morocco, and from there on the Trans-

Saharan caravan roads to Mali and other Sahel societies. Again, these multiple trans-regional and transcontinental trajectories inspired Ute to adopt an extremely mobile style of research: she conducted fieldwork in several Sahel states, as well as in China, Britain, Morocco and even an East-Frisian tea museum. And again, she succeeded in building up an impressive empirical database, very detailed yet also well analyzed, to support her analysis of the global cultural borrowing that changed how the tea is consumed, both in its preparation and its social meaning. It is remarkable how, in her analysis of the history of green tea, Ute combines political economy with the cultural aspects, ranging from the changing design of pots and cups to the meaning the drink has for its addicts. The drink's present-day association in Mali with unemployed and potentially rebellious young men, spending their time in bitter jokes about the failure of the state and development, is quite new – a post-structural adjustment?

Ute Röschenthaler's wealth of historical examples from all over the globe shows that green tea is clearly capable of moving up and down social hierarchies, depending on the context. Her style of doing world history reflects her patience and interest in detail. These qualities, combined with analytical rigor and a comparative perspective, may well be the secret of the success of her approach. Ute rightly remarks that world-historical topics like tea have too often been researched in a binary perspective of European expansion versus the rest, focusing on a North-South axis of capitalist exploitation. Clearly, more fine-grained analyses are required to make meandering trajectories like those of Chinese green tea comprehensible. Ute's work has given us brilliant examples how such an analysis can be achieved.

Ute Röschenthaler's recent focus on issues of copyright in Africa led to numerous talks and publications, most importantly the seminal volume *Copyright Africa*, which she edited together with Mamadou Diawara in 2016. In early 2024, Ute was able to complete a study on the legal dimension of artistic practices in the Nigerian music industry and the popularity of African music in South Korea. By looking at both the listening habits of young people and their ideas of copyright, and by linking this to her earlier interest in the broader question of copyright in Africa, she added an entirely new and overdue dimension to research on popular music. She conducted this study as part of the Mainz-Frankfurt-based research project CEDITRAA (Cultural Entrepreneurship and Digital Transformation in Africa and Asia). Focusing on Nigerian popular music, her project explored how cultural entrepreneurs deal with legal regulations and what solutions they find to sustain their activities. Thus, copyright is studied from the perspective of the daily practice of artistic creativity. CEDITRAA's focus on cultural entrepreneurs and their completely new possibilities of trade and communication in the digital age was heavily indebted to Ute's ongoing research on entrepreneurship in Africa and Africans in Asia. The findings of this and related research projects were published in a number of edited volumes and special issues (Röschenthaler 2020, 2023; Röschenthaler and Jedlowski, 2017a, 2017b; Röschenthaler and Schulz 2016, etc.). Further collective publications are still in the making.

Ute Röschenthaler was not only an outstanding researcher and scientific author, but also an impressive organizer of international research collaborations and conferences. At the Goethe University, Frankfurt am Main, she worked for many years in the Cluster of Excellence 'Formation of Normative Orders' and in the project 'Afraso – Africa's Asian Options' at the Centre for Interdisciplinary African Research. Most recently, she was influential in the conception and implementation of CEDITRAA and became a key member of this joint research project between Mainz and Frankfurt. Among the many conferences co-organized and hosted by Ute in this context, the workshop on 'Afrobeats: Digital Encounters and the Global Mainstreaming of African Popular Music', held at the University of Lagos in September 2023, was certainly a highlight.

With her most recent DFG research project, 'African traders' agency on global cloth markets,' Ute Röschenthaler wanted to add a new facet to her innovative studies on consumer goods, trade networks in the Global South and cultural entrepreneurship, namely an exploration of fabrics and clothing in West Africa. She considered cloth both a fascinating medium for the representation of social differentiation and an object of complex international trade relations. Unfortunately, she was not able to continue this most promising research project. Certainly, we would have been enlightened and inspired by her new findings.

One of the secrets of Ute Röschenthaler's success as a fieldworker was her talent for relating to her colleagues. She was well-connected at many European and African universities and was always ready to help colleagues, especially those from Africa. Many of her publications and editorships testify to the productivity of her commitment to scholarly cooperation. She only started her research in China quite recently, but within a few years she became a highly respected colleague in these circles as well, as is clear from the condolences we have received from the CAAC (Chinese in Africa / Africans in China) network. She inspired and motivated many around her with her thirst for new ideas and enthusiasm for research, her innovative contributions and her unfailing collegial kindness. She will be sorely missed by us all!

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For Ute Röschenthaer's online exhibition on the rich West African tea culture see www.virtualgreenteamuseum.de | FB 07 - Institut fuer Ethnologie und Afrikastudien (uni-mainz.de).

Tributes for Ute Röschenthaler (1960–2024)

Antoine Socpa
Department of Anthropology, University of Yaoundé I

It is with great sadness that I learned of the sudden departure of Professor Ute Röschenthaler. Since the 2010s, when we began to collaborate, she had become an academic and scientific 'influencer' for me. During our long period of collaboration, we carried out a number of research projects together, either individually between the two of us, or as part of exchanges between the Department of Anthropology of the University of Yaoundé I (Cameroon) and the Institut für Ethnologie, Goethe-Universität Frankfurt am Main (Germany). The tangible outcomes of this cooperation have become visible in many major projects – in the context of the research centre 'Normative Orders', AFRASO (Africa's Asian Options), and a programme on African textiles – and included PhD sponsorships of three Cameroonian students.

For AFRASO, we jointly carried out field research in Cameroon on trade between China and Cameroon. This research resulted in the publication of an article entitled 'The China challenge: Cameroonians between discontent and popular admiration' (Röschenthaler and Socpa 2017). For the Normative Orders project, Ute asked me to identify two Cameroonian students to be offered funding for their PhD projects on issues of development anthropology. Later, she asked me to add a third student. One of the candidates (Afu Isaiah Kunock) was able to defend his thesis within the allotted period, and during his PhD thesis defence, Ute was the guest of honour of the University of Yaoundé I and served on the jury as an external examiner. The two other students (among them Brenda Mbonge Njinjoh) have still not finished their theses, but every time Ute was in Yaoundé, we had stimulating conversations with each of them. In all these meetings I was impressed by Ute's courtesy, coupled with her firmness in supervising our joint students. During some of her stays in Cameroon, despite her busy schedule, she generously accepted the invitation from the anthropology department to conduct seminars with master's and doctoral students.

In our joint research, too, I was impressed by her dedication to her work and her great clarity in defining her aims and approaches. I came to admire her mixture of friendliness and directness, which made her style of collaboration most productive for myself, other colleagues and anthropology students. Ute was a modest person, but ambitious in the goals she was setting for her projects. This made her a most inspiring colleague and friend to work with.

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During her research stays in Cameroon, my family welcomed Ute to our compound. She and my wife became good friends. When I announced the news of her death, my family was very sad. On behalf of my family, teaching staff and students of the anthropology department of the University of Yaoundé, I implore the Cameroonian ancestors – from this country that she loved and chose as one of her research fields – to intercede with Almighty God so that her soul may rest in peace.

Brenda Mbonge Njinjoh
Department of Anthropology, University of Yaoundé 1

I got to know Professor Röschenthaler through my university professor Antoine Socpa, who used to work with her in education and on research projects. She needed two good students from my university to work with her in research projects, and I was selected as one of them for a research programme on textile production, sales and imports by local dealers in various textiles in Cameroon. I started working with her in January 2023. The information about her passing away was shocking and sad for me, not just because of the textile research I carried out for her, but also for the fact that I met her in person when she came to Cameroon last year and accompanied me to some of the textile dealers I was working with. Our travels didn't end there, as I went with her to Cameroon's Southwest Region and returned with her to Yaoundé. She was such a modest person in character, good at instructing and guiding students. She could interact so easily with people of different cultures and traditions, which also made my interactions with her so easy.

Professor Röschenthaler has become a role model, and I was looking forward to learning a lot from her, without knowing that the spirit of death was very close by, waiting to separate us and put an end to my long-awaited dream of submitting the research I was doing to her. Her image remains a mark on my face, and her good deeds remain permanent in my heart. May she rest in peace.

Afu Isaiah Kunock
Department of Anthropology, University of Yaoundé 1

Getting to know the late Professor Ute Röschenthaler transformed my life forever. I came to know her in 2009 through Professor Michaela Pelican and Professor Antoine Socpa when I was about to enrol in the PhD program. Through her I was granted a scholarship for my PhD in Cameroon. In the course of my programme, she offered me all the necessary assistance and also proof-read the chapters of my thesis.

In 2014 she flew to Cameroon for my PhD defence, after which I was invited, through her influence, to present my research findings at the University of Frankfurt. While in Germany, she organized a workshop where we were taught how to write and

publish scientific papers. This was a turning point in my life, leading to the publication of one of my very first scientific papers in Germany. Ute also reviewed many of my publications, on which she offered tremendous insights. This provided me with a foothold from which I rose in my career through several other publications, until today I am an associate professor. During my stay in Germany she organized a surprised birthday party for me, a memory I have always cherished.

In 2023 Ute was in Cameroon, this time for a project on textile markets in West and Central Africa. That I picked her up from the airport and took her to the hotel room she had asked me to reserve for her really gladdened her heart. While in Cameroon, she gave a talk to the Department of Anthropology. Moreover, she visited my family, which left them with some dear memories. She asked me to join the project team, which I gratefully accepted, and asked me to write an article that will be a part of the project's collection. While still writing the article, I received the heartbreaking news of her demise. She shaped my world view of things and my critical mind as a scientist. What an irreplaceable loss!

Patrick Oloko
Department of English, University of Lagos

When I was informed about the passing of Prof. Ute Röschenthaler, I found myself asking that old, but unanswered and unanswerable question: if we were born to die, then why were we born?

I first met Prof. Röschenthaler in 2010 as a young scholar. On the recommendation of Prof. Karin Barber, Ute had invited me to Bad Homburg for a workshop as part of the 'Normative Orders' research project that she co-organized with Prof. Mamadou Diawara. While presenting her work on premodern copyright practices in Cameroon, I heard her mention words, with native speaker fluency, in the Ejagham language, which is spoken in both Cameroon and Nigeria. I told her that she spoke the language well, and thereafter began a long brother/sister, mentor/mentee research and scholarly relationship between us.

Ute and I spent September and October of 2023 organizing the 'Afrobeats' workshop in Lagos as part of the CEDITRAA project. After the workshop, we conducted interviews and focus-group discussions with textile traders, market administrators and government officials in the West African coastal cities of Lagos, Cotonou, Lomé and Accra. On some days we would walk more than twenty thousand steps without her feeling sixty-four. In the course of these interminable movements, we discussed and planned the outline for an edited volume on the textile trade in West and Central Africa, and she informed me that the volume would be her last production in that genre of scholarship. Thereafter, she would concentrate on producing books, using the voluminous data she was acquiring on her research trips. I learned many research skills while working with her. I still find it difficult to accept that, four months after we said

goodbye at Accra, Ute would be gone, never to be seen again, never to complete the edited volume that she had meticulously planned, never to use those voice notes that she had carefully collected as 'evidence' in her anthropological engagements. Indeed, if we were born to die, then why were we born?

From the limited ken of a literary scholar, I regard Ute as an anthropologist who took the discipline to new heights in the ways she influenced peers and mentees alike from other fields to graft 'ethnographic methods' on to their research methods. As neophytes like myself related to her, she would break down the complexity of the discipline in formal and informal talks, insisting on 'evidence' as the basis for any unpretentious interdisciplinary research. A high level of cultural understanding and humility seeped out from her relationships with people, as I noted from her interacting with people in Nigeria, Benin, Togo and Ghana. She will be remembered for many things by the many people she came in contact with. We have lost an irreplaceable colleague, mentor, sister, and friend!

Madou Keita
Bamako

In early 2005 I had the chance to meet Prof. Ute Röschenthaler in Bamako at Point Sud, a research center on local knowledge, created by Professor Mamadou Diawara and his Malian friends. After two weeks working together with Ute as guide and messenger, she rapidly recognized my courage and my ability to understand her work and adapt myself to it. She therefore asked me to act as her interpreter and translator. In three months, we succeeded in doing a lot of work together. When the three months were over, she congratulated me and encouraged me by asking me to continue working with her during her subsequent research visits to Mali. Her trust in me reinforced my trust in myself. Prof. Röschenthaler was a strong and courageous woman, rigorous in her work, but also humble and without attitude. Every time she returned to Mali, I was again impressed by her courage, her efficiency and resilience. At her side, I learned a lot: I came to a deeper understanding of what was happening around me. We worked together on a wide range of subjects from everyday life in Mali: what people drink (water, soft and strong drinks, traditional and modern ones), what they wear (the textiles and their designs – we often took pictures of those), and food products (vegetables and others). But our research came to focus on tea, notably green tea from China, and the rituals for preparing and drinking it.

Together we circulated through the city of Bamako, but we also travelled widely in Mali's interior: the North, but also Ségou, Sévaré, Mopti, Bandiagara, the land of the Dogon, Djenne and Timbuktu. In the last city, we visited its museums and the Ahmed Baba center. In Dogon land, we travelled the full length of its famous cliff. In 2012, also we visited Bobo Dioulasso in Burkina Faso. However, in nineteen years of working together, we did so many things together that I cannot enumerate all of them. All the

time I have seen a woman who had consecrated her life to her studies in order to gain a deeper understanding of the people and the world around her, whether in Africa or in Europe – an exceptional woman, tireless and extraordinary.

I cannot hold back my tears every time I try to write some lines about Ute. She always considered me her younger brother. May God receive her in his eternal paradise!

Mamadou Diawara
MIASA, Accra; Goethe University Frankfurt/Main; Point Sud, The Centre for Research on Local Knowledge Bamako

Ute and I worked together for almost a quarter of a century. For more than a dozen years, we used to chat as friends about everything and anything as part of the seminar in the Institute of Cultural and Social Anthropology at Frankfurt's Goethe University. Ute and I largely shared the convivial aspect of scientific debate. How many pubs in the Westend district welcomed us on Thursday evenings with our guests, colleagues, students and researchers? Once in the restaurant, the ritual question was always asked at around 8 pm: 'What would you like [to eat, of course!]?' A superb glass of red Montepulciano always managed to cheer her up, and off we went for a chat about the conference that had just been held, or about anything and everything at the same time, while waiting for the Thursday of the following week. Her eyes light up in the clamour of our discussions, punctuated by the beating of her left hand, as if to say, enough, enough, enough.

The sociability at the end of classes and in restaurants confirmed her great selectivity about where and what to eat. At Mensa time, when many of our colleagues went out to eat together, Ute was either at home or busy with something else, unless she had made an appointment with a few friends to explore a sushi restaurant. Mensa wasn't her forte, because eating healthily, without preaching it, was her credo. I used to tell her jokingly that she was afraid of being poisoned because the food served there was so dangerous. We who make it are vaccinated.

In Mali, this was always the case, even though I didn't pay much attention to it at first. Indeed, at breakfast, Ute, sometimes in the company of Matthias Gruber, aka Monsieur Mathieu, would taste the baguette of Bamako, but without sugar or milk. By dint of observation and questioning, I finally understood. As it happens, the usual sugar in Bamako is as white as snow, and the 'best milk', necessarily powdered, is Nestlé's Nido brand. Neither was on Madame's menu. Like any sugar, and rightly so, she tasted the country's delicious little bananas. What could be easier than to do without this milk substitute in a 'cattle-breeding country' that is so short of milk?

Dear Ute, your sense of loyalty, of health and good food will always be remembered.

Buchbesprechungen/Reviews

Muehlebach, Andrea: A Vital Frontier: Water Insurgencies in Europe.
252 pp. Durham: Duke University Press, 2023. ISBN 978-1-4780-1983-1

How to govern the infrastructures that are essential for life? Andrea Muehlebach ponders this vital question in her book about water movements in Europe. The book is situated in the context of private investments in public utilities, a process she understands as part of the globally advancing financial frontier. Underlying her inquiry is a concern for value and its distribution: why allow private companies to make a profit from providing people with an indispensable substance like water? Since all life depends on it, is water not best managed as commons, rather than being subsumed by the exclusive logic of the market?

Histories of social struggle in three European countries (Italy, Ireland, and Germany) provide ethnographic sites for her to think through such fundamental questions. All three cases tell of people who 'understood the privatization of their public utilities as an enclosure of a common good that should, under all circumstances, be kept public' (p. 7). Against this enclosure, they took to the streets, wrote their own laws and, above all, refused to pay. By doing so, Muehlebach argues, they offered the world a radical gift: they 'devised a language that allows for a renewal of critiques of capitalism and of ways through which the world and its life-giving substances can be imagined as inappropriable' (p. 177).

Imagination plays a crucial role in the struggles covered in the book's chapters. Throughout, Muehlebach is most interested in the political rhetoric, strategies and techniques that people use to defend their water. Accordingly, the chapters describe activism in terms of performance and its potential to reveal, to question, to unsettle. That is not to say that the struggles in which these performances emerge lack material foundations. On the contrary, Muehlebach is intent on positioning the ordinary household as the central site of accumulation and contestation, 'from which wealth is extracted, bill by bill, month by month' (p. 18). Financialization, she seeks to show, 'sediments' itself into people's everyday lives, thereby constituting the seeds of resistance along 'vibrant political and legal fault lines'.

Concretely, collective action crystallizes around particular objects, including public fountains, water meters, secret contracts and 'crazy bills'. As ethnographic objects, these do crucial articulating and imaginative work between the author's conceptual concerns and her interlocutor's practical terrains. They also prove to be helpful guides as one reads through the book.

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Public fountains in Italian cities share a long history, which Muehlebach extends with another chapter, her first. Focusing on the southern Italian region of Campania, the story centers on the 2011 national referendum, with which voters declared water to be a public good, but which was subsequently disregarded by governments and legislators. The fountains became a crucial symbol both in the struggle leading up to the referendum and in its aftermath. Their water was sprinkled on bystanders by priests and drunk on record by mayors; a public outcry followed when they were ordered to be removed. '[T]he old *fontanina* was a love object that stood for a kind of social contract where politics was oriented toward citizens rather than toward shareholders' (p. 62).

Chapter 2 takes place in Ireland, where people stood up against the water meters that were being installed in their homes. Meters enable utilities to calculate the cost of water for individual households and thus epitomize the 'sedimentation' of market logic. Common in most European contexts, they were notably absent in Ireland until 2014, as water was paid through the tax system. For the national water company, however, privatized in the wake of the 2008 financial crisis, domestic metering promised a 'captive income stream' independent of the state, which they needed to attract capital. But people refused. In public acts of disobedience, they stood in the way of the company installing the meters, or removed the 'extractive devices'. They refused to pay for water their taxes had already paid for, and thus insisted on 'a reimagination of a politics of redistribution and social contract mediated by the state' (p. 87).

A secret contract, opposed by a group of activists called the *Berliner Wassertisch*, guides readers through Chapter 3. Their struggle began in 1999, when the city sold part of its water utility to private investors in order to restructure its public debt. During the following years, activists fought for the disclosure of the contract while the government stubbornly insisted on the privacy of its content. It took a series of court rulings and a popular referendum – which the *Wassertisch* gloriously won in 2011 – to impose the primacy of public interest. While a longing for transparency had articulated the struggle, in the end the referendum achieved much more: it was 'a public dramatization, not of contractual information (the content of which was already an open secret) but of the popular will' (p. 130).

'Crazy bills' take center stage in Chapter 4, which returns to Campania. Ordinary people called these bills 'crazy' because they reportedly made 'housewives' hands shake every time they opened an envelope'. The utility had sent them because water prices in previous years had not covered the full costs of operation, including a guaranteed share for investors. In the aftermath of the 2011 referendum, 'crazy bills' became 'the financial frontier's most emblematic material artifact', articulating acts of civil disobedience across the country. 'For many, these bills made manifest an economy that was the result of a particular kind of madness – that of global market actors who knew nothing about their local water, its histories, local meanings, and particular taste, and who were invested only in stripping it of its qualities in order to price and trade it' (p. 138).

A Vital Frontier excels at drawing a broader frame through which to read these local struggles around a common substance of concern. Yet, as I read through the chapters

I kept wondering about that commonality across places and scales. My curiosity was sparked by the repeated mention of 'resonances' with related cases in distant times and places, from Bolivia to the advent of the industrial age. Usually, these resonances appear in the book in episodic form, as anecdotes of missionary priests or travelling activists, for example, whom we hardly ever meet again as we read on. I found myself longing to hear more about these figures and the stories they had to tell about how water had been governed and fought for elsewhere, and what that meant in the context I was reading about. With matters as essential as water, it occurred to me, connection is easily taken for granted rather than put up for question. The result can be a story in which a universal pattern (capitalism) governs a universal substance (life qua water) along expectable pathways.

To be sure, this is not the story told in the book, at least not only. In fact, Muehlebach pays impressive ethnographic attention to why, how and to what effect different people stand up for water. I particularly liked the story about an old man in an Italian village who drew up a sort of map to explain what the current situation was really all about. His drawing, signed with his initials P.C. (also the shorthand for the communist party), shows an old public fountain (with a pedal!) that stands as an alternative to corporate greed. The subtle details in such stories made me think about the unlikely characters involved in uncertain acts of resistance. They are not quite how anti-capitalist activism is usually imagined, and yet they are essential, as the capitalist logic pervades all aspects of life. What is it that people stand up for, or against? Or, how do old fountains articulate (with) financial frontiers? Maybe provoking such questions is part of the 'radical gift' that Muehlebach is trying to pass on from her interlocutors to readers like me.

As someone working on mining, I am used to frontiers taking more explicit material shapes. Yet, questions of sovereignty and value pervade both our fields of research, as do concerns and concepts around water and extraction. Muehlebach's anchoring of her work in the anthropology of infrastructure and law is thought-provoking because, approached through utilities, water articulates such an intimate, almost immediate relationship between the state and its people. In the case of mineral extraction, which competes with local uses of water, quite the opposite is usually the case. Given that minerals are not locally bound but leave local traces, what would it mean to imagine them as public matters that do not belong to anyone in particular? Conversely, I think that the way in which diverse nations and states have made mineral resources *their* means of subsistence (see Koch and Perreault 2018) may provoke questions in cases where 'vital infrastructures' are at stake. Beyond the state-market binary, what 'fault lines' open up along the boundaries of the public domain, the 'uncommons', as some have come to call them (see Blaser and de la Cadena 2017)? I hope that such questions may nurture conversations about how vital matters like water – or minerals – shape capitalist frontiers across places and scales.

Jonas Köppel
Institute of Social Anthropology, University of Berne

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Born, Georgina (ed.): Music and Digital Media: A Planetary Anthropology.
542 pp. London: UCL Press, 2020. ISBN 978-1-80008-245-8

Music is omnipresent in everyday life and enmeshed in the (digital) transformations of our day-to-day realities. It is therefore surprising that music continues to have a rather marginal position in anthropology. Starting from this observation, the book *Music and Digital Media: A Planetary Anthropology*, edited by Georgina Born, sets out to change this, but as the subtitle reveals, its ambitions go much further. By considering some implications that the study of music has to offer to the discipline, it aims to provide theoretical considerations for an assessment of digital media and their impact on society. Yet the book is not an ordinary collection of papers by different authors compiled at a conference or the like, but presents the results of ten years of research within the European Research Council (ERC)-funded project *Music, Digitisation, Mediation: Towards Interdisciplinary Music Studies (MusDig)*. By furthering and transforming some of her former theoretical innovations, such as the notion of relational musicology, and reconsidering the role of music and aesthetics as social mediators (e.g. Born 2010; 2017), Born is able to draw on several highly original case studies by her co-authors and herself.

These eight predominantly empirical chapters constitute the core of this multi-layered and ethnographically wide-ranging book. Each of them contributes very different aspects and perspectives to this collective anthropological endeavour. The themes range from entrepreneurship, recording studios and digital music production in the field of popular music in Nairobi by Andrew J. Eisenberg (chapter 2) via digitization within the independent music scene in Buenos Aires by Geoff Baker (chapter 3), to the challenges faced in the work of digitally archiving music from oral traditions in India by Aditi Deo (chapter 4). Furthermore, in several co-written chapters, Georgina Born examines online music consumption on platforms like Spotify and Jekyll together with Blake Durham (chapter 5), the aesthetics of and social mediation through music in music production with the 'Max' software together with Joe Snape (chapter 6), as well as the transformation of the perception and consumption of music through internet-mediated music genres such as 'microsound' or 'chillwave' together with Christopher Haworth (chapter 9). Two contributions on the (non-academic) electroacoustic scene in Montreal by Patrick Valiquet (chapter 7) vs. university education in digital art music in the UK by Georgina Born (chapter 8) add still another layer to this rich compilation.

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For all their diversity, the chapters are all ethnographically grounded and attempt to examine concrete historical and social situations in which digital music production and reception are embedded, as Georgina Born emphasizes in her introduction (p. 2). At the same time, their aim is not to flatten any disparities, but rather to carve out and compare cultural, regional, or historical nuances and disparities, avoiding simple dichotomies in representations of cases from the so-called Global North and South (p. 18). This leads to an explanation of the subtitle of the book: the idea of the planetary is introduced with the intention of circumventing a supposed levelling out of such nuances via the concept of the global. The author's view is that, as a concept, the 'global' is inadequate because of its homogenizing connotations that only seemingly allow actually distinct phenomena to be captured in an 'abstract equivalence' (p. 15).

To illustrate how these rather programmatic intentions are realized in these regionally and thematically very different chapters, I present two examples in more detail that I think resonate well with some of the overall aims of the book. Andrew J. Eisenberg focuses on a then emerging scene of digital music-producers in Nairobi at the beginning of the 2010s that took shape against the backdrop of economic and media liberalization, separately from an already existing recording industry. The author particularly highlights the broadened opportunities that the computerized production of popular music offered independent producers, allowing them to do every step in the musical production themselves. The individual producers and producer groups he presents in three case studies were thus enabled to act in what he calls an 'aesthetic entrepreneurship': they aimed at capitalizing on these rather new digital opportunities as entrepreneurs by experimenting with and establishing new business models. To do this successfully, however, they had to navigate public expectations of the new urban music styles in combination with 'vernacular' forms of musical expression like 'benga' (p. 54–55), which in one way or another had represented Kenyan identities in the public consciousness already for several decades. The examples reveal three organizationally and stylistically different responses to this challenge, some of which were further complicated by the involvement of foreign cultural centres such as the Alliance Française de Nairobi. Yet they all reflect a process of cultural (re-)formation, mediated through music and cultural production. The chapter very well conveys the regionally, culturally and socio-economically specific circumstances under which these processes evolved.

Joe Snape and Georgina Born also analyse the way in which digital music production affects the intermediating role of music and aesthetics. But unlike the chapter summarized before, their focus is on software and its agentive force. They look at Max, 'a graphical programming environment for media art practices' (p. 220), and the ways in which it is used by music producers in predominantly academic and art-world settings. While the manufacturer advertises the software as a comprehensive tool with no limits to the realization of musical ideas, the authors explore ethnographically how Max nonetheless influences many parameters of the resulting sounds and music, even bringing about specific genres. Building on field research by Joe Snape, who accompanied laptop musicians in their work, the chapter integrates perspectives on the individual

use of Max by the artist 'AI', live performances based on Max by Holly Herndon and others, and the 'institutional ecology' (p. 249) in which the further transformation of the software takes place. Following a theoretical approach from science and technology studies, the authors grasp the intermediating agency of the Max software conceptually as an assemblage that co-determines artistic practice as a 'coproducer' (p. 259), rather than simply determining musical practice.

Georgina Born explores the theoretical potential of the ethnographic chapters in her introduction and in a 'postlude' on 'musical-anthropological comparativism' (chapter 10). In her theoretical efforts, she seeks to unravel how social relations are mediated by music and digital media. She warns against falling into the trap of 'mediacentric tendencies' (p. 27), which she criticizes in much current related research in Sound Studies. By focusing on three main challenges, the book seeks to provide the means to develop more encompassing accounts of respective processes and phenomena: to understand how music changes through the digital and at the same time influences and transforms the digital itself; to develop the necessary interdisciplinary framework to bridge disciplines like anthropology, musicology, Sound Studies or Science and Technology Studies; and to advance different ethnographic, especially digital research methods (p. 9). Here Born explicitly opposes positions that favour the so-called ontological turn. Rather, her aim is to revitalize a critical anthropology in the spirit of George Marcus and Michael Fischer as an important component of a relational musicology by looking at the ways in which mediations of music, digital media and the social are also embedded in political struggles and power relations.

While the ethnographic chapters stand for themselves and can be read independently, Born offers additional comparative and theoretical interpretations in her 'postlude'. There, she reflects on various aspects of the central theoretical notion of a mediation of the aesthetic, the material and technological, and the social in relation to music and digital media. Based on her former work and the new insights from *MusDig*, she expands a model or matrix of formerly four and now five 'planes' of mediation that integrate the different possibilities of how 'socialities and social imaginaries' are enmeshed with musical practice and aesthetic experience, or else how music is shaped by or itself shapes specific social formations or abstractions such as identities, institutional and political-economic forms, or governmentality (p. 480ff.).

Music and Digital Media is a highly interesting attempt to assemble the different studies of a large, partly interdisciplinary research project in one volume and engage them in a theoretically ambitious discussion. The quite dense and comprehensive theoretical overview and discussion in the two framing chapters may appear intimidating at first, like the unfortunately rather unattractive design of the cover and the sheer size of the book. At the same time, the ethnographic chapters might provide the interested reader with an alternative for a first *entrée* into the book. Depending on one's own thematic or regional interest, they offer the lively and concrete approach that Born promises in the introduction. The effort to work through the numerous theoretical and programmatic premises in the book is rewarded with many suggestions for further eth-

nographically grounded thinking about the social mediation of music, digital media and technology in relation to aesthetic formations and experience.

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Frembgen, Jürgen Wasim: Sufi Hotel. Aufzeichnungen aus den Untiefen einer Megacity. 180 S. Berlin und Tübingen: Schiler & Mücke, 2022.
ISBN 978-3-89930-442-8.

Jürgen Wasim Frembgens Buch „Sufi Hotel. Aufzeichnungen aus den Untiefen einer Megacity" rückt das im Süden Pakistans gelegene Karachi, das der Autor „[d]ie größte muslimische Stadt der Welt" (S. 11) nennt, in das Zentrum der Repräsentation subalterner Charaktere und Themen. Der Titel des Buchs basiert auf einem real existierenden Ort, indiziert jedoch auch Frembgens spirituelles und ethnologisches Spezialgebiet, den Sufismus, eine lokalisierte Variante des Volksislam. Das „Sufi Hotel", ein Teehaus in der Altstadt Karachis, welches ich im Anschluss an die Lektüre selbst besuchte, wird hier zum Beobachtungsposten und zum Ausgangspunkt einer Verkettung ethnographischer Beschreibungen, vermengt mit allgemeinen Beobachtungen und Anekdoten sowie subjektiven Eindrücken und Bewertungen. In Frembgens eigenen Worten ist diese narrative Ethnographie „kein akademischer Text im eigentlichen Sinn", sondern „ein Versuch der Annäherung an kulturelle Realitäten mit erzählerischen Mitteln" (S. 163–164).

Die Narration thematisiert anhand des Sufi Hotels und der darin verkehrenden Charaktere – Kellner, Sex-Arbeiterinnen, Zuhälter und Freier, Tänzerinnen und Musiker sowie einem Asketen und einem muslimischen Gelehrten – geschickt und schonungslos einige der neuralgischen Streitpunkte, die das öffentliche Leben Pakistans aus einer emischen Perspektive prägen: Einerseits der gleichermaßen von islamischen Reformbewegungen und Orthodoxie bis hin zu Terroranschlägen bedrohte Sufismus. Andererseits patriarchale Normen und Praktiken, welche nicht nur zur Ausbeutung

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und Unterdrückung von – insbesondere von Armut betroffenen – Frauen, Kindern und Menschen anderer Sexualitäten führen, sondern auch im Alltag mit mannigfaltigen Formen der Gewaltausübung einhergehen. Des Weiteren schneidet Frembgen immer wieder Themen von allgemeiner Relevanz an, wie die bis heute gefühlten Auswirkungen der Kolonialzeit und der Teilung Britisch-Indiens, die verheerenden Folgen des globalen Wirtschaftssystems für Pakistan, und die Auswirkungen multipler Migrationen, aufgrund derer die Megacity Karachi zu ihrer aktuellen Größe von über 20 Millionen gelangte.

Die sechs Kapitel des Buches basieren auf je einer Lokalität in Karachis Altstadt und je einem oder zwei Charakteren, die Frembgen größtenteils im Sufi Hotel kennengelernt hat und welche die Leserschaft im Laufe der Erzählung näher kennenlernt. Im ersten Kapitel „Im Teehaus" beschreibt er das Sufi Hotel als den „Dreh- und Angelpunkt" (S. 11) seiner Beobachtungen und führt in das angrenzende Altstadtviertel mit der von ihm angetroffenen Diversität von Bewohner*innen und Orten ein. „Der rotbärtige Maulvi", ein für Pakistan archetypischer Protagonist, erscheint der Leserschaft hier als islamischer Gelehrter (*Maulvi* oder *Maulana*), Gebetsleiter und Moralprediger. Während er gegen Sexarbeit und fleischliche Sünde predigt, wird er selbst mehrfach dabei erwischt. Er verkörpert die Doppelmoral der religiösen Rechten, welche das Hauptfeindbild von Liberalen, Linken und Anhängern des Sufismus darstellt. Das zweite Kapitel „Im Bordellviertel" beschäftigt sich mit dem illegalisierten Geschäft der Sexarbeit. Dabei lernt die Leserschaft insbesondere die menschlichen Hintergründe, die zur Sexarbeit führen, und die von ihr verursachten psychischen Abgründe anhand zweier Charaktere, Sartaj, dem Zuhälter, und Kiran, einer Sexarbeiterin, kennen. Das dritte Kapitel „Im Gärtchen" spielt in einem Hinterhof des Sufi Hotels und ist der Schauplatz einer philosophischen Unterhaltung mit Hichki, einem *Malang* (Asketen) oder Derwisch, der sein Leben einem Sufi-Heiligen gewidmet hat. Diese Unterhaltung reflektiert und kontextualisiert die im vorangegangenen Kapitel beschriebene Sexarbeit und ihr Umfeld aus sufistischer und historischer Perspektive.

„Im Salon der Kurtisanen", dem vierten Kapitel, wird ein inzwischen in Verruf gekommenes, erotisiertes Unterhaltungs- und Tanzgenre, genannt *Mujra*, durch Frembgens Nacherzählung eines Abends dargestellt, wobei hier die Handlungsmacht der Performerinnen und deren Durchsetzung in einer oft misogynen, patriarchalen Welt anhand der Persönlichkeit der Tänzerin Reshma herausgearbeitet wird. Das fünfte Kapitel „Im Slum der Fischer" kann als ein Zwischenkapitel betrachtet werden, in welchem Frembgen über Armut im Zusammenspiel mit Gender und patriarchalen Strukturen vor Ort reflektiert. Das letzte Kapitel „Im Schrein des Sufi-Meisters" thematisiert Frembgens Spurensuche und Besuch bei einem lokalen Sufi. Aufbauend auf *Oral History* und Gesprächen mit einer *Mujra-* Salonvorsteherin und einem Musiker rekonstruiert er die Rolle des Sufi-Meisters Amber Shah im Verhältnis zu den Armen und Schwachen Karachis, inklusive der in den vorherigen Kapiteln angesprochenen Menschen und deren moralischen Subjektivitäten. Im für Ethnolog:innen mit am interessantesten Teil des Buches, dem Nachwort, erklärt Frembgen schließlich seine

Methoden, seinen Schreibansatz und ein paar vage gehaltene Konzepte, die seine Feldforschung und Interpretation geleitet haben.

In der Gesamtschau des Buches wird die kosmopolitische und multiethnische Megastadt Karachi durch Frembgens, auf teilnehmender Beobachtung basierender Beschreibung der subalternen „Street Corner Society" (Whyte 1943) des Sufi Hotels, lebendig und für die Leserschaft greifbar. Und diese Narrative sind aus Gründen einer allgemeinen Schieflage in der Repräsentation Pakistans wichtig: Obwohl Pakistan nicht nur die numerisch fünftgrößte, sondern auch eine der demographisch jüngsten Bevölkerungen der Welt beherbergt, gerät es hauptsächlich in der Form von multiplen „Krisen" (Schaflechner et al. 2020) ins Rampenlicht der Weltöffentlichkeit: Extremismus, Staatsstreiche, Militärdiktaturen, Lynchmobs, Inflation, Hunger und Naturkatastrophen. Dieses Buch stellt daher, auch über eine rein akademische Leserschaft hinaus, einen wichtigen repräsentativen Gegenentwurf dar, der auf den Alltag der Menschen fokussiert.

Frembgens Verständnis des Genres der Ethnographie könnte als narrative Ethnologie charakterisiert werden. Seine Art zu Schreiben weicht die Grenzen zwischen formeller Wissenschaft und kreativem Schreiben auf. Die leicht lesbaren Inhalte werden nicht von Fußnoten und Referenzen verkompliziert, sondern sprechen die Sinnes- und Erfahrungswelten der Leserschaft durch Dialoge und auto-ethnographische Beschreibungen an. Lesende und Suchende werden in dem Büchlein schonungslose Abbildungen der „Realität" finden, ohne die für akademisches Schreiben übliche „wissenschaftliche" Distanz zum Geschehen. Zudem schreibt Frembgen ethnographischen Text, ohne diesen in den Kanon der akademischen Literatur theoretisch einzubetten. Das mehrfach erwähnte, zentrale Konzept der „Street Corner Society" wird insofern nur im Glossar definiert. Dieser Sachverhalt fällt einem ethnologisch-akademischen Publikum sicherlich auf, da kulturanthropologische Repräsentation normalerweise weiter geht, als nur empirisch zu beschreiben und dieses subjektiv zu bewerten. Akademische Ethnologie kontextualisiert und interpretiert das Erlebte, repräsentiert kritisch und bettet es in Theorien ein.

Frembgen hingegen schreibt unverblümt über Themen, welche nur von wenigen zeitgenössischen Ethnolog:innen in dieser Dichte kennengelernt und erfahren werden können, da er als Forschender sowohl über jahrzehntelange Sprachpraxis als auch über Nähe zu seinen Gesprächspartner:innen verfügt. Kritisch mag man seine Repräsentation und Wertung der Sexarbeit betrachten. Es wäre spannend für die Leserschaft gewesen, wenn Frembgen stärker seine eigene Positionalität, insbesondere seine Machtposition gegenüber seinen Gesprächspartner:innen thematisiert hätte. Leser:innen mögen zudem manchen seiner Mutmaßungen und Wertungen nicht zustimmen oder diese sogar als oberflächlich und stark generalisierend betrachten. Aber Objektivität scheint nicht des Autors Ziel zu sein, auch wenn er verallgemeinernde Aussagen trifft.

Frembgen zieht sich beim Schreiben die radikal subjektive „Brille" des beobachtenden Teilnehmers an. Er wird dabei zwar als Ausländer oder Fremder behandelt – das Alter Ego des Autors im Buch ist „Pardesi" – Urdu für „der Fremde" und eine

Analogie von Frembgens Familiennamen. Jedoch wird seine „zweite Sozialisation", inklusive seiner intensiven Auseinandersetzung mit dem Sufismus und seine breite Allgemeinbildung hinsichtlich alltäglicher Aspekte des Lebens und Überlebens auch von seinen Gesprächspartner:innen anerkannt. Er hat seit über vierzig Jahren viele Male Pakistan besucht und ist entsprechend „tief eingetaucht". Die Feldforschung für dieses Buch fand maßgeblich zwischen 2010 und 2020 statt. Aus diesem Grund begreift sich Frembgen auch als jemand, der an die „fremde" Kultur „assimiliert" ist (S. 164). Diese Liminalität zwischen Fremdem und Eigenem verleiht Frembgens Ethnographie eine Dichte und Nähe, die gleichzeitig einfach zu lesen und verstehen ist.

Vielen der Protagonist:innen seines Buches ist Frembgen tatsächlich begegnet, andere sind jedoch fiktiv oder aber aus mehreren realen Charakteren zusammengesetzt. Genauso wurden einige Inhalte hinzugefügt, „Erlebtes frei ergänzt und literarisch widergespiegelt" (S. 166). Im Gesamtzusammenhang beinhaltet das Buch jedoch, aus Frembgens Sicht, eine „getreue Darstellung des Anderen", denn die „geschilderten Details, Gewohnheiten, Begegnungen und Milieus fußen auf tatsächlichen Begebenheiten" (S. 167). Da diese Fiktionalisierung mit Frembgens Aussage einhergeht, kein akademisches Werk zu sein, kann es auch nicht daran gemessen werden. Da es aber trotzdem auf der kulturanthropologischen Methode der Teilnehmenden Beobachtung und einigen Verweisen auf akademische Literatur sowie an vielen Stellen wiederkehrenden Reflektionen über das Genre der Ethnographie und die Subjektivität des Ethnologen beruht, muss man das Buch wohl in ein hybrides Zwischengenre einordnen: es ist „ethnographisch" – partikularistisch, subjektiv beschreibend – ohne notwendigerweise „anthropologisch" – einen verallgemeinerbaren, theoriegesättigten Ansatz verfolgend – zu sein (vgl. Ahmad 2021; Ingold 2014).

Frembgens Buch wirft wichtige Fragen im Rahmen der Forderungen nach einer stärker öffentlichen Sichtbarkeit der Ethnologie auf: Ist eine für eine breitere Leserschaft allgemein verständliche und lesbare Form ethnographischer Literatur wie das hier rezensierte Buch „unethnologisch"? Oder muss man sogar den Spieß umdrehen und ethnologische Fachsprache und Theoriedebatten notwendigerweise vernachlässigen, wenn man mehr Menschen mit ethnologischen Themen erreichen möchte?

Ohne diese Debatte abschließend beantworten zu können, ist festzustellen, dass der leicht lesbare „Frembgensche" Schreibstil durch die Ausklammerung komplexer theoretischer Schlüsse dazu beigetragen hat, dass seine ins Englische übersetzten Bücher eine relativ hohe Popularität in Pakistan erlangt haben. „Sufi Hotel" hat inzwischen einen 2023 erschienenen Folgeband („*Bambasa Street. Aufzeichnungen aus der Zwischenwelt einer Megacity*"), welches von einem afrikanisch geprägten Stadtviertel Karachis handelt, das in der Nähe des Teehauses liegt.

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Fay, Franziska: Disputing Discipline: Child Protection, Punishment, and Piety in Zanzibar Schools. 248 pp. New Brunswick: Rutgers University Press, 2021.
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How do we explain the prevalence of corporal punishment in schools in Zanzibar, despite the programmes developed by international organizations and state policies that aim to quell such a disciplinary practice? Why are those initiatives failing, even when they claim to be fighting for children's rights? What should be a productive approach to child protection in a sociocultural context where Islam structures moral life and remains a predominant source of norms and values? What do child protection programmes and the challenges they face tell us about hierarchies of knowledge and epistemic power structures?

Fay's book, *Disputing Discipline: Child Protection, Punishment, and Piety in Zanzibar Schools* takes on these questions through an elaborate conceptual discussion and theoretical alertness. It also shows a methodological savviness that restores the relevance of the local context in both social-science research and international development programs. The agency of children, the primary subjects of the discussion, is at the heart of Fay's preoccupation. How could we discuss child protection without listening to what children have to say about it? This simple but crucial question has informed Fay's theoretical intervention, as well as her methodological approach.

Building on her work experience with international organizations, an extended period of field research (eighteen months) that allowed her to co-produce her research materials with sixty children, their parents and educators, the book offers seven chapters that cover issues from the construction of childhood in Zanzibar (chapter 1) to engagement with a decolonizing perspective on child protection (chapter 6). The book pays particular attention to the significance of punishment for the formation of personhood (chapter 2) while situating child protection in relation to Islam and gender (chapter 5). Fay also shows how both local and international conceptualizations of child protection constitute discursive universes (chapter 3) whose contradictions and power relations inform the field of intervention. She notes that international views and

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programmes are opposed by parents and local groups when they fail to take into consideration children's conditions and social becoming (chapter 4). In general, she argues 'that child protection is much more than what policy agendas ascribe, and it needs to be imagined beyond development discourses' (p. 107). This point serves also a reassertion of the need to take into consideration children's views and conditions (chapter 7). The discussion Fay offers in these seven chapters makes the case is clear: 'child protection discourse in Zanzibar does not face opposition because people support violent behavior against children, but rather because it is too closely linked to a notion of the "West" and insufficiently inclusive of vernacular cultural and religious norms that coconstruct Zanzibari social personhood' (p. 162).

In other words, child protection in Zanzibar is a site of power relations that needs to be critically examined and understood. Fay insists that 'my findings contribute to knowledge about childhood discipline, chastisement, and protection by making plain how power authorizes and deauthorizes knowledge that defines how children ought to be protected' (p. 186). As she elucidates throughout the book, child protection is not only understood differently, but also approached and engaged in contradictory manners. It is contested because policies and interventions fail to capture the social significance of corporal punishment; at the same time, global and universalized approaches to child protection remain rather disconnected and insensitive, overlooking local ecologies of care. While the book substantiates these claims, it also demonstrates both conceptually and methodologically how actually to overcome the disconnect by factoring in the vernacular and, as a result, offering the prospect of integrated protection.

The book insists on the role of religion in the socialization of children in Zanzibar. Learning shapes sociality, while Islam structures life as a whole. Children become social beings through learning, and Islam provides a dynamic culture of learning. For that reason, child protection interventions cannot afford to dismiss these realities and overlook Islam, a major source of norms that informs and structures children's development. However, resolving the equation of child protection, as Fay warns, means not merely factoring in the influence of Islam, but also taking into account the sociocultural elements that make up Zanzibar's context.

To reiterate one of her major points, Fay claims that 'a more accurate understanding of children's well-being would take into account their living conditions and their own measures by which they conceive of their well-being' (p. 179). To follow up on this particular point, she uses pictures, drawings and poems authored by children to bring into the picture not only children's own ideas and aspirations, but also their agency. As she demonstrates throughout the book, though situated within structures that are mostly dominated by adults, children are the central part of the equation when it comes to their protection. The point is not simply about fairness; it also about the practicability of policies and the efficacy of child protection programs. Otherwise, 'interventions that are aimed to protect them [children] practically fail to do so'' (p. 129) or can even end up harming them. Thus, taking into consideration children's

conceptualizations of violence, and social participation, and discipline may help find a way to keep them safe (p. 186).

At this juncture, decolonization invites itself to the debate. Relevant and pertinent, a decolonial approach is also needed to achieve proper child protection and erase the moral superiority that marks programs; it will also help dissipate the concerns about hegemonic discourses and the hierarchy they establish. This 'hierarchy may only be flattened by using a decolonial way of thinking and taking seriously children's and adults' ideas about what being young, growing up, being well mannered, and being safe and protected mean', she argues (p. 186). The book concludes with a series of recommendations intended to improve child-protection policies, governance and effective practice.

For an anthropological intervention, Fay's book takes us into an exercise in situating and listening to children while offering a perspective on international aid, its universalizing discourses, 'civilizing mission' and the issues that ensue. It is a theoretically solid and conceptually well-framed contribution to the anthropology of childhood and youth. It should inspire examinations beyond Zanzibar, in Nigeria or Senegal, for example, where corporal punishment is central to children's social becoming, contributing to what I will call Comparative African Muslim Studies. Its insights feed into debates over raising children and social development across Muslim societies. A critique of international aid, it should be of interest to scholars, policy-makers and development professionals. Those concerned with conceptual and methodological decolonization should also pay attention to Fay's suggestions. Her discussion has the merit of approaching the decolonial debate from the perspective of a Muslim context, international development and child protection. It definitely makes a case for an anthropology that is fully conscious of its modes of production.

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Ungruhe, Christian: Lasten tragen, Moderne befördern: Wanderarbeit, Jugend, Erwachsenwerden und ihre geschlechtsspezifischen Differenzierungen in Ghana.
456 pp. Berlin: LIT, 2018. ISBN 978-3-643-14011-1

This book on young migrants in Ghana provides new insights into current trends in West African circular migration from the migrants' point of view. Yet, it should be placed in a broader context. The anthropology of migration is a long-established thematic focus within the social sciences, with a constant stream of new publications on ever-changing facets of this age-old phenomenon. In the case of migrations from and within Africa, two trends may be detected in recent years: one prioritizes the increasing number of refugees and their political, social and economic motivations in their pursuit

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of leaving the continent, while the other focuses on particular groups within inner-African migration flows such as female migrants and, more recently, gender refugees from among LGBTQ communities.

From a theoretical point of view, different perspectives allow for a number of thematic foci, as Caroline Brettell in her article on 'Theorizing Migration in Anthropology' (2015) so amply elaborated. Among them are the push and pull factors that urge young individuals in particular to take on arduous and sometimes dangerous jobs far from home, the impact of the globalized economy, the ability to stay in contact via modern means of communication, and not least the idea of 'cultures of migration'. Even though tackling these approaches may be justified in any research on the issue, they still leave questions unanswered. This is all the truer for micro-studies of the cultural aspects of inner-regional movements and transformations over time. Circular migration in West Africa is a relatively well-documented phenomenon dating back as far as Meyer Fortes' famous publications on the Tallensi in northern Ghana, who took out temporary labour contracts in the then colonial plantations and urban centres of the country's South. Later investigations concentrated on the economic factors of north-south and/or rural-urban migration. However, we still know relatively little about intergenerational relations or gender-specific perspectives, and nor what migration has to do with modernity, not to mention what the people themselves have to say about it.

In order to close this gap, Christian Ungruhe, the author of this book, which was accepted as a PhD thesis by the University of Bayreuth (Germany), chose rather unconventional theoretical and methodological approaches in order to understand young persons' decisions to migrate within their own country. Given the fact that an ever-growing and ever younger number of juveniles from rural areas – male as well as female – today spend a considerable part of their youth as unskilled labourers in urban settings, he focuses on the intersection between migration, coming of age, modernity and gender differentiation. What does youth mean to them if it is characterized by hard work and separation from home? What impact does migration have on their social status? What are the hopes and aspirations of young men and women navigating between their obligations towards stay-behind family members, the social norms of becoming respected adults of their communities and individual access to the promises of modernity?

These research questions and the general setting of the study are carefully discussed in the introductory part of this well-structured book. As a point of departure, the author accompanied two groups of rural-urban migrants, all from Ghana's northern region (referred to by the collective term *Frafra*) working in the markets and bus stations of Ghana's economic hubs: male truck-pushers in Ashaiman and female load-carriers (*kayayei*) in two of Accra's largest markets. In chapter two, the author presents his choice of theoretical approaches taken from the anthropology of youth, migration and modernity, as well as his selected methods, such as participant observation, interviews, 'thick description' and multi-sited ethnography. All are equally well documented and thoroughly explained. Not only are the pros and cons discussed at length, so is the

author's own positionality as a white male European trying to be 'one of them'. His efforts to participate in truck-pushing apparently failed quite miserably not because of his shortcomings but because customers just wouldn't believe he could manage and refused to give him a job. So his 'participant observation' had to be reduced to 'observation' and sharing time in between the work assignments of his interlocutors. In the case of the female load-carriers the author did not even seriously consider carrying loads on his head for fear of appearing ridiculous. All these procedures and his own failures are presented with a great sense of honesty and humour. What I find most intriguing, however, is the way the author lets the reader participate in the process of analysing his empirical data. He argues that the reader would best be able to follow when tracking the individual migrants' stories. So we get to know *Captain*, *Dodger*, *Trouble* and *Rich* from among the Ashaiman truck-pushers, and the *kayayei Asana*, *Fatima* and *Miss Ghana* from Accra's Mokola Market No. 2, among others. The author recounts their daily work, joys and aspirations, their actions of solidarity (or lack of them) in times of illness and worry, and also their way of enjoying modern urban life and sexual freedom as part of their youth. It was interesting to learn that the female migrants investigate their earnings in their own dowries to make sure there is enough for a spectacular wedding, whereas males saved less for their bridewealth (leaving that to their fathers) and spent more on consumption goods, alcohol and gifts to bring back home, and possibly also on their girl-friends in town (even though the author doesn't say too much about that). Inserting these passages, which are written in the style of a field diary, makes the text very lively but is not limited to mere storytelling. Instead, all passages are followed by interpretations and comparisons with other publications on the issue of circular migration (chapters 3 and 4).

We then accompany the protagonists in planning their way back home to Zenindo and Bongo (chapter 5) for the upcoming harvest and the festival season. We get to know the views of parents, friends and others who stayed behind, and the hopes of the returnees and of those who postponed their visits for fear of having to show up with empty hands. It also becomes clear that there are substantial differences between male and female migrants, and that negotiations between the generations may be conflict-ridden. Again, the author argues that it was only because he accompanied the young people back to their home towns and villages that he fully understood what migration meant to them and why they embarked on the gruelling adventure of heading south in the first place. Rather than becoming wealthy (none of them did), it is the experience of having been away, the 'showing off' before their peers after returning home and the touch of modernity wafting around them that are significant. In comparing their stories with those of the elderly generation who had migrated decades before, the author demonstrates the differences in time and space. There is no such thing as a uniform migration paradigm, nor is there an overarching view of African modernity.

The results of his investigation are quite convincing. The author shows that young persons' migrations from rural sites to urban centres are not only (if at all) caused by economic push factors but have a much deeper significance. They are also indicators of

the quest for freedom, promoting modernity and gaining the social status of respected adults, even if their plans do not always work out the way they wished. Youth and adulthood are not separate phases in life but compose a continuum, with migration offering a chance to find the balance. But this 'tightrope walking', as the author calls it, may have a high personal and social price.

Nevertheless, I felt that some questions remain unanswered. One is the western idea of 'youth' that permeates this investigation, suggesting that 'being young, free and unbound' must be attractive everywhere, which seems doubtful when looking at the data. Rather, for young Ghanaians it seems to be a time they prefer to get over as quickly as possible. The second question revolves again around the issue of modernity. It appears to me that modernity – however defined – is considered to be found mainly outside one's own little world and that only migration, hard though it may be, allows one to be modern and free. But what about those young people who do not migrate and are still very up to date in their life-styles or consumption preferences, and would still call themselves 'modern'? This book hopefully inspires much further research on such looming questions connected to the issue of migration. It should definitely be published in an English translation.

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Schick, Johannes F.M., Mario Schmidt and Martin Zillinger (eds.): The Social Origins of Thought: Durkheim, Mauss, and the Category Project.
319 pp. New York/Oxford: Berghahn, 2022. ISBN 978-1-80073-233-9

The *Année Sociologique* school provided sociology and anthropology with a set of ideas that not only gave birth to a cascade of crucial theoretical turns in anthropology, such as structural functionalism and structuralism, but that also ripple well into the present. Its success is partially due to the fact that this group of scholars, orchestrated by Émile Durkheim and later his nephew Marcel Mauss, complemented each other like players in a first-rate band, each of them soloing on the motifs that others had provided. This

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collection convincingly argues for the indispensability of these ideas for current theorizing and the benefits of a close reading of classic texts.

The central endeavour that tied the *Année Sociologique* group together was the study of the social origin of the categories of thought. In conscious contrast to previous philosophies, they argued that concepts such as space, time, causality or totality are neither innate to the human mind nor objects in the world to be observed. Rather, they are derived from the experience of social life, written large and generalized.

This may sound generic and reflexive of most anthropologists' three-sentence summaries of this approach, but the contributors to this volume manage to pull it out of easy compartmentalization and demonstrate its audacity, subtlety and present-day relevance. The chapters do so by drawing on both major works and forgotten, short, often underestimated contributions. But they also show how the category project emerged from the debates of its time.

The first section is concerned with the sources from which the *Année Sociologique* drew its positions and concepts. Nicolas Meylan insightfully reiterates how the Polynesian word *mana* was (mis)interpreted by various scholars before Mauss and Henri Hubert, in a kind of decolonizing theorizing of indigenous terms, identified it as a genuine theoretical concept. Anne Warfield Rawls convincingly reclaims Durkheim for the present by arguing that the practices of category construction, as developed in *The Division of Labour in Society*, require a notion of social justice, thus demonstrating his relevance for ongoing struggles against inequality. Mario Schmidt ingeniously unearths the influence of biologist Claude Bernard's open and interpretative notion of experiment on Durkheim's and Mauss's idea that rituals are experiments because they render social matter accessible to the senses. Along the way, Schmidt argues that the most obvious critique of their *Primitive Classification* – if the classification of nature is derived from social structure, where does social structure come from? – misses the point.

The book's second section delves into the debates in which the *Année Sociologique* was involved. Erhard Schüttpelz shows how much Mauss's *The Gift* owes to Durkheim and other previous work, allowing for a more subtle approach to this text, a record-holder in being re- and misinterpreted. Johannes F.M. Schick guides readers through the debates between Mauss and Louis Weber. This philosopher proposed that the categories of time and causality emerged from technological practice, not social experience – that is, from the human ability to achieve predictable results even before mental categories were formed. Mauss and Hubert, however, suggested that this approach is based on a false dualism.

The final section of the book demonstrates how the ideas of the *Année Sociologique* lived on and were further developed by lesser known allies and leading figures of later theories. Martin Zillinger shows how Hubert's Polish student Stefan Czarnowski developed the notion of space into a relational category that dynamically integrates peripheries with centers. Jean-François Bert, complementing Schüttpelz, emphasizes Mauss's independence from Durkheim. He argues against a deterministic and func-

tional understanding of his 'total social fact', as exemplified by Claude Lévi-Strauss, and shows how Pierre Bourdieu and Michel Foucault read Mauss in a more complex and dynamic way. Like many others in this volume, he shows how the *Année Sociologique* group considered the making of categories as a complex process that overcomes conventional dichotomies such as structure and practice, individual and society, or perception and concept.

The volume will inspire readers to go back to classical texts with a new attentiveness to their complexity and relevance. As often in such minute inquiries, a small number of contributions straddle the boundary between dense insight and crankiness. Nevertheless, this is an excellent contribution to understanding one of anthropology's most sustained and most momentous theoretical endeavours.

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Berger, Stefan and Philipp Müller (eds.): Dynamics of Emigration: Émigré Scholars and the Production of Historical Knowledge in the 20th Century.
261 pp. New York, Berghahn Books, 2022. ISBN 978-1-80073-609-2

In April 1935, the exasperation of Richard Thurnwald (1869–1954), the Austro-German anthropologist renowned for his pioneering functionalist work in New Guinea (1906–1909, 1913–1915), was palpable in a letter he wrote to his American patron Franz Boas (1858–1942). Boas, the 'father' of American cultural anthropology, spent decades from the outbreak of World War One raising funds and finding placements for Austro-German scholars fleeing war, the postwar economic collapse and, most recently, the political and antisemitic repression of the new National Socialist regime. Thurnwald had long benefited from his association and assimilation with what I term 'sib Boas'[1], a highly influential kinship unit consisting of a constellation of anthropology scholars aligned by methodological approach, philosophical outlook and personal connections.[2] It was from Yale that Thurnwald's apprehensions about the decline in funding from the Rockefeller Foundation and the Nazification of the German university system emerged as significant. As Thurnwald wrote to Boas,

1 Viktor M. Stoll, 'Gens Bastian – Sib Boas: Austro-German Diasporic Kinship Networks and the Dynamics of Patronage and Reciprocity in the Interbellum Internationalization of Anthropology', (paper presentation, L'ethnologie de Hilde et Richard Thurnwald Conference, Université Sorbonne Nouvelle, Paris, France, July 9, 2021).

2 For more on the biography of Richard Thurnwald, see: Viktor Stoll, 'Social Scientist Par Excellence': The Life and Work of Richard Thurnwald', in *Bérose - Encyclopédie internationale des histoires de l'anthropologie* (Paris, 2020), accessed from: https://www.berose.fr/article1947.html?lang=fr.

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'I must not mention the inhibitions I feel in regard to crossing the Atlantic in an eastward direction. It seems to me that cultural anthropology and sociology are not perspective sciences in present-day Germany.… It is repugnant to me to go into slavery. You will, therefore, understand my reasons for trying to remain in this country, if possible.'[3]

While Thurnwald's displacement is no doubt of interest to the readership of the *Zeitschrift für Ethnologie*, it was not unique to scores of scholars from all disciplines who fled Fascist or Bolshevik totalitarianism throughout the twentieth century. Fleeing religious, ethnic and political persecution, these scholars often found themselves going 'out of the frying pan and into the fire', as they struggled against antisemitism and ethnic discrimination, political suspicions and nativism. Theirs is a story about the emigration and acculturation of the 'Other', though an 'Other' principally from a highly educated bourgeois background.

It is the experiences of these twentieth-century émigrés, particularly those of displaced historians, that *Dynamics of Emigration: Émigré Scholars and the Production of Historical Knowledge in the 20th Century* examines in detail. The editors Stefan Berger and Philipp Müller, along with thirteen additional contributors, expertly explore 'the question of the dynamics of emigration and its repercussions for scholarship', as the shifting professional lives of displaced scholars 'revolve around exile and return, loss and recovery' (p. 1; p. 25). The acculturation of these scholarly 'Others' created an 'insider/outsider dichotomy' which allowed émigrés like Eric Hobsbawm and Peter Gay (originally Fröhlich) to carve out a trans-liminal identity between countries, institutions, theoretical alignments and methodological approaches. (p. 27)

Yet this does not presuppose that émigré scholars formed a distinct 'scholarly personae' like that of the archetypal 'Rankean' historian. As Herman Paul argues, 'hybridity and cultural in-between-ness should not be reified into distinct identities' (p. 54). Indeed, while the authors feel it appropriate to distinguish those émigré scholars of the 'first generation' from those of the second, or those who were displaced during their careers versus those that were displaced before entering the academy, even these categories are problematic. Many variables weighed on émigré adaptation, acculturation and assimilation, which the contributors readily acknowledge.

The ways that losing states sought to compel émigrés from afar and the way that 'petty professional jealousies and resentments [in the receiving country] could very easily morph into feelings of provincialism, nativism and even antisemitism' forced a myriad of coping and survival strategies from these scholars (p. 74). In their turn, these strategies influenced their approaches to their discipline and shaped their theoretical horizons. It is these processes that the work so expertly elucidates, as we learn 'how émigré scholars were at the mercy of diverse institutional policies…how these scholars helped to shape and change such institutional policies…[and] the various scholarly

3 Richard Thurnwald to Franz Boas, 15 April 1935, *American Philosophical Society* (Philadelphia, USA).

personae with which emigrants were confronted, and how these encounters shaped the active self-fashioning' of the émigrés themselves (p. 237).

Dynamics of Emigration focuses heavily on the processes of scholarly acculturation during the social upheavals of the interwar and postwar periods (ca. 1920–1970) and the trans-liminal lives of decidedly male '*bildungsbürgerliche*' historians from (primarily) central, eastern and southeastern Europe. While émigrés of Jewish descent fleeing Nazism or conservative historians fleeing Communism form the core of the work, notable exceptions include Iberian scholars like António Sérgio, José Ortega y Gasset and Miriam Halpern Pereira, displaced by the dictatorships of the *Estado Novo* in Portugal or Franco's Spain. Moreover, the work is of note for social scientists studying the nexus between persecution, exile, emigration, acculturation, assimilation and historical memory in the production of knowledge during the early-to-mid twentieth century. In particular, the difficulties émigrés found in integrating into their new scholarly homelands, given the prevalence of antisemitism, the Red Scare and ethnic biases, are especially relevant in today's increasingly nativist backlash against immigration in Europe and the United States.

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Dasgupta, Sangeeta: Reordering Adivasi Worlds: Representation, Resistance, Memory.
368 pp. New Delhi: Oxford University Press, 2022. ISBN 978-0-19-012791-6

This book is about an Indian population category referred to as Adivasis ('original inhabitants'). Other terms used to describe them are 'tribes' or 'Scheduled Tribes', the former a socio-cultural and the latter a constitutional and administrative category in India. Sangeeta Dasgupta's historical study concerns the 'Oraons', one such Adivasi community inhabiting the territory of what today forms the states of Jharkhand and Chhattisgarh. The study is more specifically about a movement among the Oraons called Tana Bhagat that erupted at the outbreak of the First World War. The movement began as a religious reform, but resistance to landlords and the British assumed an ingrained feature. The presence of the Tana Bhagats resonates even today in the articulation of their demands through memoranda and mobilization. Demands have of course shifted following the changing social and political context. The movement aimed at reordering Adivasi social and religious worlds participated significantly in the non-cooperation and civil disobedience movements against British rule launched by the Indian National Congress under the stewardship of Mahatma Gandhi.

The introductory chapter introduces the readers to the layers of social differentiation and contending narratives and politics among the Oraons. This is followed by an

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outline of the structure of the book which is divided into two main parts. One part deals with writings and observations on Oraons in general, the other with narratives of the Tana Bhagat Movement. The first chapter engages with the shift in the representation of Oraons in colonial reports in the early and late nineteenth century. While the early writings described Oraons with reference to their physical and local social and cultural contexts, the latter situated them in emerging anthropological concepts and categories. For instance, the conceptualization of Oraons as tribes was the result of such a process of colonial knowledge-production in anthropological terms. Chapter two discusses the missionary narratives of Oraons, which emerged from the lens of religion. Missionaries viewed Oraons first as heathens and then as animist aboriginals. Their differentiation of Oraons from both Hindus and Christians led to the introduction of racial and religious terms to understand Oraons. The third chapter discusses S.C. Roy's journey with Oraons and his engagement with them in addressing their problems and their issues with colonial administrative institutions. Roy, a practicing lawyer, became acutely aware of the plights of the Oraon, Munda and other marginalized communities which drew him to them, resulting in several monographs on them. On these counts, he is regarded as the first Indian ethnographer and anthropologist.

The second part of the book engages with the past narratives of Tana Bhagat. These narratives have been selected from missionary writings, official correspondences, ethnographic reports and anthropological accounts. Drawing from these sources, the fourth chapter traces the genesis and growth of the movement and the ways in which missionaries, colonial officials and anthropologists made sense of it, and it also discusses the Tana Bhagat movement's main precepts. Chapter five examines the accounts of the movement by historians, who have generally characterized it as the resistance of aboriginals against the British, their collaborators and other foreigners. Moving beyond one-dimensional historical narratives, the chapter situates the movement within the shifting terrains of forest and land and the Oraons' hierarchical social structure, which were exacerbated by the colonial intervention. Dasgupta claims that these dimensions of the movement have been overlooked in the earlier writings on tribal resistance. The sixth chapter of the book, titled 'Gandhi, Charkha, and Swaraj', aims at understanding the relationship of the Tana Bhagats with the Indian National Congress in general and with Gandhi, the *charkha* (spinning wheel) and *swaraj* (self-rule) in particular. The *charkha*, a tool for making home-spun cloth, became a powerful symbol of freedom from British rule. Here the chapter aims to go beyond nationalist historiography that emphasizes how nationalist elites lead people without considering initiatives at the grassroots level or the perspectives of subalterns inadequately captures the lens of the Adivasis as independent subjects of their own history. The seventh and last chapter aims at capturing the voices of the Tana Bhagats and memories of their links with the forest and land. At the same time, it also reflects on the Tana Bhagats' negotiations with the colonial government and the Indian National Congress concerning their grievances and demands.

Since well-crafted studies of the history of a particular Adivasi community have been rather rare, this study fills in this gap and thereby makes an important contri-

bution. Although many historical studies have engaged with the resistance of tribes in India, they have been mainly concerned with the period before Indian Independence. In this sense, Dasgupta's study stands out as an exception. It situates the movement in the context of post-independent India, thereby pointing to continuities and disjunctions in the movement over time. Dasgupta's analysis of the trajectory of thinking about Oraons, from drawing out their immediate physical and social-cultural context to more generalized anthropological concepts of tribes in colonial administrators' writings, makes the book an interesting read. The analysis has been built on a large body of material from government and missionary archival records, museum collections, private documents, official and semi-official reports and publications, pamphlets, newspapers, online sources and the secondary literature. The chapters are well conceived, the materials are dense, the discussions are rich, the interpretation interesting, and the language clear and lucid. As a non-historian and a member of the Oraon tribe, I found it extremely rewarding.

All the same, I was surprised not to find any reference to the stirrings of the Tana Bhagats in Tea Estates in North Bengal, which resulted in charges of sedition and the imprisonment of many Oraon workers. The echoes of the movement, hundreds of kilometers away from its key site and in an alien economic context, could have provided new insights into the movement. The study is concerned with hierarchies and inequalities among Oraons. It suggests that those who participated in the Tana Bhagat Movement were Oraons lacking privilege and security. However, insufficient evidence is provided to substantiate this hypothesis. Since this aspect is treated as critical to the Tana Bhagat movement, it would have been worth examining the nature and multiple kinds of hierarchy and inequality among the Oarons in a more differentiated way. For instance, the founding families or lineages of Adivasi villages enjoy secular and religious privileges such as headship of the village and larger plots of land. However, anyone with an unsustainably small plot of land had the option to move out and set up a new village by reclaiming forest land and thereby acquiring privilege. This option was greatly curtailed after the forests were brought into public ownership in the name of scientific management in India in the second half of the nineteenth century. If this is what Dasgupta meant by hierarchy, it needs to be historicized. If the author had something different in mind, then the nature and type of hierarchy and inequality among the Oraon requires more differentiated conceptualization. Lastly, there seems to be an oversight. This relates to a reference to Toppo as a Munda archivist. Toppo is an Oraon totem which may have been confused with Topno, a Munda totem.

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