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## Recolonizing India: Troubling the Anticolonial, Decolonial, Postcolonial

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## CRITICAL PERSPECTIVES

### Engagements with Decolonization and Decoloniality in and at the Interfaces of STS

*Curated and Introduced by Kristina Lyons, Juno Parreñas and Noah Tamarkin*

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### Introduction

This is not a manifesto, nor is it a prescriptive call for a new, decolonial, or decolonized science and technology studies (STS). Instead, our critical perspectives in this issue are propositional offerings. We aim to provoke questions about how science and technology studies might intersect with decolonizing or decolonial practices and scholarship, and what kinds of

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openings these intersections may or may not provide. We offer these reflections as invitations to think with us and to consider the worlds in which we live and work. They are entries into a conversation that, of course, does not start or end with us, but rather draws upon multiple intellectual genealogies and particular struggles and colonial histories.

One intellectual genealogy that inspires some of us has been given the moniker of postcolonial science and technology studies. We find affinity in what Warwick Anderson emphasizes in his description of the work of Helen Verran (2001, 2002) and David Turnbull (2000) as the “messy politics that emerge out of local performances of technoscience” (W. Anderson, 2002, p. 650), and in the work of Anna Tsing (1993) as she disturbs ideas of centers and peripheries and shows politics in what could otherwise be analyzed through an overly narrow actor-network theory (W. Anderson & Adams, 2008). Anne Pollock and Banu Subramaniam (2016) and their special journal issue on feminist postcolonial STS also build on this thread in their efforts to think through the possibilities of justice in postcolonial technoscience. However, in the shared spirit of Audre Lorde’s (1984) perspective on the generative power of difference, we find that the sign of feminist postcolonial science and technology studies is not always capacious enough to include our commitments. In the worlds to which we are committed and in which we circulate, what is considered science or technoscience is far from stable, what justice would mean is neither certain nor predetermined, and what role the (postcolonial or colonial) nation-state plays is not always a centralized hegemony.

Working against colonialism, imperialism, and white heteropatriarchal supremacy takes many languages and vocabularies. Theories of postcolonialism, decolonization, and decoloniality each offer different analytical and practical tools and challenges. All are grounded in particular historical conditions, spatial locations, colonial temporalities, intellectual legacies, political proposals, and contemporary geopolitics of knowledge that may share certain commonalities while also diverging in their interests. For us, the keywords to delineate are *decolonization* and

*decoloniality*. While these may appear to point to similar concerns about the ongoing legacies of colonization and efforts to think and do otherwise, these terms are not necessarily interchangeable and do not resonate in the same ways in different places and among different scholars, even among the three of us as coauthors of this introduction.

Decolonization is a concept that has become increasingly widespread and multivalent in scholarship and social movements alike and we in turn engage with it in diverse ways in the essays that follow. Scholarly genealogies of decolonization inspire us to recognize the continuation of struggles for liberation, self-determination, and sovereignty following World War II, contemporary iterations of coloniality and settler colonialism, and possibilities to imagine and incite otherwise (Abdulgani, 1955; Fanon, 1965, 1967; Lugones, 2010; Ngũgĩ wa, 1986; A. Simpson, 2014; TallBear, 2013). For example, Frantz Fanon's 1950s and 1960s inquiries into the psychological violence wrought by the identifications of the colonized with the colonizer and Fanon's embrace of violent, revolutionary struggle as a means of transforming and healing this foundational colonial violence have renewed relevance for scholars and activists working through what has and has not been achieved by postcolonial states and what other presents and futures might be possible.

What is commonly regarded as science has, on the one hand, served as an arm of colonization and European political, cultural, and intellectual domination. On the other hand, it can offer a potential means of decolonization (Smith, 1999). In this issue, Noah Tamarkin highlights one such example, in which DNA tests get interpreted in different kinds of ways and by different kinds of communities. Efforts by educational institutions to teach and foster indigenous languages like Myaamia can be construed as another example (Leonard, 2011; Mosley-Howard, Baldwin, Ironstrack, Rousmaniere, & Burke, 2016). Yet another example is in the institutional work described by Audra Simpson to decolonize Columbia University, which she discussed at a plenary of the 2016 National Women's Studies Association meeting in Montreal. Simpson's

students have led a campaign to divest from fossil fuels and have held teach-ins on Standing Rock. Additionally, students at Columbia University's Native American Council have compelled the university to recognize officially that it is built on Lenape land. These are all crucial actions towards recognizing genocide, land theft, and their ongoing legacies. However, some question whether institutions of higher education can ever be decolonized, given that they are so firmly entrenched in hierarchical ways of knowing, as Lesley Green suggested at the 2016 Society for the Social Studies of Science meeting in Barcelona. What decolonization could look like is not always self-evident, as Juno Salazar Parreñas considers in this issue.

As we think with contemporary decolonizing invocations, we also remain cognizant of decades of scholarship that positioned itself as anticolonial, in contrast to a postcolonial that is defined as a period of time following colonization instead of a time that indicates ongoing colonialism (B.R.O.G. Anderson, 2005; Hall, 1996; Iltis, 1992; L.R. Simpson, 2004). We recognize that there are multiple forms of colonization and that empires do not easily fall on a linear time scale of world history. Rather, empires, with their differently aspirational forms of colonization and domination, were and are conversant across space and connective across time. For example, the Qing Empire drew upon aspects of the Ottoman and Portuguese empires (Stoler, McGranahan, & Perdue, 2007). If we were to force a timeline of colonial models, we would too easily fall into the traps of world systems theory, with a Eurocentric sense of time, linearity, and implicit ideas of progress that risks upholding European domination as a natural force with little resistance—which would be historically false (Agard-Jones, 2013; Trouillot, 1995). Another risk of such a timeline that centers European colonialism would be its potential to romanticize the precolonial or decolonization as devoid of oppression, which would ignore past and ongoing patriarchal hegemonies, as Banu Subramaniam suggests in this issue.

During a specific historical juncture, as Tania Pérez-Bustos and Kristina Lyons point out in their interventions, Latin American and

diaspora-based scholars mainly located in the United States linked decoloniality in a triad with modernity and coloniality (Castro-Gómez, 2005) and also authored important concepts such as the “coloniality of power” (Quijano, 2000). These scholars pull the horizon of debates on modernity back to the late fifteenth century, and extend them southward to take into account the colonial and imperial activities of southern European countries such as Spain and Portugal in the conquest of the Americas and the role these processes played in the making of a capitalist world system. More recent North American conversations on decoloniality in settler-colonial contexts stress the consideration of socio-ecological relations and sovereignty not through forms of liberalism and multiculturalist inclusion, but through situated, land-based political struggles that may at times be incommensurable with social justice projects at large, including feminism (Arvin, Tuck, & Morrill, 2013; Tuck & Yang, 2012).

While much science-studies work has looked to the past to understand how we came to view science and technology as of the West and as rooted in colonial and imperial power, our purpose is to engage decoloniality and/or decolonization *in* and *at the interfaces of* science and technology studies. The idea of the interface is crucial. Like Marisol de la Cadena and Marianne E. Lien et al. (2015), we enjoy teetering on the boundary, inside and outside STS, just as many of us enjoy the exchanges and political potential of cross-disciplinary, transdisciplinary, and intersectional inquiry. The preposition *in* is crucial as well: we address ourselves here to ongoing conversations within STS in the hopes of continuing to push its boundaries.

We began our conversation by engaging with a series of questions that emerged from the situated contexts where we live and work (Haraway, 1988). We asked ourselves: What might the lens of decoloniality or decolonization render imaginable in the worlds and world-making processes we study? What term(s) speak to the worlds and the world-making relations with which we are concerned, and what tensions can be uncovered in the distinctions between these terms

(*decolonization, decoloniality, and postcolonialism*, for example)? Finally, why (or why not) decolonization or decoloniality now, in relation to STS and its interfaces? The critical perspectives herein consider the utility and limitations of these terms as they each engage in spaces of scientific knowledge production and in other world-making projects.

Banu Subramaniam's intervention troubles any easy association between anticolonial rhetoric and liberatory policies by discussing the ways the actions and ideology of the Hindu right appear to recolonize India while making promises of decolonization. Similarly, Noah Tamarkin thinks through the historical complexities of Lemba DNA testing in South Africa as a tool for enlisting science in the service of decolonizing goals and also a political object that could buttress apartheid oppression. Juno Salazar Parreñas proposes that the project of orangutan rehabilitation on Borneo opens up difficult questions about whose vision of liberation or independence comes to matter in decolonization. Lesley Green suggests that decoloniality begins with a transformation of how we think about what it is to know within the context of contemporary South African environmental management. Kristina Lyons shares ethnographic lessons learned with farmers in the Colombian Amazon to propose the conceptual and political importance of considering decolonizing enactments and versions of asymmetry, while Tania Pérez-Bustos asks whether a certain idea of decoloniality used by academics in northern contexts may be reproducing a neocolonial geopolitics of knowledge.

Our intention is not to affirm that it is possible or even desirable to "decolonize STS," but rather to explore how decolonial and/or decolonizing analytics and struggles may or may not take on relevance through different forms of engagement and how these analytics might inform our scholarship. Thus, we attempt to bring together different experiences of colonialism, decolonization, and decoloniality that are rarely placed in discussion together to ask what may be learned from the exercise of doing so.

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### **Recolonizing India: Troubling the Anticolonial, Decolonial, Postcolonial**

*Banu Subramaniam*

Postcolonial STS has proved immensely useful in my work in understanding the trajectory of science in India. After its independence in 1947, India embarked on a path to modernity, grounding its hopes for the future in the promises of science and technology, industrialization being the mode to modernity. Governments developed five-year and ten-year plans in creating large-scale infrastructure projects and industrial development. India invested in scientific research and centers, largely conceived and engaging with international networks in India's quest for modernity, i.e., investing in institutions that promoted knowledge on and about "Western" science and technology. Postcolonial and decolonial scholars remind us that "Western" science and technology is an overdetermined category, rendering invisible the transnational circulations of science. While this is undoubtedly true, it is also interesting that the practices of "science" in postcolonial India (Prasad, 2014)— the various patents, innovations, and, more importantly, the narratives at the center of the science and technology imaginary— have always been located squarely in the West (Goonatilake, 1984). Postcolonial India has seen few new or novel discoveries and innovations developed for the Indian context. I suspect these are narratives ripe for new interpretations, and an important site of analyses for postcolonial STS.

I enter this discussion on postcolonialism and decolonialism

troubled by recent political developments in India. Over the last three decades, we have witnessed a steady rise in religious nationalism, in particular Hindu nationalism. Drawing on the region's past, Hindu nationalism reframes this past as decidedly "Hindu" and grounds its jingoistic appeals to reimagine India as a "Hindu" nation for Hindu people. The rhetoric of Hindu nationalists is decidedly anticolonial. They contend that colonialism and various colonial powers have erased the contributions of an ancient Vedic civilization and decimated the immense science and technological capacities of India. Hindu nationalists are equally critical of the postcolonial and secular state, which they feel has ignored India's ancient legacies. India, they argue, must throw away these colonial shackles, reinvigorate itself by taking pride in its past, and reimagine itself as a science and technological superpower. In particular, Hindu nationalists claim Western science as their own, as an outgrowth of ancient Vedic science and technologies. Thus, to religious nationalists, India's past and present, science and religion, modernity and orthodoxy blend effortlessly into a coherent ideology for a modern Hindu nation.

A steady rise of Hindu nationalism over the decades finally saw the Bharatiya Janata Party (BJP) come to sole power in the elections in 2014. The prime minister, Narendra Modi, ran on a platform of "development" nationalism (*Express Tribune*, 2014, 7 April). In particular, the development platform has gone hand in hand with a neoliberal platform of an extractive economy, emphasizing privatization.

Characterizing this government on the postcolonial/decolonial axis is difficult, since their practices and rhetoric align with neither. It may be more accurate to talk of the BJP as espousing a decolonizing vision rather than a decolonial one. Its rhetoric promises to take India out of its colonial past into a modern and global future of a Hindu India. While its vision and rhetoric are decidedly anticolonial and claims to have the goal of decolonizing India, they are perhaps best understood as recolonizing.

For example, the government has embraced extractive mining technologies, high-input agriculture, and industrialization alongside a robust nuclear weapons program. Indeed, it was the past coalition

government headed by the Hindu right that tested nuclear fission in Pokhran in 1998. In contrast, there has been little public investment in health care, education, or poverty reduction. The environmental consequences of development have been largely ignored. We have also seen a wholesale revival in narratives of a sophisticated, modern, ancient India with superior science and technological capabilities. These claims of modern technology in ancient India are not a revival of new epistemologies or ontologies of science, or even a challenge of Western science. Rather, they are a wholesale embrace of Western science as Hindu science. These include claims that modern practices of surrogacy, plastic surgery, genomics, evolution, atomic physics, air travel, chemistry, architecture, fluid dynamics, geology, botany, and zoology have their roots in the *Puranas* and *Vedas*. These claims have been repeated by members of the Hindu right (including the prime minister), as well as other party members and government officials. Further, we have seen the revival of many purported ancient sciences such as numerology, astrology, yoga, and *vaastushastra* as new consumerist technologies. This growth appears alongside the rise of numerous *sadhus* and God men/women, each of who embraces science and technology in various capacities in their ashrams (green technology, green agriculture, patenting techniques of meditation and yoga) as the new sites of Hindu modernity (Kumar, 2013).

As always, the embrace of modern science/technology comes alongside regressive gender and caste politics. Hateful rhetoric and violence against religious minorities have increased at an alarming rate. The rhetoric of modesty for women, the need to protect Hindu women, and an ideological vision that puts women back in the home have flourished. Recently, a politician repeated the long-enduring suggestion of asking women to dress modestly in order not to invite rape. The government continues to support the colonial-era laws of Indian Penal Code 377, which criminalizes sexual acts that are “against the order of nature”; these laws are used to harass, intimidate, and brutalize nonheteronormative sexual subjects. The government has also sought to

abolish commercial surrogacy for anyone who is not a member of a heterosexual married couple from India (*The Hindu*, 26 August).

Despite the use of anticolonial rhetoric and the promises of decolonization, the actions and ideology of the Hindu right appear instead to recolonize India, contrary to any sense of liberatory politics. Indeed, the reality on the ground promotes colonial-era laws. Victorian visions of sexuality are reinscribed in the name of Hindu modernity. India offers a sobering account of certain kinds of logics of decolonization. Only a feminist and antiracist politics allows us to see the dangers of such a vision.

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## Genetic Ancestry and Decolonizing Possibilities

*Noah Tamarkin*

I ground my approach to potential decolonizing possibilities in relation to genetic ancestry in my research with Lemba people. The Lemba are black South Africans who became internationally known as “black Jews” after they participated in genetic ancestry studies in the 1980s and 1990s that aimed to test whether their oral history of descent from Jews could be genetically substantiated. In my research, I focus on three questions: How and why did genetic ancestry become imaginable and desirable for Lemba people? How does DNA matter socially and politically? And how might the answer to that question be different if we approach Lemba people as producers of genetic knowledge rather than simply as research subjects who are caught up in the desires and politics of geneticists?

At the heart of my research, then, is a shift in perspective that I think raises important questions about decolonization in relation to science and technology and also potentially in relation to science and technology studies. There is much to be said about the colonial, postcolonial, and potentially decolonizing politics of genetic and genomic research in South Africa. For example, some have analyzed South African genomic research in relation to colonial histories and both established and emergent forms of identity and belonging (Bystrom, 2009; Erasmus, 2013; Schramm, 2016). South African geneticists have also considered colonial and apartheid legacies as they have debated the potential benefits and challenges of postapartheid South African genomics projects that aim to more ethically obtain and use South African genetic samples to produce research that can benefit South Africans (de Vries and Pepper, 2012; Hardy et al., 2008; Ramsay, 2014; Slabbert & Pepper, 2010; Soodyall, 2003). Others working in science and technology studies have considered the extent to which geneticists’ claims that a postcolonial, postapartheid genomics characterized by robust community involvement, informed consent, and espoused antiracism might be transformative or even possible (Benjamin 2009, Foster 2016). Going

forward, these debates and discussions will necessarily be informed by new ethical guidelines published by the South African San Institute that are addressed directly to potential researchers (including geneticists) to govern any future proposed research with San people, who have been the research subjects of many past genetic studies: these guidelines are also an opening through which to imagine decolonizing possibilities (South African San Institute, 2017). But my focus on former research subjects, rather than on ideal futures or on geneticists or genetic discourses, frames South African genetics differently. I argue that genetic studies are not the culmination of the meaning of DNA but rather, simply, one starting point; so by extension, it is the motivations and actions of research subjects, as much as or more so than those of scientists, that might help us to analyze the relation between genetics and decolonization.

So why did Lemba people decide to participate in genetic ancestry studies? From the early twentieth century and perhaps earlier, they had struggled to be known as ethnically distinct from the Venda and Pedi people among whom they lived. These identity-based struggles became more consequential under apartheid policies that began in the 1950s. Lemba people, like all black South Africans, were forced to carry identity passbooks, and in addition to labeling their race, these passbooks also required them to define themselves ethnically as either Venda or Northern Sotho—Lemba was not a possible option. These ethnic labels were also linked to local structures of power and territory in the form of tribal authorities, chieftaincies, and Bantustan homelands. The apartheid state considered these homelands to be self-governing and independent, but in reality they were a means of denying black South Africans citizenship rights while also dividing them based on ethnicity and subjecting them to leaders they did not choose. This violently oppressed all black South Africans, but Lemba people additionally experienced these policies as erasure. No Lemba chiefs were recognized by the apartheid government, they had no recognized tribal authorities, and they were assigned to homelands defined by ethnic labels that they did not claim. Beginning in



the 1980s, when they were first asked to be part of genetic ancestry research, Lemba leaders saw DNA as a possible method through which to scientifically substantiate their ethnic difference and to potentially gain recognition and ethnically defined authority and territory (Tamarkin, 2011, 2014).

If we think about decolonization as a process through which colonized people and places move towards forms of sovereignty, then we might read Lemba genetics as a decolonizing science or, in other words, a project of enlisting science in the service of decolonizing goals. But it is not that simple. In the larger context of 1980s and 1990s South African politics, to seek ethnic recognition and ethnically defined territory was to accept the logic of apartheid oppression while others were busy burning passbooks, joining banned political parties, and arming themselves in efforts to bring down the colonial system that Lemba DNA, as a political object, could only buttress. These politics, of course, were not mutually exclusive. Many Lemba people were in fact involved in these forms of antiapartheid action and did not necessarily see Lemba ethnic recognition as antithetical to their goals of undermining the apartheid state and ending apartheid policies: they were able to hold these contradictions and pursue both strategies simultaneously.

More complex still is how to think about the meaning of Lemba DNA in the postapartheid present. In recent decades, Lemba leaders have continued the same struggles for recognition and territory that they, and in some cases their parents and grandparents, had enacted against the former apartheid state, now against a postcolonial state. This postcolonial state recognizes an ideal of generalized multiculturalism paired with nonracialism, rather than rights and recognition tied to ethnic difference. It is also a target of new student-led social movements that explicitly call themselves decolonial and argue that the statue of Cecil Rhodes must fall, university fees must fall, and Jacob Zuma—the current South African president—must fall.<sup>1</sup>

When Lemba people use DNA to petition a postcolonial state, how might they envision decolonization, and how might that be understood in

relation to others' decolonial goals? I think that we cannot speak of decolonizing science and technology without reference to other invocations of decolonizing and/or decolonial politics that exist in the same times and places, particularly if we envision science and technology as situated, dynamic, and contextual.

I'm opening up these complications in thinking through Lemba DNA to suggest that the questions about decolonization and science and technology may not be answerable—and that may be part of the point. There is a distinction here between the potential relation of who or what we study to the decolonization of science and technology (and also to other forms of decolonizing politics that may not have anything explicitly to do with science and technology), and the potential of our work to further some sort of decolonizing politics alongside with who or what we study, or in relation to the intellectual projects that constitute science and technology studies.

I'm not comfortable diagnosing the extent to which one might be able to analyze Lemba DNA as part of a decolonizing project, but I do think that a shift in focus from geneticists to research subjects can potentially be a decolonizing move in three ways. First, it affirms the knowledge practices of marginalized people who are engaged in a project of self-determination. Second, it asserts that analyzing scientific practice is inseparable from colonial, postcolonial, and decolonizing politics. Third, it opens up the possibility for STS scholars, and potentially also geneticists, to move away from scientist/nonscientist and expert/nonexpert binaries when thinking about the source, content, and meaning of scientific knowledge.

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## **Orangutan Rehabilitation as an Experimental Project of Decolonization**

*Juno Salazar Parreñas*

The project of orangutan rehabilitation is a project of decolonization, both in the historical and contemporary senses of the term. Rehabilitation began in 1956 when the Forestry Department of the British Crown Colony of Sarawak started sending orphaned orangutans to the home of the curator of the Sarawak Museum. Barbara Harrisson, a museum volunteer who had divorced her German forester husband and then married the last British colonial-era curator, took on the project.<sup>2</sup> She aspired to find an alternative to what she perceived as two impossibilities. On one hand, it

was impossible to return orangutan infants to the wild. Logging decimated their habitats and they would likely die without their mothers.<sup>3</sup> On the other hand, Harrisson was unwilling to send them to old imperial zoos built in the nineteenth century, like the London Zoo. She thus experimented with a third way: having them live independently with minimal support—a kind of independence that could carry on despite her absence.

This particular experiment of fostering independence from afar was contemporaneous to active debate about political decolonization. Neighboring Indonesia, had hosted the Asian-African Conference the previous year in Bandung, which aimed to represent the interests of the Third World against colonialism in all of its manifestations (Abdulgani, 1955; Tsing, 2005). This was a decade after Indonesia became the first nation to gain independence violently in the twentieth century (Steadly, 2013). Across the South China Sea, communists in the British colony of Malaya were actively fighting the “Anti-British National Liberation War,” otherwise known as the Malayan Emergency. That war became an example of the brutality of liberal warfare, with its use of carcinogenic herbicides, forced resettlement, and indefinite intention (Khalili, 2013). Sarawak’s official decolonization in 1963 meant incorporation into a new nation-state, Malaysia, a plan hatched by the prime ministers of Britain and Malaya once war in Malaya ended (Leigh, 1974). The same tactics of liberal warfare used in Malaya were applied in Sarawak immediately after official decolonization (Yong, 2013).

Harrisson’s experiment occurred at the peripheries of the colonial state, as revealed in her correspondence with the Department of Forestry, as well as at the peripheries of modern biology (as her memoir attests through its description of force-feeding infant orangutans with glass pipettes), and in the space of the colonial domicile, which was home to both of the Harrissons, their Malay housekeeper, and Bidai, a young Selako man who was the son of a shaman and a friend of the Harrissons (Harrisson, 1962).<sup>4</sup> Bidai lived with the Harrissons to learn modern ways of living; ironically, he did so by teaching orphaned orangutans semi-wild

behaviors.

This was decolonization in the historical sense: a self-professed British colonial actively experimented with instilling freedom for indigenous Sarawakians while knowing that colonialism was reaching its end in the 1950s and 1960s. Decolonization, historically, was about the anticipated end of direct colonial intervention. How that governance would end— through violent uprising, diplomacy, or a combination thereof— was unclear. What was clear was that the state of arrested autonomy in Sarawak was untenable (Parreñas, in press).<sup>5</sup>

When I did ethnographic research from 2008 to 2010, I saw how the older colonial aspiration for orangutans' independence had remained a future aspiration. Yet in this recent past, the actors are different. A private-public partnership between the branch of the Forestry Department that was privatized in the late 1990s and a British commercial volunteering company has replaced the efforts of colonial bureaucracies. People, mostly British women, pay thousands of dollars to volunteer by assisting Sarawakian subcontracted workers (Parreñas, 2012). The concerns of displaced wildlife continue to be as peripheral to the postcolonial state as they were to its predecessor. One small manifestation of this is that the staff has lacked a veterinarian since the 1990s.

Postcolonial institutions that still carry colonial legacies are responsible for orangutan rehabilitation, yet I believe there is a theory and practice of decolonization at stake here, especially when we turn to the way subcontractors regard their orangutan charges. The purpose of orangutan rehabilitation, for caretakers like Nadim and Layang, is to foster independence and mutual vulnerability with their charges who are acclimated to humans. The idea of independence is conveyed by the Malay (and Sarawakian Malay) word *bebas*.

The Malay concept of *bebas* is significant. While *merdeka* is connected to emancipation and enfranchisement, which are key ideals in British liberalism, *bebas* is associated with license and lack of restraint.<sup>6</sup> It is the legal term for acquittal and the term for liberation that

contemporary Malaysian and Indonesian youth now use in describing their aspirations (Idrus, 2016; Lee, 2016). It is the same word for freedom that anthropologist Aihwa Ong (1987) used to describe young Malay factory women resisting the patriarchy in which they were raised.

While the sociologist Laleh Khalili (2013, p. 6) writes that “the freedom of movement is an avowedly fundamental tenet of liberal rights,” what makes the decolonizing freedom of orangutan rehabilitation different from the liberal freedom espoused by former colonial masters and warmongers is the recognition of the bodily vulnerability that the freedom of decolonization would entail. Both Nadim and Layang felt that caring for wildlife meant embodying personal risk. It meant the risk of feeling pain when an orangutan acclimated to humans bites human flesh. It meant that living out freedom, in the sense of *bebas*, meant living out the freedom of shared vulnerability.

The contemporary purpose for orangutan rehabilitation is to have them be *bebas* (free). Yet, as Nadim points out, that freedom is mediated by biological sex and sexual dimorphism and it is gendered beyond human subjects:

Nadim: In the wild, there's lots of trees, lots of space. Here, it's six kilometers and not enough. Here, they meet every day! In the wild, they meet in a year or once every six or seven years...they [female orangutans] may be free, but living in fear...*bebas, tapi takut* [free but fearful]. I pity them when I see their faces. It's only the males, when you see them, they're happy. (Parreñas, in press)

The freedom afforded by the constrained space of the wildlife center exacerbates relations of forced copulation. Thus the wildlife center generates a gendered social world for the orangutans held at this site.<sup>7</sup>

Comparing Nadim and Barbara Harrison, we see that taking decolonization seriously entails not only considering the colonial legacies that structure the space of possibilities for orangutans and the people caring for them. Following scholars working in the Americas, like Marisol de la Cadena (2015), it also entails questioning deep-seated assumptions about who is a political subject and to whom we are responsible. This is

decolonization in its contemporary sense, one that finds genealogy in liberation movements of the mid-twentieth century without privileging Enlightenment categories of the human above nonhuman others.

Like all projects of decolonization, the project of orangutan rehabilitation opens up difficult questions: whose vision of liberation or independence comes to matter in decolonization? How much license can we take when we use terms that are not directly circulating in our worlds, yet are useful for how we come to grasp what surrounds us? In other words, why do I hesitate to think through “decoloniality” when thinking about Sarawak? What kinds of new political imaginaries become aspirational when we look across colonial legacies and geopolitical space and time?

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## Thinking Decoloniality with Perlemoen

*Lesley Green*

A newsbill from Cape Town in November 2014 announced the military protection of perlemoen— *Haliotis midae* or abalone—which is at risk of extinction.<sup>8</sup>

A flat mollusk living in the kelp forests that line the shoreline of the Western Cape, in South Africa, perlemoen finds itself under assault by *Homo sapiens* and by lobsters (*Jasus lalandii*) in the Anthropocene.

Archaeologists working along the coast of South Africa suggest that perlemoen and other shellfish played a key role in human evolution in that their omega oils contributed to human brain development. If the archaeologists are correct, we humans owe them our *sapiens*. What will human futures be without them?

Regime-challenging fishers, the historical subjects of colonial expulsions, prise them off rocks with screwdrivers, in a 24/7 duel with fisheries management and a partnership with global illegal traders in abalone (Platt, 2016).

At the same time, rock lobsters have adapted to rising ocean temperatures and the effects of city sewerage outfalls by changing their location and diet. Adult lobsters have migrated south and initiated what invasion biologists call “ecological regime shift,” changing their diets to consume the sea urchins that used to shelter baby abalone.

However, amid a science caught in a nature-culture divide—in which the attention is almost always on either people or critters, but seldom both—it is against the poachers that the army has been called in.

Fishers ask: Why and how, in a democracy, can a perlemoen have better representation in Parliament than we do?

The situation is surreal, and it strains the social contract. Is it not surreal to mobilize a war machine to protect a snail? Can the army protect the perlemoen from the lobsters that are migrating into the kelp forests?

There are many other surrealisms. There is the surrealism of an environmental management regime financially dependent on the sale of confiscated poaching hauls. There is the situation of the environmental scientist who, in the neoliberal financialized version of the environment in South Africa’s constitution, finds herself advising on policing the rights of some humans over others.

Unsurprisingly, scientific authority is in question in South Africa.

Where the environmentalist—almost always white—criminalizes poachers in order to save species from extinction, she or he slips into the role of the bearer of the white man’s burden” —the legacy of a colonial project to save the world via religion or science or both. When scientific authoritarianism is brought to bear on environmental resource management, there is an inescapable slippage into what in apartheid South Africa was called *baasskap*, the relation of mastery.

If environmental activism and environmental science is to be effective as South Africans address climate-induced ecological disorder, the life sciences need to find a voice other than that of the master who will exercise military might. But in order to do that, a different articulation of subject-object relations is required. How to do that when that very relation is assumed in scholarly ways of knowing? Unmaking that relation of mastery has been a focus in the postcolonial social sciences and human geography (De Greef & Raemaekers, 2014; De Greef, 2014).

Yet it is the abalones’ multiple vulnerabilities, across species and across economies illegal and legal, that convoke us to think about ecologies in ways that are unfamiliar in the frames available in science via territorialist biology and in law via the humans-only social contract. The convergence of climate disorder with decolonial questions of how we got here puts to flight the idea that marine conservation is about ecologies becoming pristine again. Instead of attending to beings and becomings, we find ourselves attending to hauntings and unbecomings.

Our choice amid this is to fight over who or what has mastery of the truth of the abalone and therefore what regime ought to be enforced, or to rethink the trope of mastery. For decolonial theorist Sylvia Wynter, that is the question that makes us think. In a recent reflection on the Anthropocene, she criticized the “knowing We” in an Intergovernmental Panel on Climate Change (IPCC) report: “The referent-we—whose normal behaviours are destroying our planet—is that of the human population as a whole. The ‘we’ who are destroying the planet in these [IPCC] findings are not understood as the referent-we of *Homo oeconomicus* (a we that

includes themselves/ourselves as bourgeois academics)” (in McKittrick, 2015, p. 24). In other words, for Wynter, addressing climate disorder requires addressing the entanglement of the figure of the knowledgeable human with the neoliberal gods of reason. For Bruno Latour, these are “technical efficiency, economic profitability, and scientific objectivity” (2007, p. 14). Wynter wants to address the entanglement of the praxis of scholarship with the neoliberal cosmos.

For perlemoen, *Homo oeconomicus* has no answer to their dilemma of how to survive the lobster migration that is changing the kelp-forest ecology at the same time as historical forces create a lucrative market for a desperate “precariat” tied in to gangs and the drug trade. Their problem is surreal in the face of the realisms in which it is rendered, for it has the same roots as the situation contemporary poachers face. Extinctions, expulsions, extractions, and ocean warming are inextricably linked; poachers, perlemoen, and lobster alike are trying to survive not only an ecological politics but a conceptualization of ecology and society that creates their hostile cosmos. Their crisis is not only ecological or social, nor is it even social-ecological. It is cosmopolitical.

In such a cosmopolitical crisis, we need the “Dostoyevskian idiot” described by Isabelle Stengers (2005): someone who is unable to ask the right questions.

As a white South African social scientist writing in a moment where the decolonial movement has put the university in crisis, I have found myself many times learning slowly to welcome not-knowing: learning to not be the keeper of a disciplinary kingdom, and to be alert to the practices of gods of reason in a university system (Green, 2015) in which the very fact of whiteness has long served to authorize thought. Part of escaping the habits of authority is learning to circle around a problem, to think the whole situation again—including its “obvious” and “of course” aspects.

With that in mind, let us return to the situation of the perlemoen. That which authorizes logic in fisheries management has been a *Homo oeconomicus* model of fisheries, in which the base stock is the capital,

the juveniles are the interest, and you should only withdraw less than the interest earned (Green, 2016). What that banking model does is enact the ocean as an ATM from which cash has to be withdrawn. Relations of care for the kelp forests and rock pools, which have a deep history along the coast, are expunged. Might a different approach to the logic of conservation—not as dollarized ecosystem services—enable fishers to reclaim a different set of relations with the ocean that are based on care and on “thinking like a fish” (Duggan, Green & Jarre, 2014)?

It would be easy to dismiss the question as the naive ramblings of an esoteric social scientist who is out of touch with the “real world.” Yet acceptance of the idea of “the real world” is bound up in the same gods of reason who created the economized and militarized relations that compound the very situations we entreat them to resolve.

What is needed is a different approach to the problem: one that begins with conceptualizing the multiple experiences of a problematic situation without presuming that the authorized version encompasses all there is to know.

A deep tradition of authority across sub-Saharan Africa that declines the rhetoric of authorial authority is that of the dilemma tale (Bascom, 1975). In a dilemma tale, the art of authorship is not, as in the essay form, to persuade your listeners that you are right, but to stage a discussion of what is ethical or what each actor might do next. Dilemma tales offer a mode of engagement very similar to Amazonian perspectivism: understanding that the world is constantly in formation by the beings and actants that navigate it. In this approach, knowing is not simply a question of “understanding information of the world” but of “understanding the world in-formation.” The different form of authorship here is not the authorial “authority over,” but the authorial capacity to bring listeners into a “presence-to” the breadth of a situation (Green & Green, 2013). The knowledge they honor is less about the knowledge of the “beings” of each creature but about the “becomings” of a situation: who will do what next?

Being able to understand what will unfold next is also an art of

knowledge in Chinese thought that attends to the propensities of things, as described by Francois Jullien (1995). In Amerindian perspectivism, in African dilemma tales, and in Chinese thought, we can begin to see that the attention of coloniality-modernity to things and direct causal relations is something of an anomaly among many intellectual heritages. With regards to the perlemoen, the form of the dilemma tale offers a way of staging an encounter of perlemoen, lobsters, fishers, poachers, environmental managers, the army, and marine biologists. To me, decoloniality is a praxis that is not about offering a new kingdom of thought to replace the disciplines nor about generating a new field of study: it begins with a transformation of how we think about what it is to know.

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## On the Situated Politics of Analytic Symmetry

*Kristina Marie Lyons*

I begin with an important conceptual lesson taught to me by an animal husbandry technician and small farmer. Our conversations occurred in the Andean-Amazonian foothills of Colombia, where I have been conducting fieldwork and accompanying what I call agro-life popular processes over the last thirteen years. Southwestern Colombia has been an epicenter of what was, until recently, the country's over-fifty-year social and armed conflict, as well as the focal point of militarized US–Colombia antinarcotics policy since the late 1990s. This farmer friend, Heraldo Vallejo, explained to me that modernizing agricultural practices and neocolonial legacies of violent extractivism have alienated rural communities to the point where “they do not know where they were standing.” Not knowing where one is standing does not refer to knowing the soil through a laboratory analysis of its chemical fertility, pH level, or scientific taxonomy. Indeed, Heraldo demonstrated how, rather than sending a soil sample off to an urban-based laboratory and paying for chemical analysis, farmers could compare the soil where they intend to cultivate with fecund animal manure on the farm. Applying hydrogen peroxide to both the soil and the manure, then comparing the intensity of the effervescent cackle of microbial life is a way to determine whether a soil is healthy and apt for cultivating.

The reason to avoid consulting a soil science laboratory is not only a question of reducing costs and external dependencies in a precarious peasant farmer economy where rural communities rarely have access to such technology.<sup>9</sup> It emerges from the ontological differences between treating soils as artificial strata or, at best, natural bodies that can routinely be chemically manipulated and interacting with soils as living worlds that are inextricable from their ecological relations. In fact, as Heraldo engaged in the experiment, he told me it was not a question of knowing but of learning how to cultivate (and also recover) different practices, aptitudes, dispositions, and affects. His emphasis on open-

ended processes of learning that do not result in the accumulation of universally applicable knowledge reveals a tension that he, and other farmers I met, have not only with many agricultural sciences and their productivist imperatives but also with the category of knowledge itself, when it is separated from learning as a humbling, shared (as in multilateral and not only human), ongoing, and situated process.<sup>10</sup>

This is not because these farmers reject the teachings of soil science, ecology, or microbiology entirely, as evidenced in the above anecdote about relating to chemical versus biological soils. Rather, Heraldo and other farmers interface with these sciences and their technological apparatuses by subjecting them to the rigor of local demands, visions, and agroecological conditions. Scientific practices that support farmers' liberation from capitalist imperatives and extractive-based logics while also responsibly addressing and emerging from Amazonian-based problems may be incorporated into their agricultural life projects. Simultaneously, these farmers engage with specific practices they learn from their parents and extended family members and ones they continually learn in their exchanges with neighboring Indigenous, Afro-descendent, and other peasant farmers. For example, Heraldo told me how his Nasa indigenous neighbors taught him to plant in fields recently struck by lightning because these fields become more fertile. The Nasa had reached this conclusion by witnessing the upsurge of mushroom caps after a storm. Heraldo later read a scientific explanation of the way nitrogen molecules are shattered by lightning bolts, fertilize the air, and then penetrate the ground in falling raindrops. This was a case, he explained, where popular practices match up with scientific ones. However, there are innumerable popular practices that have no scientific equivalent and that form part of or are actively being reincorporated into farm and forest life.<sup>11</sup> The recovery and innovational reworking of these practices is occurring after decades when rural communities eliminated most agrobiodiversity and food production to grow monoculture coca—what stigmatizing state antidrug campaigns call “narcocrops/narco-seeded plots” or *la mata que mata* (the plant that

kills).

Heraldo and other farmers I met throughout the Andean-Amazonian foothills and plains are not trapped in an either/or world that pits knowledge against belief. Nor do they make a multicultural or hybridist move to simply place scientific practices that are “locally appropriate” in analytic and material symmetry with alternative or popular practices.<sup>12</sup> Scientific practices, even when they address Amazonian problems responsibly, are categorically (and not only relatively) different from the kinds of practices and practitioners that emerge when one lives, dies, and defends a territory under military duress. For these farmers, the modernizing agricultural sciences can easily become parasitic. Such practices can show their colonial sides when they are deemed “knowledge” that absorbs nonscientifically derived practices and/or renders them obsolete under the capitalist imperatives of standardization, competitiveness, and intellectual property.

Within science-studies scholarship, there have been moves to “democratize” knowledge production in different global contexts under more plural conceptualizations of science and modernity (see, for example, Harding, 2008; Medina, da Costa Marques, & Holmes et al., 2014). More recently, scholars interested in decentering science studies from English/Euro-American analytics have proposed what they call a “postcolonial version of the principle of symmetry” to ask “what might happen if STS were to make more systematic use of non-Western ideas” (Law & Lin, 2015 p. 2). Ethnographic conceptualizations at the interfaces of postcolonial and feminist science studies have made important contributions to understanding the kinds of ontological tensions that exist and that are necessarily maintained between divergent knowledge traditions and world-making practices (see, for example, Verran, 2002; 2013, de la Cadena, 2010; Lyons, 2014; de la Cadena & Lien et al., 2015).

Of course, within and beyond the confines of academic debates, encounters between “Western” and “non-Western” ideas in the Americas have been ongoing since the Conquest and the control of the Atlantic after 1492. Focusing on the specificities of Spanish and Portuguese

colonialisms, Latin American and diasporic scholars based in the United States have insisted that we think with the “triad modernity/coloniality/decoloniality” (Castro-Gómez, 2005; Escobar, 2007; Giraldo, 2016), arguing that these violent colonial encounters and their enduring structural effects are constitutive of modernity and the making of a capitalist world system. When indigenous, peasant, Afro-descendent, feminist, and popular sectors chant “500 años de colonialismo” (“500 years of colonialism”) during mobilizations across Latin America, they are engaged in struggles against specific forms of ongoing coloniality that are conceptualized in ways other than “postcolonial.”<sup>13</sup> However, as Tania Pérez-Bustos notes in this series, this does not mean that a decolonial paradigm should become a singular explanatory tool to discuss the commitments and practices of diverse popular struggles and radical thinkers across the hemisphere.

In an epistemic sense, the production of modern scientific disciplines has occurred within asymmetrical power relations of ongoing coloniality. The historical production of scientific knowledge has always entailed its constitutive outsides: not only in terms of the making of the category of “science” pitted against “religion,” “superstition,” and “belief,” but also in the ongoing appropriation of diverse practices—and hence worlds—that continues to allow scientific practitioners to claim to authoritatively “know” a singular reality. My intention is not to gloss over diverse scientific traditions by simply defining them as rooted in the projects and practices of colonialism, or to underestimate the critical perspectives and subversive potential of scientists working within unequally distributed global positions. I am interested in exploring the limits of symmetry as a conceptual and political tool when placed in conversation with the kinds of alternative practices in which Heraldo and other farmers engage as they strive to “decolonize their farms,” as they call it.

The practices of the farmers I have been accompanying do not seek to democratize science—in other words, to open inclusive spaces for what some call ancestral, traditional, or popular *saberes* (wisdoms or

know-how) within neoliberalized science-policy culture, or place science at the disposal of the interests of civil society as though a dualistic division exists between the two. The promises and practices of democratization may or may not take on relevance and are always situated political and social processes, rather than universal aspirations. This is heightened when rural communities are criminalized due to their presumed engagement in illicit economic activities, their defense of territories against extractivism, and by the fact that they live in areas that are militarized and also occupied by paralegal armed groups. By illicit economic activities, I refer not only to the cultivation of illicit crops in Colombia, but also to the incremental criminalization of a whole variety of popular and ancestral food production, commercialization, and seed-propagating practices vis-à-vis neoliberal reforms that favor the interests of multinational corporate chemical-seed conglomerates.

Certain modern agricultural technologies are actively incorporated into small farmers' labor when they enable liberatory potential within the relational conditions of Amazonian ecologies. However, peasant farmers in the western Amazon taught me that asymmetrical engagements between practices remain ethically and strategically important as a political—or, better yet, life—proposal. This is an asymmetry that subverts the authority granted to scientific knowledge and its nexus with capitalist forms of accumulation over a myriad of other nonscientific practices and anti- and noncapitalist ethics. These kinds of asymmetrical analytical and material engagements resist the appropriation of popular practices by different scientific disciplines and acknowledge the historical and ongoing debts these sciences owe to the worlds they marginalize(d). Rather than assuming the fixed locations of subjugation that a “postcolonial symmetry” proposes to unravel, it is also conceptually and politically important to consider situated “decolonizing” enactments and versions of asymmetry.

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## **A Word of Caution toward Homogenous Appropriations of Decolonial Thinking In STS**

*Tania Pérez-Bustos*

These lines are a provocation, a word of caution, a question posed in response to the questions asked about the role of decolonial theory in the thinking of science and technology studies (STS) nowadays. When I was invited to participate in this discussion, my first reaction was to say, “Shall I be part of this?” I am familiar with these theoretical proposals, with the distinctions between postcoloniality and the triad of modernity/coloniality/decoloniality (Santiago Castro-Gómez, 2005; Giraldo, 2016), as much as with the tensions between them and within coloniality/decoloniality thinking. I do not, however, affiliate with any of these proposals—in fact, I do not affiliate with hardly any school of thought or particular theory. I find these proposals useful since they have helped me to think and question, in particular, the feminist politics of the circulation of popular science and technology in countries such as India and Colombia (Pérez-Bustos, 2014). Thus, my position toward decoloniality has mostly been marked by my anecdotal encounters with literature proposing the decolonial option (Santiago Castro Gómez & Grosfoguel, 2007).<sup>14</sup> It is from anecdotal encounters with these ideas as partial tools that I can speak. I do not see them as paradigms.

In the case of modernity/coloniality and decoloniality, I see the faces of particular people behind these concepts: mostly well-known male scholars based in the United States who attempt to think from Latin America, but also male scholars based in different corners of Latin America trying to differentiate themselves from their Northern counterparts. I see invisible appropriations of feminist knowledge produced in the South as much as in the North.<sup>15</sup> I see a game of mirrors and invisibilities propitiated by the inaudibility of knowledge produced



otherwise. I think about this, keeping Silvia Rivera Cusicanqui's words in mind:

Mignolo and company have built a small empire within the empire...have adopted the ideas of subaltern studies and have launched discussions in Latin America, creating a jargon, a conceptual apparatus and forms of reference and counterreference which have produced an academic detachment with the commitments and dialogues with insurgent social forces. (Rivera Cusicanqui, 2010, my translation)

With this, I am not saying that there is nothing to learn from what these authors write. Better yet, I should say to what these *autores* write in order to emphasize their gender position. What I am saying is that certain discourses of decoloniality may run the risk of existing within certain politics of appropriation and decontextualization through which certain voices are audible and others are not, and it is with this politics that decoloniality becomes. Or, as one of the reviewers of this paper helped me to highlight, these circuits of audibility, appropriation, decontextualization, gender, and coloniality shape the very possibility of discussing decoloniality in STS.

While writing this, because I am Latin American, I keep wondering what it means and what the implications of my words (or the expectations for them) are in relation to decolonial terms and the genealogy of these terms in Latin America. I say this because I come from a region with very particular histories of colonization, one that has pushed a group of scholars to think about these categories for a very particular period. During this period these scholars discussed and highlighted (initially) the differences between processes of colonization and argued, in varied, intricate, and complex ways, the need to understand that modernity is a product of coloniality (Santiago Castro-Gómez & Grosfoguel, 2007; Giraldo, 2016). Thus, while recalling Michelle Murphy's words (2016), decoloniality cannot be otherwise, cannot be thought outside those frames. This in the sense that decoloniality emerges out of coloniality as a counterface of modernity, and it is dissenting within (Puig de la Bellacasa,

2012) these conditions of possibility that decoloniality can become. It is the triad concept we are dealing with. However, when I think of how the Latin American genealogy of this concept is being used and appropriated in STS (Harding, 2016), I do not necessarily see a triad. I see a fuzzy word filled with hope and expectations, a word being used in a homogeneous way, a word lacking history and complexity, plurality and entanglements. Then I remember (how could I forget?) that language is an issue in the academic world (Pérez-Bustos, 2017: 59-72). That writing in English and not in Castilian Spanish or Catalan or Portuguese or, even more, in Aymara or Quechua is not neutral. It embodies a very particular coloniality of knowledge, of being, of power, depending on where you stand (or sit) (Wöhler, 2016).

Coloniality as a concept (because I insist that we cannot talk about decoloniality without asking how it is built by coloniality as a necessary precursor of modernity, and as a triad) emerged in Latin America at 1998, and it was discussed for a decade. However, when this genealogy has more recently been used in the Northern Anglo-Saxon world, it often relies on the translation of this work (see Harding, 2016). However, what has been translated? What has not? Why? Are we only relying on translated sources or on decolonial thinking produced by Latin American thinkers based in the North? What does it imply that perhaps one is reading certain people from Caribbean and Latin American critical thought but not others? There is something interesting in what is translated and heard, but we also need to recognize its partiality and its politics of appropriation and circulation, or else we may fail to acknowledge the impact of that partiality. I am not arguing that we need to be universal in any way, but rather that we must question the privilege of our point of view and take a reflective stand toward how decoloniality is used and produced in its incorporation into STS, and how this incorporation includes silences and blind spots.

In this context, which frames the emergence of the triad of modernity/coloniality/decoloniality in Latin America as much as its partial translation, I wonder to what extent using the term here, speaking about

decoloniality in Latin America without acknowledging and understanding where it comes from and the differences it embraces, its inner heterogeneity, is not another (of many) examples of cognitive and epistemic injustice (Visvanathan, 2009). With this I suggest that having and embodying the privilege of speaking and writing and being embedded in the lingua franca of science seems to give Anglo-Saxon scholars the right to appropriate concepts partially and make theory out of them. This is usually impossible for academics in the non-Anglo-Saxon South who do not have the privilege of whiteness (symbolically as much as materially speaking) or have not worked hard enough toward having it (studying in the North and building and being part of certain networks) (Wöhrer, 2016).

Thus, how homogeneous is the idea of decoloniality being used in Northern contexts? What kind of systematic ignorance accompanies this homogeneity? Whose singularities are being lost in terms of theory? Why? Is the use of decoloniality, or better yet the search for decoloniality, decolonial enough? Decolonial in what sense? Or is this search for decoloniality actually reproducing certain geopolitics of knowledge and logics of colonialism? From my experience as a feminist STS scholar based in Colombia and not representing anyone, with my singular voice, I would say it might be.

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## Notes

<sup>1</sup> The histories and complexities of these social movements are beyond the scope of this essay, but for an example of how the concept of the decolonial is circulating therein as an extension of Franz Fanon's and

Steve Biko's works, see Ngcaweni (2016).

<sup>2</sup> Barbara Harrisson was German by birth, although she spoke of herself as a British colonial when I interviewed her in 2006. During World War II, she worked as a typist in the *Abwehr*, the espionage group within the Third Reich's armed forces that Hitler disbanded toward the end of the war because of its internal subterfuge against his rule (Heimann, 1998). Her move to the tropics following World War II seems to parallel the movements of Nazi women closely associated with Hitler, such as Hannah Reitsch, the pilot and Iron Cross recipient who became close to Third World leader Kwame Nkrumah and helped establish Ghana's air force in the early years of independence (Allman, 2013). However, Harrisson's efforts were not directed by a confident futurism of a new nation-state but were a series of uncertain trials and error.

<sup>3</sup> Orangutan infants usually spend around the first seven years of their lives with their mothers (Galdikas, 1981; Galdikas & Wood, 1990).

<sup>4</sup> Barbara Harrisson's story is one where colonial science converges with gendered science (Anderson, 2002, 2006; Anderson & Adams, 2008; von Oertzen, Rentetzi, & Watkins, 2013). Bidai's father was a *Pengulu*, a title that designated an indigenous leader. Harrisson describes his father's assumed role as that of both a political and shamanistic leader.

<sup>5</sup> *Arrested autonomy* describes the condition in which forcibly being made dependent is understood as the means of gaining independence. In effect, that independence is always indefinitely deferred.

<sup>6</sup> Like many abstract terms in Malay, *merdeka* has roots in Sanskrit, conveying roots in the ancient Srivijaya and Majapahit imperial courtly and elite cultures that connected the region. This word was distinguished from the term *bebas*, which orientalist John Crawford reckoned originated from Johor on the peninsula; it spread through Malay's usage as the vernacular trade language throughout the archipelago. *Bebas* seemed to represent something more excessive or even "wild," distant from "civilized" courtly culture and even further from the ideas of liberty conveyed in the writings of John Locke and John Stuart Mill and through the stately sense of the term *merdeka* (Rutherford, 2012; Steedly, 2013). Marsden's translations of the terms *free* and *liberty* in the 1812 edition of *A Dictionary and Grammar of the Malayan Language* convey this: "Free

(manumitted) *mardika*...(unrestrained) *bibas*...Liberty (enfranchisement) *ka-mardika-an*; (permission) *mohon, bibas*” (1984, pp. 451, 482). *Merdeka* corresponds to liberal ideas of political independence (Kirksey, 2012; Rutherford, 2012; Steedly, 2013).

<sup>7</sup> For an explanation of how nonhuman animals have gender, please see Parreñas (2017).

<sup>8</sup> *Cape Times* newsbill, 14 November 2014.

<sup>9</sup> The soil’s treatment in dominant agronomic circles almost exclusively prioritizes soil fertility and structure because of the roles granted to these properties in agricultural production and chemical input substitution. This is particularly evident in the Colombian government’s new *Servientrega suelos* service, which I euphemistically translate as “door-to-door soil analysis,” where rural farmers can send soil samples to an urban laboratory through a mailing service and within ten days receive a soil study and technical recommendations for the chemical fertilization of a particular commercial crop. See “Análisis de suelo” (2017). I thank my colleague Julio Arias Vanegas for drawing my attention to this article.

<sup>10</sup> I am reminded of Achille Mbembe’s description of Fanon’s situated thinking as “metamorphic thought” (2017, pp. 161–162), and the co-constitutive relationship that Paulo Freire (1970) proposes between knowing and learning. I thank my colleague Tania Pérez-Bustos for connecting me back to Freire’s critical pedagogy.

<sup>11</sup> See Green (Ed., 2013) for further discussion about the decolonial possibilities that may emerge when environmental sciences push beyond simply selecting pieces of “alternative” or Indigenous knowledges that appear to match up with scientific knowledges.

<sup>12</sup> In his ethnographic exploration of environmental politics in present-day Hong Kong, Tim Choy (2005) alerts us to the fact that the imperative for scientific expertise to perform its “local appropriateness” may be a relativist critique already inhabited by the postcolonial state.

<sup>13</sup> I am in no way arguing that postcolonial scholarship and subaltern studies have not been influential among political activists and scholars in and of Latin America. However, my research is informed by a genealogy

of Latin American critical theory, which includes dependency theory, liberation theology, participatory action research, and a current of thought or movement that is sometimes referred to as *pensamiento latinoamericano en ciencia, tecnología y sociedad* (Latin American thinking on science, technology, and society). See also Subramaniam, Foster, Harding, Roy and Tallbear (2017).

<sup>14</sup> I refer to this encounter as anecdotal in the sense that it is defined by my possible and partial access to the literature in the South, considering that the circuits of knowledge circulation tend to privilege North-to-South trajectories and not South-to-South fluxes (Femenías, 2007).

<sup>15</sup> I refer here to the work of feminists reflecting on decoloniality such as Latinx feminists working in the North, like María Lugones (2008), Breny Mendoza (2010), and Isis Giraldo (2016); Latin American feminists based in the South, like Marta Cabrera and Liliana Vargas Monroy (2014), Ochy Curiel (2007), and Silvia Rivera Cusicanqui (2010); and feminists from the North living in the South, such as Catherine Walsh (2004).