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Science and Technology Studies and Affect in the Wild

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Expanding on comments made at last year's Society for Social Studies of Science (4S) Meeting on a panel recognizing Donovan Schaefer's *Wild Experiment* as the winner of the Fleck Prize, this article explores the book's adjacencies in order to tell a "wild" story about place, Indigeneity, colonial sciences, messy methods in science and technology studies, and the implications of how affect is composed in words and worlds.

Introduction

Donovan Schaefer's *Wild Experiment* repeats the motto "there is no thinking that is not feeling" (2022, 5) across a dizzying array of histories and theoretical weaves: from scientific biography and science and technology studies (STS), theories of affect and affective neurosciences, to secularism or religious studies and scenes of conspiracy. The book is a page-turner. Something you might stay up all night to read. Its bare-bones point—spoiler alert—is that all knowing is feeling and can thus be contaminated by public moods. In the thick of this, science fine-tunes "truth" through mixed feelings; the pleasure of knowledge clicking into place is pitted against the fear of getting things wrong. Schaefer calls this "cogency theory." As a feminist STS theorist working in Indigenous studies and the editor of an international affect studies journal, I have big stakes in the constellation of disciplinary problematics *Wild Experiment* maps. Riffing on comments made at last year's 4S meeting on a panel recognizing Schaefer's book as the winner of the Fleck Prize, I want to tell a wild story that jumps off from the book's argument. I call it "wild" because it's messy, half-finished, and unfaithful to Schaefer's citational arc. But also because I am invested in unruly versions of STS and affect studies: a wide, almost "animist" sense of material semiotic affectibility.

Telling a wild story from the book's edges helps me to make connections to alternative empirics: the task of reimagining STS with non-Western terms and analytics (Law and Lin 2017) and of honoring "native science" (Cajete 2000), those ways of knowing that braid feeling, spirituality, natural history, and polity. These animating imbrications of local and global often risk domestication in STS's methodological symmetry. And while Schaefer (2022, 5, 9) asks cogency theory to explain "both truth and error" via the "felt weight of facts," we ought not forget all else that composes a scene of inquiry—including the multiple realities that clash in specificities of practice (Mol 1999).

I live in a coastal seaport city of towering glass condos, bubble tea shops, dog parks, and luxury retail. The rural surrounds are sites of intensive agricultural production, logging, mining, fishing, and fracking—but also home to fierce Indigenous resistance motivated by hereditary and diasporic ways of knowing that see lands and waters as kin. Wet'suwet'en put their bodies in the path of the Coastal GasLink Pipeline. Tŝilhqot'in take Taseko's New Prosperity open-pit mine to court. The Pacheedaht protect old-growth forestlands at Fairy Creek. In my urban neighbourhood, Chinese immigrants and Italian seniors grow prolific container gardens for food and medicine in alleyways sandwiched between boxy 1970s houses known as "Vancouver Specials." Stone Bhuddas and Virgin Mary statues adorn overgrown or graveled-over front lawns. Just down the hill, health food shops and community acupuncture clinics are being bulldozed to make room for the multi-million dollar homes of doctors and tech bros. Amidst these variegated lifeways and extractive frictions, science is tied

to economies of progress: social entrepreneurships, smart city logics, public health apps and algorithms, post-scarcity notions of sustainability.

Wild Experiment's intervention matters to how empiricism and secularism overlap in mainstream science as feelings of truth that determine how difference is governed—but even moreso to how "evidence" is too frequently quarantined from the intuitive or felt across sites of postcolonial scission to the lived detriment of Indigenous and immigrant knowledges. Gendered, racialized, and anthropocentric notions of reason are a well-rehearsed story: land and its nonhuman, more "native" inhabitants are irrational, moody, driven by tides, seasons, and mysterious cosmic cycles. Science saves the day by engineering repeatable conditions from this mercurial mix. How then do we account for small practices of resistance, those "pseudosciences" of survival that grow between the cracks? Defending lands and waters as living relatives. Saving and sharing non-GMO seeds for home remedies. Makeshift infrastructures of care that include weird syncretisms and messy spiritualities. As I iterate through this "wild" story of my own with *Wild Experiment* in tow, I ask what "different yield" (Hogan 1994) is made possible by putting science in the plural alongside Indigenous and other felt empiricisms like Traditional Chinese Medicine. On one hand, this move echoes Schaefer's sense of science as felt and "durable relationship[s] with the things around us" (2022, 11–12). On the other, durability is inevitably textured by practices at odds with the secularisms, atheisms, and "nonreligious improvisations" Schaefer (2022, 229) envisions as a means to "explore and retune our bodies" toward better sciences. Where I live, Indigenous territory bears the scars of knowledges made durable or killed off. Bodily landscapes are palimpsests of violence too. The ways in which "thought feels the prospect for concepts" (Manning 2008) amidst neurodiversity and within both small everyday practices and wider historical processes matters. I'm not sure Schaefer's cogency theory is the right conceptual toolkit for marking and living out these differences—or that locating truth as feelings in bodies or brains can ever get at the wilds of subjectivity where otherwise worlds insist and grow. In indeterminate scenes of living, so much more is at always work. Erin Manning (2020, 98) writes: "it is this muchness, this massiveness, that we need techniques for."

Techniques for Heterogeneity

Science is made in motley ecologies of practice, across vast materialities, with agendas and power-trips. Religion too. It takes a lot to hold a world together. The weaves of matter, mood, and meaning that make up our knowledge spaces are too big or barely perceptible, variously entrenched, and require much coordination of moving—sometimes slippery—parts. For both science and religion, change is at the mercy of histories already composed and in process. Both are guilty of methods that uproot situated stories and put them to work

reproducing more of the same (Haraway 1997; Law 2015). There are other ways to do science, of course: non-innocent encounters with the objects of technoscience, partiality and concern, slowness and listening, more expansive kinships (Despret 2016; Haraway 1997, 1988, 2016; Latour 2004; Stengers 2018). Anticolonial theological postures likewise help undo imperial Evangelicalisms, center Indigenous sciences, and foreground ecologies of belonging (Curtice 2020; Krawec 2022; Mendoza and Zachariah 2022; Woodley and Sanders 2020).

As Schaefer rightly notes, there are reasons to clamp down, to set boundaries or limits. Deepfakes and anti-vaxxers. Insurrection. Climate apocalypse. Evidence-based forms of democracy tenuous or on the brink. Across the political spectrum, feelings reel. How to better put secular science and religion (or conspiracy) together, both theoretically and in social practice, is perhaps never only a matter of foregrounding seemingly siloed but similarly productive internal logics (e.g. Latour 2013). Especially when theoretical physicists get spiritual or geneticists and surgeons go full God-complex. Collusions of science and secularism inform biotechnological, algorithmic, and other technoscientific chains of practice that are felt "religiously" at the tail-end: megachurches resisting vaccine mandates, genocidal drone strikes on Gaza, Christian nationalisms stoked by puberty blockers, AI-driven layoffs, or 5G.

While actor-network theory successor projects and other STS approaches have opened up facts to show their inner workings and disclosed the ontological politics at play in coordinations of reality across labs and fieldsites (where even cosmologies collide), they are not always attentive to "pleasures, pains, ecstasies, fears, ideals, dreams, or passions" (Mol 2014). Of the many "great divides" (Latour 1991) science studies has undermined, the rift between reason and emotion can sometimes slip under the radar. Schaefer (2022, 4) writes:

> Although science and technology studies (STS) has spent half a century showing that science isn't just what's in our heads—that knowledge production is always practical, social, and embodied—almost no work has been dedicated to exploring the relationship between knowledge-making and *feeling*. STS pioneer Bruno Latour, for instance, for all his sophisticated accounts of how science is made by coalitions of human bodies and nonhuman actants, still argues that science is *emotionally inert*. Even affect theory (the scene of some of the most interesting contemporary conversations about feeling) often seems to offer a funhouse mirror of common sense, recapitulating the assumption that feeling is separate from thinking.

Here, I have to make a gentle dig at Schaefer's opinionated join of STS and affect studies. Both have well-established techniques for heterogeneity that necessarily include feeling when appraising *and* making knowledge. Feminist STS cultivates a "feeling for the organism" at odds with cultures of extraction or dissection and

is more in tune with place-based Indigenous knottings of empiricism, spirituality, and care (Evans 2021; Keller 1983). Multispecies work is a training in capacities and feels: "caring for, being affected" (Haraway 2007, 36). STS case studies are packed with methods like "implosion" (Dumit 2014) and figuration (Haraway 1997) that are shot through with feeling as they map distributed and far-reaching material semiotic interdependencies across knowledge infrastructures of every kind. And, while not considered STS proper, archives of feeling and felt theories contend with racialized and gendered community knowledges that work against the sciences' moral hygienes, public pathologies, and more "modest" forms of witnessing (Cvetkovich 2003; Haraway 1997; Million 2009).

One way of reading Schaefer's complaint is to foreground how both STS and affect studies refuse the primacy of any given object in a scene of inquiry: symmetry. This is not about engineering epistemological parity or flattening ontology. In contemporary STS, symmetry is a way to approach noncoherence and complexity without a predetermined or singular analytical frame or set of methods (eg. Law 2004, 152). It requires paying attention to how differences are generated in weaves of relationship, across entangled agencies, with multiple meanings—all while reflexively tracking what our own (and others') methods include or make absent. After all, feelings show up in specific practices or as part of assemblages jam-packed with everything else: histories, bodies, concepts, technologies, media objects, dreams. It seems to me that Schaefer sees feeling as the not yet fully recognized end-all, be-all driver of knowledge production. But Latour's STS of emotionless chains of technology or affect studies that bracket feeling from thinking (or put them in assemblage) are not making ontological claims. Rather these are methodological moves and philosophical propositions with ethical dimensions: techniques for thinking and feeling differently in animate worlds.

"A Different Yield"

Places are wild assemblages to think from. I live in one of the most secular cities in Canada. Vancouver is gridded with Teslas at EV charging stations, yogawear retailers, and lush greenspaces. Downtown, you might see rich white couples wearing worn-out Patagonia pullovers, Mandarin-speaking luxury real estate moguls, Australian or Irish twenty-somethings on working holiday, and the rest of us hustling to pay rent. On the Eastside, the streets are lined with needles and tent encampments. Six lives are lost daily to fentanyl overdose. Each Valentine's day, hundreds gather here to march in memory of missing and murdered Indigenous women, girls, and two-spirit people. Chinatown's herbal apothecaries and seniors' homes are rapidly gentrifying into luxury apartments. Nearly a thousand global mining corporations are headquartered in the city. Headed to steelworks in the Asia-Pacific, coal moves by rail from southeastern mines to our outer-harbour superport, leaving toxic tailings and a long trail

of carbon emissions. In the canyons and benchlands beyond, a half-million acres of Indigenous territory are clearcut yearly for timber. More than 25,000 fracking wells and their tangled network of access roads and pipelines snake through our coastal, alpine, and boreal forests. All of this fuelled by the "great advantage of neutrality" (Policy Horizons Canada 2013, 6) that evidence-based joins of science and democracy are said to provide.

Yet, these lands have been continuously tended by Indigenous peoples for ten-plus millennia through a range of tribal processes marked by ceremonial relationships with an "interacting continuum" of landforms, bodies of water, flora, fauna, meteorologic processes, and spirits (Gisday Wa and Delgamuukw 1989, 7). Meanwhile, Canada's federal, provincial, and civic governments have made reconciliation the goal of state-Indigenous relations under the ambit of a multiculturalism in which mainstream sciences get the last word on nature (e.g. Latour 2002). This of course includes land and how it is instrumentalized or conserved. It includes the immunization or sacrifice of bodies, human and otherwise. So long as the witchy alternatives—spirits, talking animals, the medicine bundle—are barred ontological status they can remain in the mix. Again, a story about how difference is governed.

One of *Wild Experiment*'s overarching themes is conspiracy theory. In Canada's Pacific Northwest we have our fair share. Mid-pandemic, a convoy of racist anti-vaxxers and QAnon supporters mistaking Evangelical agendas and Twitter aphorisms as hard science filled the streets, eventually converging on the capital. When Schaefer (2022, 9) writes, "our spectrum of confidence and conviction is always constituted by feeling." It is hard to disagree. This is never more obvious than when we march in the wake of George Floyd's murder, occupy campus lawns for Palestinian liberation, watch hate-spewing Trump rallies on Fox, or hear "trad wives" rant about Drag Queen Story Hour on TikTok. These are not mere cultural differences. Lands and bodies are on the line. Admitting that "thinking feels" (2022, 6) may well safeguard necessary forms of consensus from post-truth with more sober emotions (while making a good case for therapy). And to this end, Schaefer argues that "it's dangerous to cut off contact with science" (2022, 7). In a world already conscripted by technoscience with mortal stakes—life-saving drugs, agricultures of scale, labor automations, climate mitigations—this might hold true. But when science and the state are ontologically aligned, how are we to index or account for subversive forms of racialized reason embedded in "evidence-based" governance? How can we adjudicate feelings of truth in conspiracy versus, say, Indigenous lifeways that answer the question "who gets to be a person" (Wilkinson 2017) with rivers, rocks, and trees or Chinese medical syncretisms that cure depression with needles and bitter herbs that move invisible Qi?

Like Western science, these knowledge practices have their own in-built agonisms or self-correcting checkpoints for appraising the "felt weight of

facts" (Schaefer 2022, 9). They are after balance as a matter of life and death. Much work has been done to bridge mainstream and non-Western sciences, from studies of Indigenous spirituality and mental health to clinical trials on the efficacy of herbs, moxibustion (burning mugwort over specific points on the body), or Tai Chi for Qi-deficiencies caused by COVID-19 (Fleming and Ledogar 2008; Ren et al 2021). No doubt Western science "edges ever closer to acknowledging the intangible, spiritual quality of matter and the intelligence of animals," as Vine Deloria Jr. writes (2001, 3). But is science's stamp of approval just another colonial gesture? Instead of imagining a day when science finally "verifies" animism, we might think with Isabelle Stengers (2012, 3):

> Only a "belief" can receive such a global name. If the adventurous specificity of scientific practices has been acknowledged, no one would dream of addressing others in terms of the "beliefs" they would entertain about a "reality" to which scientists enjoy privileged access. Instead of the hierarchical figure of a tree, with Science as its trunk, what we call progress would perhaps have had the allure of what Gilles Deleuze and Félix Guattari called a rhizome, connecting heterogeneous practices, concerns, and ways of giving meaning to the inhabitants of this earth, with none being privileged and any being liable to connect with any other.

Stretching the term to include "any organized system of knowledge," Schaefer (2022, 6, 11) is likewise attentive to how science "rubs elbows with other everyday modes." Even still, as he catalogues conspiracy feelings or more even-keeled scientific passions, Schaefer reads affectibility through neuroscience and experimental psychology in order to prove that cognition includes emotion. But as I see it, recognizing that "we are not alone in the world" requires a more radical (even radicle) redistribution of the capacity to feel, to act, and to prove: not merely from brain to world, from individual to "luring assemblage" (Stengers 2012, 6), but until "to" and "from" lose the too-ready presumption of their directional vectors.

In a devastatingly beautiful reflection on science, feeling, harm, and repair, Chickasaw poet Linda Hogan tells stories about corn. First, as a child, listening to the rustle of stalks swaying in her uncle's field. Later, of geneticist Barbara McClintock who knew her plants "in the way a healer would know them." Or, corn as grandmother: a kiva in Chaco Canyon where ancient maize replants itself yearly, defying time. While Hogan (1994, 72, 79) observes an impetus in contemporary sciences for "intuitive processes of discovery," here she is after a "language of that different yield." This is not an extractive harvest. Rather, it responds to the voices of "wind, dove, corn, stone" and the pull of "earth and life" (1994, 77, 80). She writes: "The stalks of the corn want clean water, sun that is in its full clean shining. The leaves of the corn want good earth. The

earth wants peace. The birds who eat the corn do not want poison. Nothing wants to suffer. The wind does not want to carry the stories of death" (1994, 80). Here, everything desires, affects: a powerful material semiotic yield.

In the apposite context of New Atheism and its violent dehumanization of Muslims, Schaefer engages animacy too—those registers of speech and ways of feeling caught up in multispecies hierarchies of agency and value. Thinking with Mel Chen, he writes:

> As an example, Chen offers the phrase "the hikers that rocks crush" (2012, 3) noting that it registers as viscerally wrong to English speakers because it violates our implicit preference to organize sentences around what we perceive to be *subjects* rather than *objects*. This reveals the way a *felt* register of who and what matters (and who gets to count as a *who*) is woven into the seams of language. (Schaefer 2022, 72)

But how might *Wild Experiment* come to bear on the problem of animism in its most Tylorian sense as "an idea of pervading life and will in nature far outside modern limits . . . animating even what we call inanimate bodies" (Tylor 2010 [1871], 260)? From the very moment culture was cleaved from nature in anthropology's colonial emergence, the sciences have been hell-bent on pathologizing those who talk to trees and rocks—what Leroy Little Bear (2011) calls "native science." Put another way, what does the claim "thinking is feeling" yield in the company of other sciences that already comprise millennia of attention to more-than-human feels, to bodily rhythms and pulses, to durational and patterning relationships with more or less subtle energetic ecologies: folk or anecdotal knowledges, Indigenous "animisms," Traditional Chinese Medicine, or Ayurveda? Science made plural need not fully quarantine itself from conspiracy—even as a matter of persuasion or public feeling. Rather there are many specificities of practice with better and worse effects to attend to.

Maybe I am asking a nitpicking question about how Schaefer collapses feeling and emotion as synonyms of affect in ways that stress the interiority of knowledge-making:

> My interpretation of affect theory is that affect is essentially *power*, understood not as an external, oppressive force but, following Michel Foucault, as fundamentally productive. Power is *what makes bodies move* (or binds them). *Affect* is a word for processes—beneath, beside, and within cognition—that register in awareness as feelings, emotions, and moods. At heart, power is affect, affect is power. Everything we do emerges out of an agonism of feelings . . . from the cyclone of small, felt pulses splashing across us all the time—a tug of longing, a pinprick of annoyance, a pang of grief—to thoughts, actions, decisions, moods, words. (2022, 19)

This feels somehow too restrictively personal—biologically coded or psychologized—for all that is activated or risked in scenes of knowing. How does power traffic—beyond body, beyond person—between, say, emotion and atmospheres of public feeling or the world at large? Or between pasts made durable and emancipatory futures? Schaefer (2022, 3, 19) answers with a "fully fleshed-out continuum" from feeling to practice across which the "micro-level delight" of knowledge falling into place is continuous with institutional or "macro forms." Yet, this too-quickly skims over the "heterogeneity between micro and macro" (Deleuze 1997). Rather than simply scalar or directional, power courses in the messy alongside of life already happening: force-guiding assemblages of matter, meaning, mood, and possibility. Here Gregory Seigworth's reading of Deleuze and Gauttari better articulates my position: "nothing much is advanced by finding everywhere the effects of power; something more is at stake when the task is, rather, to understand the . . . immanent assemblages that make the effects of power our actuality" (Seigworth 2005, 168). Do not forget: STS and affect already have techniques for heterogeneity.

To yield differently is a matter of wide affectivity. It might include small pleasures of knowledge coalescing, but is it endlessly more contingent than personal. What localizes as a pain point is the world impinging: things accreting, accompanying, shaping, receding. Native science knows this well. As Leroy Little Bear says:

> In a state of flux, in a state of constant motion, things never remain the same. Things are forever changing. If we stopped and thought about it, we live in a very narrow spectrum of ideal conditions. So in the native world, we try to renew those conditions that are ideal for our existence. The drumming, the singing, the dancing is part of the renewal. (Hill 2008)

By describing knowledge-making as an "ongoing process" and a "contest of forces," Schaefer (2022, 9) approximates the stakes of native sciences. He is never too far-off from the capaciousness of affect I am advocating (see Seigworth 2017). But my plea to yield differently stretches citationality well past genealogies of affect (and how they mesh or mess with neurological or ethological sciences). It is first a question of the larger set of affectivities enrolled in appeals to science's "calm passions" (Schaefer 2022, 39). This would include all that it takes to make knowledge, good and bad: the histories, landscapes, bodies, moods, machines, ideas, institutions, and transitory systems of power situated in relation to each (e.g. Deleuze 1997). Second, but no less important, it concerns the kinds of figures that populate our writing—the brain, the scientist, the animal—and what allegiances they bind. More than any feeling of "truth," these material semiotics condition what can be felt, noticed, acted on, renewed.

So, the question remains of how to run with the claim that "thinking feels" while accounting for science's bad side effects: lab rats, addictive pills, shitty bedside manner, racist algorithms, nuclear weapons, Elon Musk's plans to colonize Mars. My story tells of homelands carved out with mine shafts and fracking fissures, poisoned watersheds and clearcuts. But also of ceremony and multispecies care. Putting science in the plural surfaces noninnocent specificities of practice. It poses the question of how knowing as feeling is inflected by bodily, cultural, technical, even cosmological infrastructures. I am on board with Schaefer's project to "animalize cognition, language, and rationality" (2022, 20). One hundred percent. I see a reparative promise in the politics that might proceed from it. But, even more, *Wild Experiment* should be read in the company of feminist material semiotics and other-than-Western sciences that account for how subjectivities and animacies are forged across wider, wilder affectivities: those "technical, textual, organic, historical, formal, mythic, economic, and political" assemblages that "bend our attention, warp our certainties, and sustain our lives" (Haraway 1997, 68).

To hitch power, pleasure, and knowledge to subjectivity is not enough: the world is so much. In a set of notes addressed to his friend Foucault, Deleuze details where his philosophy of immanence veers off from those power-laden passages of *La volonté de savoir* so crucial to Schaefer's cogency theory. Instead of pleasure, Deleuze (1997) speaks of desire:

> it is but one with an assemblage of heterogenous elements which function; it is process, in contrast with structure or genesis; it is affect, as opposed to feeling; it is "haecceity" (individuality of a day, a season, a life), as opposed to subjectivity; it is event, as opposed to thing or person. And above all it implies the constitution of a field of immanence . . . which is only defined by zones of intensity, thresholds, gradients, flux.

A different yield indeed.

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