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Promises of Cyborgs: Feminist Practices of Posthumanities (Against the Nested Crises of the Anthropocene)

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ABSTRACT

The cultural technologies of gender, race and empire drive much of the present Anthropocene crisis, now and in the past. Everyday algorithms reproduce and multiply our cultural biases on a global scale. Anthropocentrism, humanistic supremacy and individualistic territorialism are rampant, making us all less humane. Society awakes slowly from the modern illusion of categorical identities and divides that keep nature from culture, human from animal, environment from embodiment, technology from biology and arts from science and society. The argument here is for taking stock of ways of cyborg knowing—also beyond the academic confines. It is time for new knowledge integrations forged in intellectual generosity. The cyborg, as a discipline-crossing figure, proposed theory-practices and practice-theories for how to readjust our high consumption, high energy and hyper-instrumental society, and ourselves, adaptively. In this piece, I proposed that feminist STS and cyborg knowing work as a prominent entry into the transformative multiverse of feminist posthumanities in practice.A

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We live in troubling times in need of multiple approaches and versatile research. The climate crisis is no longer a future prospect but unfolding before our very eyes, crossing boundaries and setting CO₂ limits of all kinds. Higher temperatures, melting polar ice caps, flooding and wildfires wreak havoc with increasing frequency. The most vulnerable peoples, those of racialized and feminized poverty and a long legacy of exploitation in the Global South, are invariably hit the hardest. Exploitation and extractivism seem out of bounds, no limits to growth accepted. In addition to increasing mass-movements of migrants in the world, to income inequalities and global polarization, we also see a resurgence of white nationalism and right-wing populism. We bear witness to a renewed European war in Ukraine, to the violence of old and recurring Russian imperialism working alongside longstanding Euromodern and white settler supremacies of the Global North. The number of weaponized conflicts and border breaches seem to have doubled in the world over the last 10 years. Just now, the Hamas terror attack on Israel makes for mayhem, overkill and slaughter of Palestinians in Gaza. This, in turn, is prolonging the conflict for future generations. The world is war ridden again. We also face energy crises and environmental problems, such as oil spills, harmful toxins, gas leaks, loss of biodiversity, migrating (nonhuman) species and sea eutrophication (to me, the close-by Baltic Sea is a global worst-case contender), the contamination of drinking-water and urban air pollution—not only here in Sweden but all over the planet. The global COVID-19 pandemic recedes with looming threats of *new* multispecies contagions appearing (from our

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disrespectful treatment of nonhuman animals all over the world). It could be new strains of swine and bird flu or antibiotic resistant bacteria (like MRSA, MBD-TB). There are many possible contenders. In Sweden, the remaining wolf population is inbred, hunted and soon extinct (again). Common moose populations are also dwindling fast, much at the request of the mighty forest plantation industry here, while new numbers of wild boar with highly transmittable “African swine flu” soar (that wolves as apex predators could help mitigate). Contagion mocks species and national borders and defies human categorizations. There is a genuine lack of relational insight into the cascading ecological effects to how things are connected.

The troubles of the world respect in fact today’s few boundaries, they save neither bodily, national or disciplinary integrity. Amid these nested crises, our news, information, knowledge and social media channels provide angles and perspectives in ways that often reflect back to us our all too narrow preferences and world views. They mirror and exaggerate our own limited sense of self in a world full of rampant individualism, even grandiose narcissism (Casale & Banchi, 2020). Boundary crossing problems, entangled in each other, define the present. To many folks, it is increasingly clear that some powerful members of the human species forge the environments of the world, but also that environments always make up people, corporeally, and all that to unknown effects. We struggle to adjust, trapped in identity politics, Euromodernity and conceptual blockages of culture *or* nature. So, what can we in feminist and gender research *do* about this in an age screaming for action but where every possible stance seems contaminated, impure, troublesome and non-innocent?

In a struggling world, riddled with nested crises and societal challenges, Donna J Haraway’s ground-breaking re-appropriation of the dirty power figure of the cyborg from the 1980s reminds me that proficient modes of addressing complex worlding problems have been developed before and remain available to us as *forms of cyborg knowing*. In what follows, I will try to unravel some of the conceptual threads central to Donna Haraway’s notion of the cyborg, which may lead to a re-consideration of her contribution to ways of imagining communities of knowledge amongst the ecologies and technologies of the now. At the end, I will try to sum up some lessons of cyborg knowing I believe also make us, as more-than-gender gender scholars, less susceptible to traps and charges of identity politics.

Today, the works of Donna J Haraway often play nicely with Science and Technology Studies (STS) and feminist theory practices (Haraway, 1994), with interdisciplinary humanities and social theory at large, and in this short piece I want to revisit and highlight Haraway’s cyborg concept in the light of some contemporary knowledge practices. Not so much for what it was, but I want to briefly trace the cyborg back *for what it did* and for what kind of postdisciplinary and extra-academic research it still enables today. Our time is wide open to new conversations and new synergies of cyborg knowing, to the exploration of alternatives for how our scientific and other epistemic communities are ordered (to echo Lucy Suchman), to revisiting and re-tooling analytical toolboxes and to new configurations of knowledge. This is why I argue that cyborg knowing still has untapped potential for feminist and gender scholars as a generative and generous mode of thinking and doing knowledge integration in an impure world.

More than ever, boundary-crossing cyborg ontologies map the present and the all too human re-inventions of nature we could describe with the term “Anthropocene” (Zalasiewicz, 2019). The cyborg signals to me the needed re-invention of the arts, humanities and social sciences so to re-imagine culture, society and human identity in ecological and technological terms. It infused feminist interdisciplinarians like myself with the incentive to situate people in ecological context and nonhumans in cultural context in our research (Plumwood, 1994). It emboldened me to imagine more-than-human feminism and more-than-gender gender studies that move us across borders and boundaries. I suggest it still works as such, in useful ways for the myriad of nested challenges we face today.

Various kinds of what we may call *cyborg knowing* flourishes in fact today, under several academic banners and names. A few examples are variations and kinds of so-called New

Humanities, or feminist practices of posthumanities (as “extra-humanities”, e.g. techno-, bio- and eco-logical arts and humanities), critical posthumanism of many kinds, (feminist) New Materialism, natureculture research, and feminist environmental humanities as intellectual meeting places of art, society and science.¹ The ontological turn in feminist theorizing, in critical posthumanism, new materialisms and in the works of Diana Coole and Samantha Frost (2010) has been decades in the making (Åsberg & Lykke, 2010), and it was always also an ethical and an epistemological turn, *demanding a new organization of academic knowledge*. Cyborg knowing thrives presently as an attitude of “staying with the trouble” (Haraway 2016a), a “double vision” to the ambivalences of the integrative political ecologies and technologies of the now (Haraway, 2013). My aim here is to trace and revisit cyborg knowing for what onto-epistemological approaches it may have enabled in research, to map out the more-than-human, less academic perhaps, and *more humane* promises of cyborgs today.

It is a well-known story by now in STS, and in some strands of Gender Studies, how the cyborg broke down hierarchical dualisms and oppositions between organism and machine, nature and culture, body and technology, female and male, human and nonhuman, imagination and material reality (Åsberg, 2007; Balsamo 1996; Franklin, 2006; Oudshoorn, 2020, 2021). More like lived reality than a mere metaphor for how technology co-constitutes contemporary worlds and identities in the making, Haraway’s cyborg invited a creative critique and a critical creativity to our research. It induced a performative playfulness with serious political issues that rubbed off in scholarship and made waves. Haraway’s cyborg heralded the ontological turn of critical posthumanism and (feminist) new materialisms of all kinds. It did so without giving up on, instead harnessing, earlier insights from social constructionism, Marxism, anti-colonial feminism, cultural semiotics and the humanities. This is already a major lesson of the cyborg. Yet there are more.

Enter Cyborg

Basically, the cyborg to me is a great pedagogical starting point for students of history of science and technology, feminist, queer and anti-colonial theory and gender studies, social studies of medicine, media and technocultural research at large. In my years of cross-faculty teaching at a few Scandinavian and north European universities, it has also worked surprisingly well for students of biology, engineering, design, new media, sustainability science, medicine and nursing. It invites discussions on relational ontology, epistemology, (breaks with) Euromodern history and theories of subjectivity and subjectivation, ethics, power and resistance in the “matrix of domination” (Collins, 1990). Especially so if we read Haraway’s “A Cyborg Manifesto” (as ontology) alongside “Situated Knowledges” (as epistemology), as we tend to do.

Published in 1985 for *Socialist Review*, the cyborg manifesto grew into a prophetic meditation on how cybernetics and digital technologies changed everything—from how we do gender to how we connect across the globe. A social media influencer in Stockholm today uses a phone assembled in China with rare earth minerals extracted in Congo to access a platform moderated by Filipinas and line pockets in Silicon Valley. Recent technologies of desire for connection, affiliation, exploitation and solidarity both break and re-draw boundaries of all kinds. New media divides people as much as it connects them. Yet a cyborg-inspired critique of this ambivalence may also link people, re-tool our techno-imaginary and forge new boundary-crossing epistemic ecologies. There are distinct aspects of science fiction, of storytelling practice, to the science facts of cyborgs. It pivots on the values of embodied technology and the stories we tell ourselves and others about the power of technology to make change in society. And Haraway (2016b:35) reminds us that “it matters what stories tell stories”. Haraway’s second most influential essay, on situated knowledge, appeared a few years later and provided an epistemology to the cyborg’s ontology. It is all about acknowledging the limits to what can be known and about how ways of seeing (instrumentation and perspective) shape insight. To Haraway, knowledge is always situated, envired and embodied in a particular

geopolitical, historical, instrumental and “naturecultural” context. It is limited and purposeful, a way of storying exposure (Åsberg, 2023).

Both texts, making up “cyborg knowing” here, appear in Haraway’s widely translated 1991 book, *Simians, Cyborg and Women*, with the under-appreciated subtitle *The Re-Invention of Nature*. I read it as indicative of Haraway’s attempt at finding common ground amidst difference. Finding common ground with situated knowledges becomes important as cyborg knowing takes place inside battlefields. Haraway’s writing and conceptual work seems largely forged, as she tells, “inside worlds at war” (Haraway, 2004, p. 2). She was born after World War II, and wrote amidst the Cold War, the Science Wars, the war on terrorism, and the ongoing conservative Culture Wars in the USA. We might, or we might not, today want to add the war on climate, environment and on biological diversity, the war on refugees, indigenous communities and native land rights, the anti-trans and anti-gender sentiments spreading with right-wing populism and the financial crisis of the arts and humanities. “These worlds at war are the belly of the monster from which I have tried to write into a more vivid reality a kin group of feminist figures” (*ibid*), Haraway writes to contextualize her kennel of cyborg kin concepts. Cyborg knowing may, in such a situation, create common ground for how to deal with how *old dreams of a common language* built on nostalgia, modern categories and ideals of purity. A working example may be the very conception of art and the humanistic notion of creativity residing inside a bounded individual (an author, an artist, even a genius) that is now getting overhauled by artificial intelligence (AI). The image conventions of art and mass-culture online make for the proverbial common language, algorithmically reinvented and regurgitated to us as generative or creative AI art.

In a research project on creative AI and the artistic imaginary, we have in my group a subproject on AI image generators, like MidJourney, DALL-E 2 or Stable Diffusion (Jääskeläinen et al., 2022, 2023). At large, we look at creative AI in music, dance and image-generation for how it transforms the craft and shift power. Visual AI enable, however, at least in theory, a complete reimagination of the all too humanistic image of gender, race, and human (species) individualism expressed *at the locus of the face* (Barthes, 2007). A focus on face and faciality enables research questions on personhood and subjectivity beyond the all too human frameworks. AI systems of all kinds are of course already integrated into everyday human life, so this is not a futuristic scenario of visual culture we explore. Rather as I describe ongoing work, there is a risk it is already out-dated as you read it. Such is always the risk of cyborg knowing.

One type of AI for facial analysis, a technology of recognition, is a common application on most mobile phones for unlocking it and for tagging photos on social media automatically. To a larger degree than we might think, society enfolds already today on these technologies for securitization and surveillance of borders. Face shape, features, skin colour, movements and make-up are captured, analysed, and compared and matched with classifications (in terms of gender, race, scars, geometry and even inferring sexual orientation) against databases (Kosinski & Wang, 2018). AI is also a productive, generative technology creating images of faces and individuals (people, but also cats and horses) never to have existed.² This machine fantasy could hypothetically turn out to be enormous, with billions and billions of calculated combinations put into play. Any face is possible, and deep fake videos (often as revenge porn) are almost already the new normal. Open-source image generators are presently up-setting artist communities for how textual prompts are used to trawl the internet for image content, to make cheap art and facile graphic renditions, without regard for neither the profession, craft, copy rights nor for the more or less unsustainable energy-consumption it takes to run massive server-halls for algorithmic computation of this magnitude. AI has also become a grand public narrative, a very dividing story of identity-forging technology that we tell ourselves and others, and it is a story about technology’s societal power told *in medias res*. Clearly, here it matters what stories tell the AI-story.



IMAGE 1. Example from ArtBreeder in an image-generating experiment by Petra Jääskeläinen for Jääskeläinen & Åsberg 2023. Racialization of non-white faces and heteronormative gender based on a continuum of maximum masculine or maximum feminine features.

Cyborg knowing enables us in this project to critique the visual culture of how these AI image generators routinely display systematic intersections of sexist, racial and heteronormative bias by way of design, prompts, and the stock photo of art and imagery already existing for the training of machine learning systems in the vast online world. Unsurprisingly, we get back from the systems the exaggerated and distorted mirror images of the block, stock and brand humanity that we put into it. AI imagery both mirrors and reiterates concepts of human identity, so it certainly matters to our cultural critique of how such imagery gets forged. Cyborg knowing opens us, in this project, however, to the possibility of queer, anti-racist, and feminist intersectional resistance to such stereotypes (amongst engineers, designers and artists), and it trains us to also discover the promises of visual excess. To paraphrase Haraway (1991, p. 154), the cyborg world of AI, surveillance and algorithmic bias is about “the final imposition of a grid of control on the planet”, about territory, war and “the final appropriation of women’s bodies” (as in the case of deep fake revenge porn or political campaigns on social media).³ From another perspective, it is also about embodied and lived social realities in which people are not afraid of neither “their joint kinship with animals and machines”, not of their “permanently partial identities and contradictory standpoints” (*ibid*). Overtly sexist and racist renditions (often based on porn) of our visual culture and self-image shape our sense of self as we reach out an extended arm for a cat-filter selfie to post on social media. In one sense, we then also play creatively with stereotypes and expressions of gender, art and species kinship, moulding a re-engendered cyborg imaginary.

Cyborg Knowing is Not Enough

Cyborg knowing, if I can really abridge Haraway's rich, versatile, and varied oeuvre like this, is about assuming there are more things going on than we could ever imagine or account for. It is about unlearning old categories of thought and inventing new epistemic practices based on modesty, partiality and a generosity of co-existence. Most importantly, cyborg knowing, besides its anti-essentialist and strategic community-building efforts inside worlds at war, invokes an ontological feeling of connectivity. A feeling that, "nothing comes without its world", in the words of Haraway (1997) and de La Bellacasa (2017). To some, this is a methodological invitation to embrace the ethics of connectivity. To others, this feeling is one of a daunting vertigo as it demands a lot of accountability and homework from us as readers, researchers, students and knowledge-brokers of the world. This cyborg connectivity means that knowing is inconceivable without the multitude of relations that make thinking and knowing possible. It means that knowledge is physically situated, embodied and embedded in locations, technologies, bodies and concepts, as well as in rhetoric, image creation and story-telling devices, and that objective truth always stays partial and limited but good to have, in heaps, for more graceful sociability.

To Haraway, progress in knowledge is not a bad word but the hard, scientific way of life (Haraway, 2004, p. 4). Knowing is social and imaginative practice, and it co-creates the surrounding world—enables a practice of worlding and re-worlding. There is thus a performative, world-making aspect to how cyborg knowing gets enacted. As such (as a feminist materialism in the American pragmatist tradition), it borrows from social constructionism (the strong programme), from ANT/actor-network-theory (the nonhuman) and standpoint theory but refuses representationalism. It makes for what Barad (2003) later described as an onto-epistemology of posthumanist performativity and agential realism.⁴ Nothing comes without its relational and co-constitutive world, making political ecologies and technologies of how we are all biochemical matter, and how we all matter, a core concern for feminist research. Cyborg knowing, as is clear from for instance Barad's theorizations and its many scholarly deployments in Gender Studies, enables a connective feminist research practice that aims to move humanities and social science research out of the position of delivering critiques *as if from a distance*, watching culture or society enfold as if not already complicit in it, in a detached manner. Entangled in the world instead Haraway's modes of cyborg knowing engages us from a position of wordly immersion, complicity and kinship. From this point on, cyborg knowing means acknowledging also vast unknowns and limits to knowledge.

A highly teachable principle of research permeates Haraway's opus, from *Primate Visions* (Haraway, 1989) to *Staying with the Trouble* (2016), that stories and matters of fact intermingle (facts are storied) and that it is daunting but possible to trace this worlding analytically as a political implosion of words and worlds (Dumit, 2014). Unpacking or unfolding a specific matter of concern, tracing its world, is still a cultural methodology of cyborg knowing that many students of STS, feminist research, environmental humanities and cultural studies struggle and come to terms with, and make their own. They are not alone in re-enchanting storytelling from a very interdisciplinary humanities perspectives. Even a decent paper in the experimental life sciences needs to have a "good story", one that supplies context and narrative, societal legitimacy and rhetoric.⁵ This implosion of fact and fiction, matter and meaning in an object-lesson is performative in itself, and a worlding device as well. Cyborg knowing is a critical worlding, situated with one object-lesson, location or concept at the time. To encapsulate the ethical attention to both vulnerability and to what (or who) gets affirmed and empowered in the process, I like to think of it as *storying exposure*. An analytics of storying exposure, informed by cyborg knowing, pays attention to both the wounds and the wonders of the world.

Exit Anthropocene, Exit Identity

For those of us who have been committed to the intersections of feminist theorizing, cultural studies, environmental justice and science and technology studies in the last decades, Haraway's

work, and perhaps in particular her “Manifesto for Cyborgs” (for its gate-way function as a portal to endless education, curiosity, re-reading and worlding discovery), have simply been pivotal. To me, “the cyborg” seems a bit like the concept of the Anthropocene, also a term for the implosion of nature and culture, that has gained a lot of traction in humanities and social sciences. Both the cyborg and the Anthropocene have heralded huge shifts in how feminist researchers conceptualizes nature and culture, what gets to count as natural or as artificial/man-made or cultural. To environmental scholars of social science and humanities, the Anthropocene story encapsulates a lot of technoscientific facts about the growing weight of human-induced change on Earth. The Anthropocene, as a shorthand, details for instance CO₂ and methane emissions, agricultural pressures on land and sea, tropical forest loss, eutrophication (over-loads of nutrients causing algae blooms and deoxygenation), acidification and warming oceans. It describes an overlap of the challenges of climate change with biodiversity loss. It hints at over-fishing on the blue planet and that there, by some calculations, in a few decades there might be more plastic than fish in the oceans and more human-made concrete than biomass on the planet. The Anthropocene story alarms us to the upward trends since the 1950s and the “great acceleration” of these developments since.

An earlier (but strangely aligned) notion, Haraway’s cyborg index comparable developments in technoscientific society and technoembodied subjectivity. The focus was of course on the bio-power effects of technologies rather than those of altered ecologies or climate. Yet the core emphasis of both cyborg and Anthropocene is processual “natureculture” ontologies, forged in all too humanistic ways and opened to change and intervention (for better or for worse). The cyborg, like the Anthropocene, also invites rethinking natural and cultural research. It brings an incentive to boldly re-organize ways of knowing in ways that make us accountable, even embedded, and complicit in the worlding problem at hand. It’s not a comfortable position, for sure (Åsberg, 2009a). A case in point here in this paper are the feminist posthumanities as various forms and sets of cyborg knowing. It describes relentlessly postdisciplinary research in and beyond STS that bring art and science to interdisciplinary humanities and more-than-human feminism to people. Another case in point, next to the cyborg concept and pivot of this paper, is the very concept of the Anthropocene as both these phenomena lend themselves in this paper to revisions of the dream of a common language.

The notion of the Anthropocene, like the cyborg concept, leaves us with a lingering feeling of unease. It is not just that nature cannot be separated from culture that humans nowadays are in the environment and the environment (with its bodily toxins) in us, but also that perhaps *there never were any pure nature or pristinely human culture* to divide into cultural and natural disciplines or to start with. Both concepts are anti-foundational, pull the (identitarian and disciplinary) rug from under our feminist feet. We cannot go back to earlier states of idyllic existence as those are only retrograde phantasies of a paradise lost. Instead, we have to learn to embrace change as the condition of worlding. However, these two concepts come with different “luggage’s” and backgrounds, so let me briefly provide you with one out of many possible present introductions to the storied notion of the Anthropocene.

The idea of the Anthropocene started its present career in geological and climate sciences, coined in 1980 by ecologist Eugene Stormer and gaining fame in 2000 when Nobel laureate and Dutch chemist Paul Crutzen picked it up. In that sense, the Anthropocene and the cyborg turned out to be concepts generating whole new fields of research but also generating unwarranted associations at the risk of perhaps losing some of its critical salience as trendy buzzwords. I would like to turn this argument on its elitist head and point instead to how important reverberant and irreverent concepts can be for collective thinking—even if it generates unintended consequences and discomforts. (Such, in the case of the Anthropocene, when turned into merely a pious cult of guilt acceptance for human hybris, or porno-techno-fetishism in the case of the popularized, over-gendered image of the cyborg). Anthropocene is my case in point here as an exposure story still very much in the making.

As a storytelling device, the Anthropocene encapsulates a lot of scientific facts and numbers, difficult to digest, even one scientific discipline or area at the time. The consequences of their existence demand stretching thought and imagination across space and time to make distant connections, to envision seemingly impossible futures, almost unrelatable futures for life on this planet. As written by Heather Swanson, Nils Bubandt and Anna Tsing, this makes the concept of Anthropocene a work of science fiction. The word “anthropocene” and all that it describes tugs “us out of familiar space and time to view our predicaments as of they belonged to a distant land.” (Swanson et al. 2015:149)

Initially, the Anthropocene question to stratigraphers concerned whether human development had become such a force on the planet to create a geological record (mostly an imprint of Euro-modern man), calling for a new name for this all too human era (Zalasiewicz et al., 2015). Would, for instance, nuclear traces of radioactive blasts (such as those in the Nevada desert or over the Bikini Islands, in Hiroshima, Nagasaki or Chernobyl) or plastic particulates accumulating in the layers of Earth's strata warrant a new geological era? The term soon became heavily politicized as it intermingled with climate change discussions (Crist, 2013; Steffen et al., 2011). To some this stimulated activism and provided a starting point for discussions on how to remodel society in emancipatory and more sustainable directions (Cuomo, 2011; Klein, 2015). To others instead, it was not *specific* enough, even misleading, and moving away from crucial concerns about social justice and capitalism's responsibility for environmental changes (Malm & Hornborg, 2014; Moore, 2013).

Anthropocene, Capitalocene, Plantationocene, Wasteocene, Gaia, Chthulucene and the Great Acceleration; there are many names now for our global instability in academic circulation, and they all add a different emphasis. Where the Anthropocene place an onus to environmental and climatic changes caused in general by *humans*, the notion of the “Great Acceleration” to how *fast* ecological and biological diversity is dwindling with the legacies and aftershock of industrialization (Steffen et al., 2015), the concept of the Capitalocene (Moore, 2013) and the Plantationocene puts emphasis on networked capitalism and colonialism, and on the racial hierarchies of enduring environmental injustice. For instance, the extinction of over 50 million indigenous peoples in the Americas (called the Great Dying) in the aftermath of the arrival of colonial Europeans was so violent it left a distinct climate record. Terms like the Wasteocene (Armiero 2021) also underscore a hegemonic world-system, a “capitalist world-ecology” (Moore, 2013), adding an emphasis on toxic legacy and the imposition of waste on subaltern and more-than-human communities (see also Cielemecka & Åsberg, 2019). This richness in our collective terminology, labelling and underscoring a plethora of connected issues, is like Haraway's “Chthulucene” all made up of “ongoing multispecies stories and practices of becoming-with in times that remain at stake, in precarious times, in which the world is not finished, and the sky has not fallen—yet” (Haraway, 2016b).

To me this openness of political storytelling is the cyborg's gift to postdisciplinary research like *Environmental Humanities* (Bird Rose et al., 2012; Neimanis et al., 2015) or other forms of Anthropocene studies (Tsing, 2015), and a chance to get along together with some grace. Like cyborg knowing, *the Anthropocene-variations*, both risk and aver the risks of creating a new Master narrative and igniting collective action, spreading despair and the illusion of one single penultimate solution. In fact, what today might amass to Anthropocene social sciences, environmental humanities and Anthropocene feminism (Grusin, 2017), take us as scholars away, once and for all, from the romantic notion of finding *one* root cause and one concept to describe it all. To paraphrase from “Manifesto for Cyborgs”, our politics cannot be rooted in *identification* if we are many things simultaneously, *vanguard parties* if we are part of mass-movements, *purity* if we live in a postnatural world, and *mothering* if we do not wish to reproduce oedipal patterns of care as women's business (see Haraway, 1991, p. 219).

This giving up on identity, while insisting on the transferability of transformative insight from knowing together on location, is a form of postdisciplinary “rooting and shifting” for the sake of mobilizing strategic alliances, to borrow a term from feminist political theorist Nira Yuval-Davis (1997). This idea, of rooting and shifting, started out, however, as a concrete practice of “*politica*

transversale” amongst a feminist activist group living in Bologna, Italy, in the mid-1990s. They visited war-riven conflict zones to support women in other countries, in a programme they called “Women Visiting Difficult Places” (Cockburn, 1998). Like the cyborg concept, this transversal approach frees us from *unproductive* guilt trips, and from the need to root politics in *one* single problem (capitalism, gender, legacies of empire, technological determinism) and steep it all in a dream of a common language. Concepts that matter to us will do different jobs in different settings for different reasons, and it is naïve and counter-productive to try to for the last time settle the score right. Instead, we must make ourselves accountable for the change we want to see in the world by way of the storied matters we bring together, for different communities. This approach puts collective thinking, intellectual generosity and solidaric co-existence, as well as the political performativity of theory-practices *ahead* of academic prestige, clans and conceptual territorialism. It matters more *what the concepts do for different communities in different situations* than to what communities they position or belong to scholarly. The feminism of cyborg knowing (and a plethora of posthumanities) are methodological rather than identitarian. They point at a rich diversity of different critical and creative approaches in a more-than-gender register. Cyborg knowing is transversal practice. It is available to us in more-than-gender Gender Studies and perhaps needed more than ever.

You see, I think we are in deep trouble as feminist scholars if we teach a proud pessimism (oppression always stays the same) or support a scepticism of objectivity. Too many times, “situated knowledges” (Haraway, 1991) are misconstrued as a simple debunking of scientific objectivity or locally valid truth claims, when it is in fact an up-grade into “feminist objectivity” that embrace both feminist critique *and science*. Art, theory and science join forces in Haraway’s epistemology.

Cyborg knowing also take embodiment and processes of mattering and storying very seriously, making it less opportune to rely merely on discourse analysis, categorical identity politics and critiques of language *as from a learned, even cynical, distance*. Especially if there is no room for curiosity or real engagement with that which is being critiqued, no surprise or nuance in the results, making the answer to the research already given in a proud and pre-emptive form of pessimism. Cyborg knowing stays implicated, messy and dirty, looks for openings, changes, possibilities, and stays clear of any kind of proud pessimism (even if it stays “incurably informed” as Anne Balsamo (1996) termed it, of past atrocities and patters of power). Change is the material and semiotic starting point of cyborg knowing. There is always the possibility for change, for making a difference. In fact, change is built into the very chemistry of what makes the patters, us and the world. Nothing ever stays the same.

We simply do not know how the story ends. Yet, *how we tell it* will have an impact—and for that we need to be accountable, limited in our claims, and story exposures in ways that emphasize the change we do want to see. The scientific tools of most forms of research are powerful in that way, as performative engines of discovery and rhetorical devices of societal sway.

Companion Species

Cyborg thinking changed a lot of scholarly discourse in the decades after the 1980s, within, between and beyond academic disciplines. The connective cyborg is a prominent harbinger of the need to boldly work in interdisciplinary collaborative contexts, and on extra-academic patches of nested issues. It brings the necessary feminist theory to STS (on power and performativity, subjectivity and vulnerability, ethics and embodiment), and science to the humanities by way of feminist cultural studies of science and technology. To me, the formative convergences in Alaimo & Hekman, (2008; Alaimo (2010); Grusin (2017); Bryld and Lykke (2000); Franklin et al. (2000); Lykke and Braidotti (1996) to reference a few studies or collections of theoretical frameworks, are exemplary and highly educational. The rich work of Haraway, way beyond the early cyborg figuration and way beyond Haraway’s own community of Anglo-American scholars, has flourished *as practices* – also in the neglected margins of the privileged North. In its wake, synergies of ecofeminist ethics and queer

cyborg knowing found new ground in eco-cultural studies (Alaimo, 1994) and later, in environmental humanities and artistic research. Haraway's posthumanism transposed from (too bounded) cyborgs to the bio-ecologies of *companion species* (Haraway, 2006)

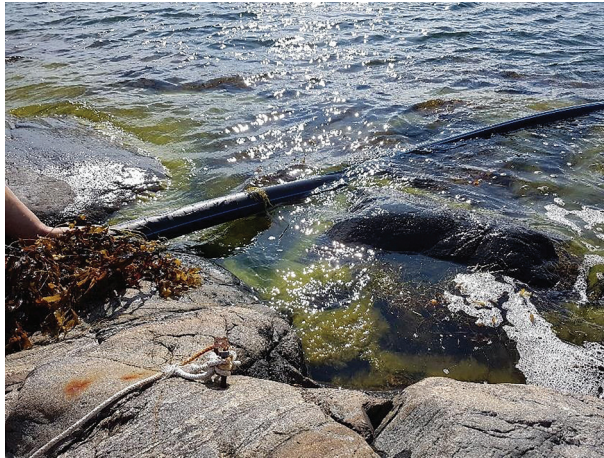


IMAGE 2. By Askö Lab in the Baltic Sea, green slick algae, bladderwrack, a cable and other traces of humans. Photo 2017 by the author.

Biodiversity loss, warming ocean waters and climate change are entangled issues that bring new kinds of ecological exposures to the cold and far-away northern shores of Scandinavia. Our society's dependency on sea and coast are hard to fathom, the mutual dependencies of our oceanic companion species relations a bit hidden from sight. Yet, they range the life sustaining work of carbon sequestration (oceanic algae outmatch rainforests, in removing CO₂ from the atmosphere and holding it in solid or liquid form), or producing the oxygen that we breath (again, oceanic algae, out-match rainforests), to enabling laboratory work and the very food we eat. It seems to me that algae, like algorithms, are embedded everywhere in daily life.

In projects on the "arts at the edge of the sea", we attend to such companion species stories in my research group. We bring on-board marine science, blue humanities and oceanic arts, and engage with the long-stretching Swedish and Scandinavian coastlines, the exposures of the Baltic Sea and the traffics of the Atlantic. Kelp and bladderwrack, invasive Pacific oysters and salmon and crab and mussel supply, for instance, rich object-lessons for storying exposure (Åsberg, 2020, 2023; Åsberg et al., 2020). Rotting seagrass, waves, ebbs and flows, shells, plastic waste, abandoned fish nets, flip-flops, and other junk, even washed-up military waste from earlier world wars, like sea mines or dumped canisters of arsenic-laced mustard gas, make for a strange multispecies community by the beaches of Gotland (Neimanis et al., 2017). Curiously, the wrack zone, where the sea meets the land, seems to index the modern world. The ubiquity of algal entanglements connects art and science, ocean and society, past and future on the blue planet, but our research picks up different local threads and follows them out.

To me, as I lick an ice-cream almost every day during summer weeks at the tiny fishing village Hunnebostrand, on the salty Swedish Westcoast, I too become with the sea and the sea becomes with me (a bit over-nourished). Oceanic algae are mundane ingredients, hidden but ubiquitous in much industrially processed food that we consume. It is present in most ice cream (and in beer, to make it foam), and "when I eat [it], it is the world that moves through me" to paraphrase Annemarie Mol (2021). Unpacking our mutual dependencies on the blue planet (as Earth really is a marine habitat first and foremost) can start from such a provincial sense of planetarity, a sense of bodily belonging to the sea by way of local algae and global technology. As theorized by Mol,

eating links site-specific individual patterns of consumerism with cultures and bodies, technologies, and food industries, politics of land with more-than-human ecologies. The complex economical, ecological and world political networks behind me eating ice cream (or sushi) and co-consuming the ocean offer a mindful approach at the edge of the sea and a frame for cyborg knowing from a position of complicity. In one sense, we are all eating the ocean, feeding off it and breathing, surviving, and flowing from it, in place.⁶ There is no outside position to take, no purity to claim, only relational ontologies all around.

The trans-corporeal ethics of companion species turns us in this changing research collective of scholars (doing blue arts and sciences over the years) away “from the disembodied values and ideals of bounded individuals toward an attention to situated, evolving practices that have far-reaching and often unforeseen consequences for multiple peoples, species, and ecologies” (Alaimo, 2008, p. 253). Kelps and bladderwracks by the sea, in artistic cooking practice (such as those of the Lofoten Art Festival in 2019) and in marine labs, teach me for instance practices of “holding sway” as the project develops in venues of citizen humanities/citizen science (Åsberg, 2023). Literally, kelp stories hold sway, in the sense of capturing the attention of an audience, and to as the relationship of being in touch with seaweeds by holding their swaying botanical forms (Jue & Weeks, 2023). Art, just like marine science and philosophical concepts, has that capacity to encapsulate matters of fact and concern, to stretch our imagination.⁷

The storied matters of the “coastline” get in-depth exposition in the oceanic arts of the PhD-project of Caroline Elgh, aiming to embody and environ the legacies and futures of empire in one rendition of these versatile blue humanities (Elgh, 2022, 2023; 2024). Decolonial art history meets contemporary art, and the multispecies communities of bladderwracks and seaweeds meet historical and present-day marine biology as a *surprisingly feminist branch of science* in this research. In another rendition, kelps, oysters, sea urchins and crabs are reimagined as future food and building materials in the blue-green sustainability transition in Sweden. In common, we all have a queer ecofeminist cyborg approach (combining Carolyn Merchant, Greta Gaard, Val Plumwood and Cate Sandilands with Haraway and Alaimo), teaching us in the collectives about the fantasy of control and mastery and the importance of attending to backyards, weird and queer ecologies of the smelly wrack zone, waste and shadowlands of society. And we do not have to go far away in the world to find the strange or wonderful; we just start digging where we stand.

Insisting on Adrienne Rich’s “politics of location” and Haraway’s “situated knowledges”, cyborg knowing becomes a portal to understanding all kinds of embodied wordliness and to the development of new modes of storying exposure. It works like a gate-way drug to thinking and doing things differently, transversally, as a researcher, to zooming in, zooming out and playing with scale, storied matters and stories that matter. To this day, Haraway’s cyborg invites critical adventures in exploring the technoscientific globalization of planet Earth as it crosses boundaries and implodes for-granted taken categories, including an imagined divide between sea and society.

My argument, or rather a suggestion, is here that our research practices today, in a world that violently is crossing all boundaries, need up-dated and situated cyborg knowing for finding common ground and strategic alliances. Yet it *never works as a universal solution*: cyborg knowing is more like an engine of discovery, putting things in new constellation and new perspective, inviting re-conceptualization and new configurations of insight. Cyborg knowing creates allergies of totalism in scholars at the same time as it creates a yearning for the bigger picture. For Haraway, as pointed out by Grebowicz and Merrick (2013, p. 8), the “cyborg’s ‘global’ is not the philosopher’s ‘universal’”. Instead, cyborg knowing refuses both relativism and totalism by an epistemic embeddedness that takes both science studies and feminist theory far beyond any “standpoint”, “identity politics”, singular focus on “gender”, on “place” or eco-romantic notion of the innocent local. Everything is glocal and naturecultural, connected and, depending on ones’ formation or filter, at the same time, disconnected and available for reconnection, open to a re-familiarization.

Posthuman-In-Practices of More-Than-Gender Gender Studies

As argued, cyborg knowing thrives in feminist and queer theory practice (Jack Halberstam), in feminist post-, anti- and decolonial theory practice (Gayatri Spivak, Anna Tsing, Madina Tlostanova), in feminist eco-cultural studies (Stacey Alaimo, Myra Hird, Mette Bryld and Nina Lykke) and in feminist ethics (Maria Puig de La Bellacasa) and of course in the reverse engineering of the humanities that goes on in feminist STS by way of N Kathrine Hayles, Lucy Suchman and Karen Barad.

I would also like to claim that the socialist-feminist cyborg was a harbinger of the present surge of feminist new materialisms and posthumanisms, but I may be kicking in already open doors in that regard (Åsberg & Braidotti, 2018; Braidotti, 2021). Even if Haraway herself denounced the posthuman (in favour of companion species) for the work needed of a more inclusive humanism (Haraway, 2006), she invited, what I would like to call the (artistic, field-philosophical and extra-academic) practices of posthumanities (Haraway, 2006; Åsberg, 2009b, 2021). *Haraway's cyborg heralded already such more-than-human feminisms*. In STS as in Gender Studies, it is a crucial shift in the feminist modes of attention towards other species, the body (technoembodiment) and to biology as a scientific discipline of great transformative potential in society. Following the recent turns “towards relationality and the enacted nature of entity boundaries” (Stacey & Suchman, 2012, p. 24), even widely termed the posthuman term, the cyborg, I conclude, is an excellent starting point for mapping critical posthumanism. It does not end with companion species, as a wide range of political ecologies beyond Euromodern and humanistic assumptions of species supremacy and androcentrism flourish in research. The cyborg is not a way of spotting or romanticizing the hybridity of nature and culture, but a horrifying exercise of realizing how we are fully embedded and embodied in a postnatural condition of our own making, and our own unmaking.

The work and life of Donna Haraway, passionately dedicated to both feminism and science, especially biology in theory, has inspired thousands of people both inside and outside academia. Haraway's social theory clearly matters to many. She is one of few feminists who has reached remarkably diverse audiences and is cited and sighted at both science and technology studies conferences, in cultural study surroundings and in gender study classrooms. Modern society is entangled in complicated issues of life and healing, death and suffering, of who gets to play and live, who gets to die, and who decides and profits from that. The feminist views to the everyday cyborgs that Haraway proposed were a way of unpacking and holding up for inspection all that. The cyborg became an analytical tool, a technology for thinking through delimited forms of complexity. *Cyborg knowing*, re-read across most of Haraway's work (and many of her interlocutors, like Bruno Latour, Rosi Braidotti and the rich and layered feminist literatures beyond these stars) and most of all, what it generated in feminist, cultural and STS research communities, I claim, produced an important incentive. It produced the encouragement, even the audacity, to respond with *more humane* (if feminist, queer, crip and anti-racist/anti-colonial inclusions can be said to do that) and a *more-than-human* humanities to the *all too* humanistic impact on ecologies, climate and socio-technical systems. Today, it has become quite clear to critical thinkers that there is nothing natural or given about how we organize society (Åsberg 2018). That also technology and science are, to use Bruno Latour's paraphrase, politics by other means. This goes of course for interdisciplinary research in arts, humanities and social sciences too. *Following from this there should be nothing natural of given about how we organise our research*. In fact, in a world so easily at war there is nothing natural, at all, only the negotiated struggles and prospective alliances with real effects and long-term exposures to peoples, species and environments. For this, I think we need always to rethink how we organize our collective cyborg knowing. Adaptively.

Finally, in this essay, I want to contend for exactly that kind reorganization of lively feminist (critical/creative) research practices and research concepts with impure cyborg roots and routes, beyond the disciplines mentioned and disciplinarity at large (even beyond academia). We need the invention and reinvention of critical concepts and configurations for the situated knowledges of the

here and now, to be able to describe worldings taking place. You see, we need, I argue, research that can be *as responsive to change as the world which it purports to critique*.

The malleability of the cyborg concept is a point in case here. It took on many tasks and interpretations, a life of its own beyond the intentions of the author Donna Haraway. Yet the cyborg was already for Haraway much more than a metaphor for the joint merging of biology and technology. It collected fractured identities, borderlands and conflict zones of many kinds, like the bridging of the human species body and other biological organisms, technoscience and society, the virtual and the real (Haraway, 1991). It was one possible figuration, an imploded node of fact and fiction, embodied and embedded in the networks of technoscience. An implosion, in contrast to an explosion, concentrates matters. To act with care, we need concentrated work. Haraway's cyborg was one such implosion of entangled cultural meaning and materiality with socialist feminist Cold War urgency. She picked out critical threads out of that over-determined, imploded figure (from the contemporary NASA-imaginary) and she re-read the cyborg as a political myth, an ironic parable of processes already embodied and set in motion that not necessarily have to end badly.

The cyborg had potentials also as a reconfiguration of knowledges. A metaphor for modern technoscience, cyborgs point to the collapsing of nature and culture into each other, for sure. Haraway saw the same collapsing of the soft and hard sciences, hard and soft societal powers of subjectivation, making the cyborg a figure of interdisciplinary alliances and non-innocent, temporary identity in a world dividing and connecting in new ways. If Euromodern-type dichotomous thinking about nature and culture, according to Haraway was impossible to uphold in the New World Order (Haraway, 1997), then other feminist dichotomies like sex/gender would also be collapse with the cyborg. In that sense, the cyborg was a feminist challenge, a call for feminist dedication to actual embodiment and biology both as high-tech science and as the material processes of the envired body, the cultured body, and the body of the world. The feminist cyborg enabled something akin to a "both- and" approach rather than the either/or approach, even a multiverse approach to knowledge beyond dualism. It opened up a space for thinking beyond the humanist imaginary of Euromodern divides. The cyborg functioned, I'd say, as a research portal to the more-than-human ecologies and technologies of contemporary posthumanities.

Over the last decade of academic activism, I have come to term such efforts *feminist posthumanities* (Åsberg Åsberg, 2009b, 2020). Such research practices need to move us, motivate us and be move-able across boundaries. They need to traffic entangled natures and cultures—and they need to cross disciplinary and extra-academic boundaries. Such research practices need to be grounded locally, yet flow and hold sway (in the sense of Melody Jue and Maya Weeks). It needs to be situated strategically yet act in a tentacular way (be explainable to different audiences), accountable, translatable, and well educated across the boundaries of disciplines and non-academic society. In some sense, this entails perhaps the reimagining of feminist scholarship in a more open-ended, less disciplinary, and more-or less-than-human register. To me, feminist practices of posthumanities acts like situated cyborg knowing and prepares the ground for ulterior sets of *minor research ecologies* that may or may not traverse the academic boundaries.

Cyborg knowing sets the tone for such more-than-gender Gender Studies. As my own group model for feminist research "co-laboration", collaboration and experimentation across art, science and society has been two decades in the making (and still, it is morphing, always renewing itself with its inhabitants), new groups and constellations are mushrooming constantly, and new career paths invented.⁸ After all, the cyborg world respects no academic disciplines—only emergence of whatever may be, and we are, more often than not, surprised of the turns taken. This type of research practices venture outside the ivory towers and join hands with activists, artist and change-makers of the world. Examples of this collaborative practice are, for instance, the co-op of the United Nations Ocean Decade's transnational art and outreach project *We Are Ocean* with my research group *The Posthumanities Hub*, or how art centres (Bonniers, Färgfabriken in Stockholm) or Sweden's Historical Museums are co-funding

exhibitions, postdocs and doctoral-employments with the Hub; or how an upper secondary school class in a Stockholm suburb along with youth art activists (“Squid Squad”) in rural Gnesta supported with their work and commitment one of our environmental communication projects (“Reclaiming Futures, Storying Change”). These are some recent examples of co-operations and jointly envisioned projects, some successfully funded by research councils, some not. But they all give added value to the cyborg knowing I teach and practice at the virtual, multiversity platform and cyborg lab, *The Posthumanities Hub*.



IMAGE 3. Banner of the Posthumanities Hub.

Feminist Practices of Posthumanities

Feminist philosophers, anthropologists and scholars of Science and Technology Studies (STS), in particular, via actor-network-theory (ANT, and post-ANT), new materialism, biosemiotics, eco-critique, cyborg and posthuman theory, have generated a vivid and increasing interest across a number of disciplines. These interlinked research efforts, connected by relational feminism, have swept across humanities, artistic research, and social theory for more than a decade now (Bird Rose, 1992; Åsberg, 2009b; Åsberg & Braidotti, 2018; Radomska & Åsberg, 2022). International names, like Donna Haraway, Bruno Latour, Lucy Suchman, Rosi Braidotti, Gayatri Spivak, Cary Wolfe, N. Katherine Hayles, Achille Mbembe, Karen Barad, Anna Tsing, T.J. Demos, Báýò Akómoláfé, Timorothy Morton, Stacey Alaimo and many, many others, have become synonymous with various post-disciplinary implications for the arts and sciences. Such (more or less) posthuman theories imply a decolonization of human exceptionalism in the traditional humanities that made Universal Man and bounded individuality the measure of all things. Hence, they all make for a theory-practice of versatile posthumanities. They open a critical playground.

Posthumanities at large names are already a widespread and growing effort to rework the role of the humanities (cultural research), and their relation to science, technology, society, art, to other species, and to human power differences that works to both dehumanize and anthropomorphize bodies (Åsberg, 2009; Åsberg, 2021, Åsberg and Braidotti, 2023, Braidotti, 2013; Haraway, 2006, Wolfe, 2003). To a great degree, these developments are also exemplified by various and emerging forms of “new” humanities (Braidotti, 2013, p. 143) or additive, extra-humanities: for instance, environmental humanities, multispecies humanities, posthuman humanities, techno-humanities, geo- and/or decolonial humanities. Myself, I encountered the concept of posthumanities for the first time in a queer posthuman book on visual culture by Jack Halberstam and Ira Levin (Halberstam & Livingston, 1995), but since it has labelled a marvellous University of Minnesota Press-book series, edited by Wolfe (2003-2023). Put to practice, feminist posthumanities as research projects, PhD-training, publications, seminars, workshops, activism and societal collaboration across the borders of nations, disciplines and universities, have been since 2008 enacted in the multi-university research group, my *collaboratory*, The Posthumanities Hub. In short, feminist posthumanities are here research approaches and variously focused projects that situate diverse

humans in technological and ecological contexts. Simultaneously, they situate the relational nonhuman in a humanities context of ethics and aesthetics, culture and communication, poetics and justice (Åsberg, 2023; Åsberg & Braidotti, 2018; Barad, 2003; Braidotti, 2013; Haraway, 1991, 2007; Plumwood, 1993; Wolfe, 2009). The collaboratory hosts in-house students, funded and unfunded projects, artists, journalists, postdocs, activists, PhD-students and PhD-training, proud alumni and a stream of guest researchers with employments outside of Linköping University. Moreover, the Hub shapes intellectual capacity and builds more versatile academic careers; trains the new type of border-crossing scholars needed to deal with the nested challenges of the now.

Posthumanities in feminist practice flip the script of the modern division of labour where “science does nature” and “humanities do culture” (Åsberg, 2009). Entangled in disciplinary demands, it entails a focused epistemic practice of situated knowledge making, empirically specific practices of zooming in and out with theory and in-field experience and paying close attention to detail as much as to the bigger picture (“staying with the trouble”) and to storying the research with care. As such, feminist posthumanities are thus *not a new, totalizing discipline per se*, but an assemblage of approaches to different targets that opens the door to new interdisciplinary fields of research, to post-disciplinary methodologies and whole new ways of knowing the world. By analogy, our social practices function more like a slime-mould (or a forest) rather than as a hammer (even if we use concepts as thinking technologies), finding nourishment by way of swarm intelligence. The permanent partiality of feminist points of view that Haraway describes (Haraway, 1991, p. 173), in their diversity, are allowed to shape the diverse forms of political organization and participation in such “sympoiesis” type posthumanities (Haraway, 2016b). They are not forged on a totality to work well. Avoiding totalism and imperialist dreams of one shared experience, one communal language, such symbiotic feminist posthumanities do not resolve the contradictions of theorizing and fieldwork, hybrid meetings, collective action and individual careers, but it makes do in the contact zones. Yet, however ironically, from such cyborg knowings, in the words of Haraway, “we can learn from our fusions with animals and machines how not to be Man, the embodiment of Western logos.” (173) This makes such sympoetic posthumanities a plausible contender for a new feminist science in-the-making. Let me explain why.

The imaginative, welcoming and always variously embodied and emergent feminist posthumanities I envision and try to practice, follow in the footsteps of science and humanities scholars and writers like Sylvia Wynter, Sandra Harding, Donna Haraway, and others before them that have argued for “the elaboration of a new science” or a new “science of the World” (Wynter, 2003, p. 328). As argued, feminist posthumanities entail refusing the division of labour between science “doing” nature and humanities “doing” culture (Åsberg, 2021), but also that between academic and non-academic communities of knowledge. Feminist posthumanities in practice entail experimentation with models of research creation (writing and designing, co-creating, curing and curating, documenting, exhibiting, science-art collaboration). It gives stressed communities storied form in ways that eschew the trap of focusing only on “damage stories” and finding ways of caring for the “wounds of the world” (Sandilands, 1993, Gaard 1997, Alaimo, 2016). This entails the Harawayan “respons-ability” to story exposures, multi-methodologically. In the responsive forms of feminist posthumanities that matters to me, theory meets practice, science meets art, and a transformational sense of ecological humanity meets people.

So What?

There are at least three big problems linked to how society may be able to face the humanistic challenges of climate change, biodiversity loss, worldview polarization and technological determinism. *First*, there is the problem of a public feeling of disenchantment; alienation from worldly matters or even cynicism. In feminist research, this has sometimes manifested as a problematic form of proud pessimism, denying the possibility of change and doubling down on identity politics where we should seek transversal connection and partial solidarity. *Second*, a feeling of

disempowerment and hopeless despair spread now in society. Cyborg knowing entails hard work, habits of learning and unlearning, but also glimmers of hope. In fact, attending to the wonders and wounds of the world enables a kind of hope that grounds itself in such hard work. Hope is hard work today, for us all, regardless. But giving in to cynicism is not an option. *Third*, a compartmentalization of problems and knowledge-domains that to a large degree really are entangled (Neimanis et al., 2015). The cyborgian critique and creativity, even as the practices of posthumanities here proposed, are a small part of what it takes to re-enchant social imaginaries, public feelings, and knowledge domains beyond these compartmentalized frames of division. A specific danger of the present compartmentalization of humanities research, for instance, is the covering over of human differences on the basis of gender, sexuality, ethnicity and racialization, age, bodily ability, geographical and socio-economic status in the face of global challenges and their legacies of empire and violent discrimination. This danger of universalizing all of humanity is also echoed in the use of the term Anthropocene (Crist, 2013). It distracts from a critical view to precisely how, where, and by whom human impact on climate, ecosystems and developments in engineering, media and medicine are effectuated. Yet again, we are always more than our bounded cultural identities, and attending to the ecologies, biologies and technologies that also make or break us, may mitigate the all too narcissistic drive of only comparing notes with like-minded and never exposing ourselves to surprise. Haraway once said in an interview, “There are always more things going on than you thought!”, and that insight is crucial.

Recognizing humanity’s collective power as a force on the planet, earning this age of human impact the term Anthropocene, has also created an overwhelming paradox resulting in a widespread feeling of *powerlessness* in people. The problem of compartmentalization and powerlessness lies embedded in the disciplines and in how they are organized. There is an urgent need to meet across borders. Now is the time to pay more than lip-service to inter- and trans-disciplinarity and to move beyond the comfortable confines of academic research. It is time for new convergences, postdisciplinary synergies and collaborative methodologies: for STS-researchers, feminist theory students and more-than-human humanities scholars to mobilize meaningful conversations and nuanced public debate across academic divides. It is perhaps finally time for a new configuration of knowledge modelled on the open-ended generativity of the Harawayian cyborg? I think so, I think it is time to practice cyborg knowing, or whatever we want to call it.

In conclusion, I argued here, with my collaborative and on-going work (in diverse projects, constellations and case studies) as background, that the efficacy of present and future feminist scholarship will depend on its ability to address, in a synergistic mode, the entangled challenges of rampant social injustice, algorithmic bias, environmental change, and loss of biological diversity in the context of an understanding of the ways in which science, media, and technology are embedded in society, in *our bodies, and ourselves* (Davis, 2007). One feisty feminist figuration cannot do all of that, and we need many more ways of cyborg knowing.

To me, what matters with cyborg knowing in the form of feminist posthumanities is its integrative capacity of reworlding, reconceptualizing and reconfiguring. In a world of both enormous estrangement (we feel alienated and powerless) and immense potential for solidarity and conviviality, we need irreverent and innovative integrative knowledge figurations for creating a new sense of belonging. This is also the lesson I learned from thinking with Donna Haraway’s figuration of the cyborg. My take is informed by the ambiguities of, and struggles with, the cyborg as it has been taken up over the decades by various feminist, queer, crip and more, scholars of cultural studies of science and technology studies (Franklin, 2006). The feminist posthumanities put to practice, that I argue for, are a product of such cyborgian, onto-epistemological critiques and creativities. These practices are both product of and response to, “worlds ambiguously natural and crafted” (Haraway, 1991, p. 149), “couplings between organism and machine” (Haraway, 1991, p. 150) and provides a “condensed image of both imagination and material reality, the two joined centres structuring any possibility of historical transformation” (Haraway, 1991, p. 150). As such,

the cyborg describes a layer of the postnatural ecologies and technologies of feminist posthumanities we can put to practice in numerous ways (Åsberg, 2018).

The Harawayian cyborg functioned as a worlding device, as an engine of discovery for thousands of students like me in the 1990s, as a feminist punk mode of re-combining arts and sciences in new ways for new purposes, for bringing new or strange things to our attention. Moreover, it prepared the ground for a whole fringe ecology of new feminist materialisms and posthumanities—all of them imagining technologies in a non-fetishist manner as extensions of naturecultures set in more-than-human ways of life. Instead of pitching the human against either technology or any form of naturalized world, we can assume, in the cyborg vein, that several types of human activities (gender, art, language, and science) are always technical, social, and always already relationally material and enfolded in the flesh of the world: part of emerging or existing ecologies that need attention.

In fact, the cultural technologies of gender, race and empire drive much of the present Anthropocene crisis, now and in the past. Everyday algorithms reproduce and multiply our cultural biases on a global scale. Anthropocentrism, humanistic supremacy and individualistic territorialism are rampant, making us all less humane. Myself, I yearn for a *more humane* humanities, wordly, rooted and useful in its transversality and openness. It is not too late, as society now brutally awakes from the modern illusion of categorical identities and divides that kept nature from culture, human from animal, environment from embodiment, technology from biology, word from world, and arts from science and society. Now is the time, I'd say, for taking stock of creative ways of organizing cyborg knowing – *also beyond the academic confines*. There are more thought going on than we (academics thought) in art, in activism and everyday life too. It is time for new knowledge integrations and new convivial worlding practices to be consolidated and forged in intellectual generosity between such worlds. The cyborg, a discipline-crossing figure (that already also clonked its way into society's wider cultural fantasy landscape, in literature, movies, television series and popular science), proposed (at least in my reading of it) theory-practices and practice-theories for how to realign our “high consumption, high energy and hyper-instrumental society” (Plumwood, 1994), and ourselves, adaptively. In this piece, I simply proposed that the seemingly old and rusty cyborg still works as a prominent entry into the theory-verse of transformative epistemologies and ethico-ontologies, into the multiverse of feminist posthumanities. Let us put it to practice, it is after all up to us to make it work in the world.

Notes

1. Since the 1990's and the 00's, the corporeal theme was strong in both feminist science studies and in so-called continental feminist philosophy, sexual difference traditions, for instance in the works of Rosi Braidotti (1994). The *material turns* (because I think there were several) of feminist theory manifested in STS and gender studies with works such as Myra J Hird's *Sex, gender and science* (2004), with the anthology *Material Feminisms* by Stacy Alaimo and Susan Hekman (2008), and more widely, with Jane Bennet's *Vibrant Matter* (2010), Iris van der Tuin's and Rick Dolphijn's (2012) *New Materialism: Interviews and Cartographies*, with Coole and Frost's *New Materialisms: Ontology, Agency and Politics* (2010), and with Iovino and Oppermann's *Material Ecocritisms* (2014).
2. See facial image generators, such as: <https://this-person-does-not-exist.com/en> (see The Research Net, 2020).
3. Wagner and Blewer (2019) discuss “deepfakes”, a portmanteau term of deep learning AI and faked imagery, in terms of their gender and cultural implications. One troubling example of deepfakes is the superimposing of women's faces into pornographic videos. The implication here is a reification of women's bodies as a thing to be visually consumed, circumventing consent. Their paper explores how the emergence and distribution of deepfakes continues to enforce gendered disparities within visual culture. They reject, however, the inevitability of deepfakes, arguing that feminist oriented approaches to artificial intelligence building and a critical approaches to visual information literacy can stifle the distribution of violently sexist deepfakes.
4. Posthuman performativity is theoretical physicist and feminist science scholar Karen Barad's crucial concept for understanding the performative nature and trickster agency of the material world. It refers to the ways in which entities come into being co-relationally, through their “intra-actions”. It is on par with Haraway's understanding of (that which we still call) nature as a “witty agent”, a coyote or trickster character (Haraway, 1991), yet it ties into her larger theoretical framework, called agential realism (Barad,

2007). Posthuman performativity (as part of Barad's agential realism) challenges anthropocentrism as the idea that only humans and culture have agency (Barad, 2003). To Barad and to Haraway (1997), agency and the ability to create change are distributed across the entire material-discursive apparatus, including both human and nonhuman elements. This apparatus is basically the world or the constant enacting of itself as a process of worlding, as we may know it (by experience, sense or scientific means) and do not know it. Borrowing the notion of performativity from queer feminist theorist Judith Butler, Karen Barad deploys an understanding of performativity to refer to the idea that our very existence, categorizations of it and the identities of entities are not predetermined but enacted, or come into being, through their relationality. This anti-foundationalism is, at least to me, a very (pre-Socratic) Heraclitan idea, that entities or identities (like a river or a swimmer in it) are not fixed, not essential, but rather contingent and emergent. The swimmer becomes a swimmer in the waters of the river. The river makes someone a swimmer, but the river's water, just as the biological cellular regeneration of the swimmer's body, change with the flows of time. This is why, according to Heraclitus, you cannot step into the same river twice: the rivers identity (as well as that of the prospective swimmer) has changed. Barad emphasize intra-actions, a term used in favour of "interaction", so to underscore the ontological and epistemological inseparability of agencies. To Barad, things and identities do not pre-exist their intra-actions. Forces of semiotic or discursive (like language or the cultural technology of gender) or material/physical/bodily character intermingle to make up the world, making the idea of a fixed Newtonian reality, independent of for instance perspective or scientific observations of it, moot. Traditional dualisms of nature and human culture, observer and observed, object and subject are thus challenged. From this type of "feminist new materialism", Barad has continued to rediscover the humanities and the (post-Holocaust) insistence on ethics as the first philosophy, drawing on for instance Jaques Derrida's hauntology—how the past haunts us, affect us, in the present.

5. A good publishable science paper, intended for high-impact journals in the natural science, on say for instance the minute biochemistry of misfolding proteins, need not only major instruments of magnification, samples to stain and months, if not years, of lab work by its human and nonhuman inhabitants. It also needs to relate to a society's politics of ageing populations and an increase in Alzheimer's Disease, perhaps also to other popular associations to dementia and prions, to what popular media called the mad cow's disease, and the rare disorder of Jacob Creutzfeldt (in humans), or to Parkinson and Lewy body dementia as medical diagnoses in need of a cure. Not even proteins come without their social worlds in science.
6. Feminist bio philosopher Marietta Radomska and I have from this argued for a low trophic theory (Radomska & Åsberg, 2022), inspired by the low trophic multispecies ecologies of oceanic kelp forests, mussel beds and sheltering seaweed wrack zones, to re-work ourselves from high-energy, high-consumption creatures to more of seasonal climavores, vegan eaters or locavores. At least it is transformational food for thought.
7. Presently, I get to explore this mind-blowing intersection (art, science, theory) in several projects, for instance in a collaborative youth research communication project, "Reclimbing Futures, Storying Change" (funded by FORMAS), that transversally connects Swedish gymnasium classes, their teachers, eco-artists and young art activists ("Squid Squad"), film-makers, environmental humanities scholars and science journalist with the resources of historical museums, universities and an urban art institution (Färgfabriken in Stockholm).
8. Here, I would like to point to the soil art research group of Dr Janna Holmstedt (of which I am myself part), and our collaborations within the project "Humus Economocus". It is one example of feminist "generationality" and collaborative work of theory, activism, art and science, that bring attention to something taken for granted, such as soil and soil work, that in fact is a finite resource produced at the intersection of many forces, and today badly in need of arts of sustainability.

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