Vegetal matter:

the conflicting ecologies of corn agriculture from a new materialist perspective

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Abstract

(English)
This thesis gives an account of conflicts around corn agriculture by exposing the discrepancies between the extractive industry of monoculture and community-based alternative practices. In the context of the Anthropocene, this epitomizes a broader tension between the impetus to claim accountability to the climate crisis and the incentive to reimagine new modes of relations with nonhumans. This thesis asks: how do plants and humans meet? By taking a new materialist standpoint, it further inquires: how do diverging practices of more-than-human relationality come to produce ecologies governed by distinct affects, ethics, and politics? This thesis opens with a literature review of new materialist theories concerned with vegetal matter. Second, it provides a historical account of the industry of corn monoculture, putting forward the extractive character of its ideology and mechanisms. Finally, it presents stories of small-scale seed conservation practices to put forward alternative models of materialist politics working against the biopolitics of resources exploitation. Overall this thesis suggests that discursive-material practices such as agriculture negotiate the very boundary upheld between species. This project participates in a broader discussion concerned with the ethical, affective and political significance of humanity's entanglement across nonhuman materialities by bringing in vegetal matter as a site of conflicting organizations, some of which are accountable and some resilient to climactic disorders.

(Français)
Ce mémoire de maîtrise présente les conflits agricoles reliés à la culture du maïs en mettant de l'avant la divergence entre l'industrie extractiviste de la monoculture et des pratiques alternatives à l'échelle communautaire. Dans le contexte de l'Anthropocène, ce conflit illustre une tension plus large entre les postulats à la prise de responsabilité pour la crise climatique et l'appel à la ré-imagination de nouveaux modes de relations avec les non-humains. Ce mémoire soulève la question : comment les plantes et les humains se rencontrent-ils? En adoptant une position néo-matérialiste, ce mémoire s'enquière : de quelle façons des pratiques divergentes en terme de relations au-delà-de-l'humain en viennent à produire des écologies gouvernées par des affects, éthiques, et politiques distincts? Ce mémoire ouvre avec une revue de littérature de théories néo-matérialistes adressant la matérialité végétale. En second lieu, il dresse un compte-rendu historique de l'industrie de la monoculture du maïs, accentuant le caractère extractiviste des ses idéologies et mécanismes. Finalement, il présente l'histoire de quelques entreprises de conservation de semences ancestrales à petite échelle, mettant de l'avant différents modèles alternatifs de politiques néo-matérialistes contrant la biopolitique de l'exploitation des ressources. Ce mémoire suggère que des pratiques discursive-matérielles telle l'agriculture négocie les délimitations maintenues entre les espèces. Ce projet s'inscrit dans une discussion plus large concernée par la signifiance éthique, politique et affective des enchevêtrements de l'espèce humaine aux matérialités non-humaines, en présentant les matérialités végétales comme sites d'organisations conflictuelles, certaine étant responsables et d'autres résistante aux désordres climatiques.

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Introduction:
Better matter

"In the Anthropocene, some neutral, pre-given planetary nature is no longer available as a fiction for the real. We fucked it up."
– McKenzie Wark, *Molecular Red* (69)

Neuville is known to grow the province's best sweet corn, a reputation numerous Québec country towns pride themselves with. For the town's dwellers, their corn is about pride, belonging, taste and pleasure, as well as an object for gathering with friends and family to celebrate the undeniably shared appreciation of these qualities. Growing up there, I learned quite young that endowing vegetal matter with meanings, values and discourses was common. Growing up in the 1990s also meant learning that food was more likely to originate from cans, freezers, or supermarkets, rather than from fields. Farmer markets weren't as hip then as they are nowadays, and issues of food security were just starting to catch public attention with the rise of genetically engineered crops and the progressive accumulation of food-related public outrages. If as a Neuviller child I felt that corn was unique, little did I know that the crop was present in most of what we were eating, moving and entertaining ourselves with, that it was the central protagonist of a growing global economy in which my role, just as anyone's, was to consume corn-based commodities. Little did I know that alongside a few other industrial monocrops (soybean, wheat and cotton) corn was, and still is, a quintessential material for the production of commodities as varied as plastics, fuel, metals, papers, cosmetics, weapons, besides, of course, most processed foods.

As this economy progressively unfolded before the public eye, it started to feel like the affective qualities I had given to corn for so long were marginal, anecdotic, imperceptible to the gigantic scope of this industry's history. Yet, when years later I started this research, I realized that these affects I had become accustomed to think of as oddities were not so idiosyncratic: corn is caught in-between local economies of care for the plant and global economies of exploitation. Its very materiality is entangled across conflicting meanings, values and discourses, produced by and producing diverging worldviews as to how to engage with that which is not human. This thesis is about this very conflict, epitomized by tensions between a global economy based on monocropping, and local practices based on ecologically sound principles and alternative agrarian views. Both types of practices relate with corn in a different fashion. While both are rich in political, economic and cultural differences, I am principally concerned with the way diverging forms of more-than-human relationalities play within this conflict. Thus I ask: how do corn and humans meet and, more precisely, how are their encounters different from one practice to another? How do diverging modes of encounters converge into distinct ecologies? This thesis comes to suggest that distinct modes of encounter stabilize corn into distinct species, as well as enact diverging forms of more-than-human affects, ethics, and politics, arguing that such comes to matter for an era stalked by the avatars of climate change, massive extinctions and the Anthropocene.

This inquiry into conflicts around corn agricultures is taken from a new materialist perspective, an emerging cross-disciplinary movement concerned with discussing matter beyond anthropogenic perspectives. For Dolphijn and van der Tuin: "new materialism wants to do justice to the 'material-semiotic,' or 'material-discursive' character of *all* events... It is interested in actualizing a metaphysics that fully affirms the active role played by matter in 'receiving' a

form" (2012, 90). New materialism, it follows, advocates for a form of thinking from within, integrated to the dynamics of material organizations, and recognizing intellectual labor as an active participant within these organizations rather than the expression of a disjointed realm of pure thought. Materiality and discursivity are co-constitutive. Thus new materialism is about evaluating the capacity of human, nonhuman and inhuman actants to interact, relate, respond and organize with one another. Though still emergent, the sites of neo-material inquiry are abundant: quantum physics (Barad 2007), forests thinking (Kohn 2013), dogs (Haraway 2008), junk (Bardini 2011), invasive species (Groves 2012), hyperobjects (Morton 2013), insects (Parikka 2010), Mongolian landscapes (Perderson 2011), soviet socialism (Wark 2015), bioethics (Zylkinska 2009; 2015), for instance. From a new materialist perspective, corn agriculture and other vegetal ecologies can be considered beyond a logic of resource exploitation to rather suggest a diversity of models of trans-species affectivities, ethics, and organizations. This thesis's title, *Vegetal Matter*, is a twist on Jane Bennett's provocative *Vibrant Matter* (2010), addressing plants as a form of agential actants in her terms yet also pointing to the current lack of considerations for vegetal materialities within this broader literature. How do plants matter? How do they make worlds amongst and across the human kind?

Before presenting this thesis' organization, I further introduce new materialism from two critical standpoints to draw the lines of the background to this thesis' inquiry: (1) the question of non-anthropogenic agency, and (2) the ecological imperative for new materialist theory.

I. Agency, things, matter

The argument that agency is non-anthropogenic is central to new materialism. Agency, the capacity to act, react and conduct change, is an aptitude shared by diverse forms of nonhuman

actors (animals, plants, etc.) and material configurations (geological formations, forests, etc.), some of which the human eye cannot grasp. According to Karen Barad: “agency is not an attribute but the ongoing reconfigurings of the world” (2007, 141). Engaging materiality is thus about recognizing and integrating the relational forces that continuously effect change within the world’s configurations. Barad’s conception of matter is meant to be inclusive of any type of things or bodies, be they human, nonhuman or inhuman, as long as those are not understood as preexisting encounters or as defined by a fixed essence, property, or meaning: “difference cannot be taken for granted; it matters – indeed, it is what matters” (2007, 136). Bodies and things perpetually emerge, adapt and reconfigure themselves through agential intra-actions, thus continuously remaking their material-discursive worlds (2007, 150-153). This does not suggest that all agentic manifestations are of equal force or the same; a too loose understanding of agency could easily homogenize varieties of material configurations under a new figure, matter becoming “the new nature” (Zylinska 2015, 152). A differential conception of agency makes of matter a broad umbrella term to encompass any phenomena, events, or configurations, each contingent yet each producing the world in their own effervescent ways.

Barad’s conception of agential matter importantly suggests that discourse, just like bodies or things, does not preexist material configurations, thus advocating for an integrated form of intellectual labor, embracing the inescapable co-constitution of discourse and matter. “Discourse is not what is said; it is that which constrains and enables what can be said… Discursive practices are boundary-making practices that have no finality in the ongoing dynamics of agential intra-activity” (2007, 146). On one side, new materialists ought to debunk the boundaries emitted by current discourses that self-disjoint from the world of matter. On the other, intellectual laborers are invited to engage in the production of discourses as a material

practice, asking writers to recognize their own location while evaluating their agentic capacity for change. Barad: “The point is not simply to put the observer or knower back in the world … but to understand and take account of the fact that we too are part of the world’s differential becoming” (2007, 91). Parallel to Barad’s argument that discourses are “boundary-making practices” is the broader question of separateness itself. The co-constitutive character of discourses and agential materialities assemble into practices drawing boundaries, establishing separation, and stabilizing matter into entities, species, and bodies. This peculiar claim answers to Donna Haraway’s (2008) advocacy for an ethics of inter-species companionships by suggesting that such ethics might indeed take place across the very boundaries between types and kinds, once, that is, these divisions get recognized, negotiated, or even remade. By fooling around boundaries between things and bodies, “the very order of things may come undone” (Myers 2014).

This thesis intervenes at this very juncture of new materialist theory, exposing different forms of corn agriculture as ecologies of inter-species relationships on the one hand, and as discursive-material boundary making practices on the other. By doing so, it emphasizes how different modes-of-encounters across species operate through distinct discursive-material paradigms and create diverging material separations. By exposing different ecologies of corn agriculture, this thesis also advocates for a neo-materialist radical contingency. By focusing on specific practices and specific types of materialities, the peculiarities and intricacies of their localized agential entanglements come forward, disclosing that the world of matter is irreducibly plural. If new materialist writers intend to integrate the very materiality they are concerned about, a contingent approach is necessary to experiment with material entanglement beyond mere speculation (or transcendental meditation), as one cannot simply disperse across infinite

matters.

II. Climate crisis, or the moral obligation for a new materialism

The current climate crisis manifests itself as an ecological imperative to neo-materialist critical theory. As the phenomena of rising sea levels, droughts, ice declines, deforestations and the likes are resulting from intense industrial activities, resource extractions, and global consumerism, the very ideological paradigms informing humans' exploitative relationship with nonhuman matter need to be debunked and re-imagined. As we move into the Anthropocene, a contemporary geological era wherein the human species have merged into a geological force with scalar impacts on the biosphere, new materialism ought to debunk the prevailing assumptions of anthropogenic superiority, working towards greater integration of the human kind within the deep fabric of life. As indicated by the epigraph above however, this cyclical, orderly, and harmonious web of life is no longer available. It cannot be returned to, it cannot be imagined as an ideal to uphold in our war against climatic chaos, and it cannot be lamented nostalgically as it might be wondered if it ever really existed at all. This imaginary of natural interconnectedness tends to obscure that power relationships are constitutive of more-than-human organizations. For Mckenzie Wark, this figure is typical of a romantic leftism amongst critical theorists seeking for speculative absolutes purified of human presence and at one with the vitality of the biological cosmos (2015, 122). Overall, this imaginary idealizes interconnections by homogenizing nonhuman ecologies as predetermined self-fulfilling wholes.

If climate change is to be addressed from the standpoint of agential matter, the ecological imperative is to emphasize how difference comes to matter. New paradigms of trans-agential relationality integrating and doing justice to the irreducible multiplicities of vital materialities

need to be imagined. For Joanna Zylinska, the Anthropocene imposes itself as a moral obligation for elaborating an ethics of relationality with vital materialities. This ethics is not so much about making a better world (e.g. heroically saving the bios from cataclysmic extinction), but about making better cuts (divisions, distinctions, and mediations) across the world's materiality (2015, 87). Taking responsibility for more-than-human relationalities can thus be accomplished with contingency, engaging vitality at the local scale, which includes the very activity of intellectual labor. Zylinska:

> the minimal ethics proposed here has to embrace the very openness and vagueness of its premises. It needs to recognize in itself the indecency, the gaudiness, the masquerade of any attempt to make philosophy, and then to try and make it better which perhaps means smaller, less posturing, less erect (2015, 88).

Going small while thinking big, a vital materialist ethics is opened onto alterity, integrating encounters from within and asserting itself in-between more-than-human relations and practices (2009, 59). Such ethics, for Zylinska, has to precede politics, thus advocating that vital material politics will inevitably be moral and that there is indeed a moral obligation for recognizing and engaging with more-than-human politics. If this thesis argues that models of vital materialist politics are not predetermined, Zylinska's ethical proposition and its echoes with Donna Haraway's advocacy for response-ability across more-than-human companionships are nonetheless held as foundational to drawing the lines of alternative imaginaries in the face of climate change.

III. Thesis organization

It is thus against this double backdrop, agential materialism and climate crisis, that I present an account of conflicts around corn agriculture. The questions 'how do corn and humans meet?' and

'how do their relations come to matter in diverging forms of species, ecologies and polities?' guide this thesis' movement across the new-materialist inquiries exposed above.

Chapter one, "Vagabond: the trans-species ecologies of plant-human encounters," explores these questions through a review of new materialist literature. This review attempts to shed light onto diverse qualities given to plant-human relations and to elaborate a critique of species differentiation. I ask: beyond perceptual regimes of species delimitations, what is it that makes us hold plants and humans apart? How do their encounters suggest that certain affects move across these very boundaries? How are we to characterize, analyze and integrate ecologies that disclose stabilized matter as fluctuant, mingling across our very flesh? I first address the metaphysical roots of vegetal stabilization into distinct species through a review of Giorgio Agamben and Michael Marder's works on the question, fostering a more elaborate critique of three new materialist pieces addressing distinct sites of human-plant encounters; agriculture (Emily Eaton), eating (Jane Bennett), and scientific analysis (Carla Hustak and Natasha Myers). Overall, I argue that the circulation of affect across bodies and types is disclosed as a main vector of trans-species metabolization. The term 'vagabond' comes to refer to the very hybridity of human and vegetal materiality, suggesting fluctuating sites of neo-materialist inquiries.

Chapter two, "Control: the extractive ecology of corn monoculture," tells the history of the industrial and biotechnological development of large-scale corn agriculture. Turning to the large-scale economy of industrial production, it demonstrates how corn has been made into a quintessential commodity and factor of production for a consumption-based economy. By presenting corn monoculture as an extractive industry, this chapter points to its ideological ramifications with biopolitical systems of control. Situated within discourses around the climate crisis, this account critically assesses the Anthropocene and its advocacy for human accountability in regards to the exploitation of nonhuman matters. I ask: who is the Anthropos? How does it/he/she meet with its

domesticated subjects, or rather makes them into domesticable materials? Telling the history of corn monoculture from this standpoint exposes this industry's distribution of agency, power and control across a diversity of human and nonhuman actors. Thus I argue the geological Anthropos is not so much human but a very restrictive ecology of human and nonhuman actors. As such, the chapter emphasizes the moral necessity of rupturing with the narrative of the Anthropocene, a discourse better suited for supporting existing mechanisms of domination and exploitation constitutive of the economy of climate change.

Thus getting to the evidence that vital materialism needs to engage in the production of alternate models of trans-species politics, chapter three, "Extinct: the survival ecologies of heirloom corn conservation," initiates this quest for a resilient materialism by shifting the focus from global extraction to local practices. I present three stories of local corn seed conservation enterprises, all reactive in different ways to the different environmental and socio-political threats imposed upon heirloom cultivars by the current domination of corn monoculture on a global scale. Each story indicates different forms of encounters beyond the human, refuting in their own ways the speciation logic of large-scale agriculture by organizing into trans-agential ecologies. I associate each of these stories with a different model of vital materialist politics (1) vegetal democracy of appearance, (2) botanical decolonization and (3) a banal politics of matter, thus suggesting that there is an irreducible plurality of organization models beyond anthropogenic realms. I do not pretend to present the whole spectrum of neo-materialist politics, but rather to explore what forms of political possibilities emerge out of storytelling across different ecologies. I argue that these models are connected in their concern for survival, a substantial possibility of resistance to extractive control.

Overall, these three chapters are joined on the basis of this question: how are we to engage that which is not human? I suggest that through practices, encounters, and

differentiations, vegetal matter unsettles our sense of what being human or nonhuman means. Beyond or beneath boundaries, cultivating affectivities with kins and kinds might very well be what brings us elsewhere than the current world of climactic mutations, massive extinctions and other related anthropogenic disorders.

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I

Vagabond:
the trans-species ecologies of plant-human encounters

"We will save the corn because the corn is us and we are the corn."
– Anonymous activist for Maya Mother Seeds in Resistance (Brown, 160)

"So that's us: processed corn, walking."
– Michael Pollan, *The Omnivore's Dilemma* (22)

The opening scene of *King Corn* (2007) shows documentary makers Ian Cheney and Curtis Ellis learning that corn constitutes one of their hairs' main carbon molecules. While this scene serves as a segue to introduce the crop's omnipresence in the industrial economy of processed foods, the analyst presents this discovery as a mere side effect to this very economy. Yet it is hard not to share Cheney and Ellis' awe, as it seems to embody both the popular saying that *you are what you eat* and Donna Haraway's poetic understanding of bodies and species as "full of their own others, full of messmates, of companions" (Haraway 2008, 165). Corn has indeed subtly made its way into our body, bite after bite, suggesting that we, eaters of North American food, unknowingly became corn, as suggested by Pollan above, and echoing the traditional Mayan saying referred to in this chapter's first epigraph. *The corn is us, and we are the corn.* While it could be tempting to frame this Mayan claim as a myth or a culturally specific form of belief, these notions tend to marginalize and domesticate epistemologies that differ from our own (Kohn 2014). By instead engaging the claim as referring to a local mode-of-being, we are invited to encounter a form of affective entanglement between human and corn, able to transgress

physiological boundaries. While both epigraphs seem to refer to a sense in which humans *are* corn, their juxtaposition conveys an equivocation, defined by Eduardo Viveiros de Castro as homonymic claims expressing dissimilar perspectival positions (1998; 2004). On one hand being corn is an economic reality, on the other, an ontological one.

Following Viveiros de Castro, embracing perspectival differences between the author and the other opens up the possibility that each worldview quivers. This chapter seeks such friction: letting my North American perspectival position encounter the work of equivocation, I search within our own epistemology for tools to embrace the possibility of human-plant trans-species encounters, analogous to but different from the phenomena pointed to by the Mayan saying. Both claims, while distinct, invite us to address the possibility of human-plant modes-of-relation reaching beyond speciation. While the term speciation usually refers to the emergence of a new species through biological evolutionary processes, I voluntarily turn the word on its head and use it to refer to processes of discursive-material stabilization of a given materiality into species. Understood as such, speciation comes to encompass processes of categorization based on differentiation and exclusion. Thus by addressing and attempting to integrate human-plant encounters, the speciation processes from which distinctions between species emerge and the affects through which they renegotiate these very boundaries both come to the fore. This chapter asks: how do humans and plants convene and what do they share as to potentially make them merge with one another? What are our common languages, modes of existence or relational entanglements? What is it we are so deeply sharing that we are in fact one and the same, which means of course intrinsically multiple and alter? Engaging with these questions, this chapter attempts to find a common substance between vegetal and human life, holding them in a perpetual journey of co-constitution and trans-speciation.

I argue that through the circulation of affects, understood as a set of networked communicative processes, humans and plants can meet to transgress their respective discursive and physiological boundaries. This argument is supported by a literature review of new materialist theories that together attempt to overcome the supposition that environmentalism is the only possible interpretative lens to engage and resist to climate change, a standpoint that still assumes a separation between nature and culture, science and politics, humanity and the rest (Bennett 2010, 111-112). The chapter moves as follows. In the first place, I inscribe my concerns for human-plant relationality within a broader discussion about new materialism and vegetal matter. Second, following Giorgio Agamben (2002) and Michael Marder (2013), I provide a short overview of the philosophical roots of the differentiation of vegetal life from animal life as a foundation of Western metaphysics. From there, the three last sections pay critical attention to pieces of new materialist literature in which human-plant relationships take the forefront. These three texts each investigate one type of encounter between humans and plants: agriculture (Emily Eaton 2013), eating (Jane Bennett 2010) and scientific observation (Carla Hustak and Natasha Myers 2012), and thus each shed light unto distinct trans-species affects and provide critical tools to investigate their relations.

I. Radical alterity: new materialism and vegetality

To understand the place of vegetality within new materialist literature, the movement's relation to a broader philosophical tradition concerned with alterity ought to be addressed. While an original intellectual inquiry, the movement nonetheless inherits of concerns from deep ecology, ecofeminism, actor-network theory, posthumanism and cyborg theories, and is more than often endowed to Deleuze and Guattari's provocative philosophy of the rhizome (1980). Its

contemporary mutations into new materialism, vitalism, or the ontological turn (distinctions which I see as mostly disciplinary) engage with the question of humanity's radical alterity, expressed through our species' inescapable interactions with a diversity of nonhuman and inhuman agents. Some scholars, especially proponents of the ontological turn, see the move towards attention to multispecies ontologies as a way to go beyond post-structuralist deconstructive methodologies and their insistence upon recognition of the interpreter's position to get at an objective or universal depiction of more-than-human ecologies. To the contrary, I take side with many other new materialists advocating for a refusal of the dichotomy between subjectivity and objectivity while embracing writers' integration across the material organization they are invested with. New materialist concerns are continuous with the post-structuralist project of postulating a fundamental alterity, wherein agents are pre-constituted by their relationality towards an Other(s) (Derrida 1967; Lévinas 1968; Butler 1997, etc.). Here, the other (perhaps more appropriately without its iconic capital O) is not always human (it rarely is; is there even such a thing as human?) but is nonetheless endowed with agency. Recognition of such continuity prevents one from being lured into the ambition of dressing an objective description of new materialities; the interpreter, inherently alter, cannot escape her position from the observation of nonhuman alterity. Her own perspectives are rather constantly faced with the possibility of disruptions, alterations, and destabilizations awaken by equivocations.

As already stated, this inquiry is motivated by an ecological imperative: in the age of the so-called Anthropocene, the very paradigm that assumes a separation between humanity and nonhumanity, and a dominance of the former on the latter, must shifts towards a comprehension of ourselves as integral to more-than-human ecologies. While it is recognized that Big Agriculture, and especially what chapter two will present as the extractive subjugation of

vegetality to biopolitical control, has played its part in ushering the climate crisis by giving rise to phenomena such as the impoverishment of soils and vegetal biodiversity loss, very few studies have ventured to address the question of vegetal agency. In most cases the most we get is a recognition that a given more-than-human paradigm 'works with plants and trees too'. Although this is not exhaustive, three types of encounters with nonhuman agencies are to be found at the forefront of new materialist literature: animal agency (e.g.: Kohn 2013; Massumi 2014; Parikka 2010), thing agency (e.g.: Barad 2007; Bennett 2010; Morton 2013), and (bio)technological agency (e.g.: Bardini 2011; Braidotti 2013; Zylinska 2009). This is not to denounce a certain type-centrism, since most of these inquiries stand against the very notion of centrism. On the other hand, by venturing beyond the human one is quickly confronted to irreducible multiplicities, crowds of types and beings that all seem to differ from what we had stabilized as human, nonhuman, nature, and even matter. The task at hand is therefore to dive-in the intricacies of specific encounters between types by bounding assemblages around specific events, as suggested by Jane Bennett (2010), keeping in mind that the very idea of type is tainted with anthropocentrism.

The rarity of human-plant encounters analyses might rather be an outcome of the larger western philosophical tradition from which we stand, built upon the assumption of a foundational dichotomy between animal and vegetal existence structuring *life itself*. While the scholars mentioned above remarkably deconstruct the dichotomies between humanity and animality, subject and object, and nature and technics, new materialists must also undertake the task of tearing down the one holding the animal and the vegetal apart. The upcoming literature reviews presents works that have attempted to dive into the intricacies of the vegetal world and its encounters with the human, following Deleuze and Guattari's invitation to "suivre les plantes"

(1980, 19). In one of her most recent texts, "Sowing World: a Seedbag for Terraforming with Earth Others," Donna Haraway pays attention to plants' inter-species communicative abilities (2013). Using the image of seed sowing to reiterate her companion species project, the appearance of vegetality in her work, central to this whole enterprise, advocates greater investigations of vegetal relationality, a contingent and valuable site for an ethics of more-than-human organizations. Suggesting that "every species is a multispecies crowd" (2008, 165), Haraway demonstrates how the notion of species, or more precisely speciation, draws arbitrary limitations around perceptible bodies that always extend beyond themselves and couldn't be without being other than what they appear to be.

Haraway's persistent attention to humans' alterity with technologies, matter, animals, microbes, and now plants, continuously opens up species and other confined bodies beyond and below what they are said to be, inviting us to critically engage with epistemological separations between humans and nonhumans and develop an ethical stance towards agencies that have been differentiated from our very own. Ethical companion species interact through response, respect and responsibility (response-ability). Ultimately, this thesis hopes to find traces of such ethics within human-crop organizations standing against biopolitical control of vegetal life, a question that will take the forefront in chapter three. For now, the first step to get there is to engage distinct sites of human-plant encounters breaching each type's respective speciation. I do so by critically referring to a number of new materialist works that have opened up the realm of vegetal agency. As this thesis moves forward, however, I keep Haraway as a pillar thinker to this whole endeavor, hoping to demonstrate how her advocacy for companions accountability is manifested within modes of being-with-corn that contest the extractive ecology of corn monoculture by cultivating encounters with plants otherwise. Before turning to specific encounters between

humans and plants as manifesting into trans-species ecologies, the next section pushes the question of vegetal exclusion further with an exposition of the foundation of western metaphysics upon an understanding of life itself as differentiated from vegetal matter.

II. Isolated roots: metaphysics of vegetal exclusions

Most vegetarians will likely have been asked this question hundreds of times: *if it's not ethical to eat animals, why isn't it the same with vegetables? Plants are alive too!* to which most answer that *it's just not the same*. Much is overlooked here, but this answer naively exemplifies the point at which differentiation between animal and vegetal life is deeply anchored in Western worldviews. Not surprisingly, most of my entourage grants me with a suspicious look when I explain that the core of this thesis project is to address ecologies of plant-humans encounters and their different ethics, politics and affectivities. True, we can't lock eyes with a plant the way Derrida does with his cat (Derrida 2006), our interrelations with plants being driven by what Giorgio Agamben calls a "cécité réciproque," perceptual differences that result in blindness to the other's faculties (2002, 81). To the human eye, plants don't move, sense, perceive or think. What made us assume that, while alive, such were lacks, deprivations or absences granting us the right to position their liveliness as inferior to ours? Giorgio Agamben and Michael Marder both answer that it all started with Aristotle.

Aristotle's hierarchization of living beings exposed in *De Anima* is well known, but a short summary goes as follows. Humans are distinct from animals because they are endowed with rational aptitudes – they are "rational animals" – and animal life differs from vegetal life because the latter not only lack rationality but also locomotion, perception, and sensitivity. All are endowed with *psukhê*, translated as soul but perhaps better defined as a "life principle"

(Thacker 2010) indicating Aristotle's recognition of each body's liveliness inasmuch as this very liveliness differ from the others, that each indeed are from a different type. Life is both dichotomized, opposing animal to vegetal life, and hierarchized, plants are inferior manifestations of life whereas humans are a supreme form. Aristotle's "theological ladder" (Marder 2013, 26) initiated a speciation process isolating fluid agencies from one another. Life became that which cannot be defined but which must always be articulated, divided, and categorized (Agamben 2002, 28). In *The Open*, Agamben proceeds to retrace the historical evolution of such speciation, insisting on its centrality in the development of modern sciences and politics. Modern sciences, he contends, relied upon the opposition of vegetal to animal life as a condition for the dissociation of humanity from the animal realm. Vegetal life became a landscape, an internal form of life composed of abstract mechanisms, upon which animal life, external and relational, could happen (2002 30-31), hence depriving plants from relational abilities, confined to their unreachable interiorities. Modern politics also evolved upon these Aristotelian assumptions, as indicated by the development of institutionalized biopower relying on a redefinition and generalization of what constitutes vegetal life, enforcing its non-subjective character and its confinement to the status of national biological heritage (2002, 31).

It is critical to keep in mind that such grand narrative overlooks contingencies, has deterministic undertones and excludes from its linearity any events that might testify to stories happening in unknown registers. This story still has to be recalled precisely because for its mechanisms to be debunked their reliance on generalizations, determinisms, exclusions and positivist comprehensions of progress and history need to be acknowledged from within their own parameters. They have induced continuity between Aristotelian metaphysics and humanism, rationalism, modernism and the contemporary Anthropocene. They have reiterated the human as

the conceptual result of exclusionary processes, the remaining of what it is not, and have perpetuated historically the shuttering of these unknown events, the intricacies, differences and contingencies of vegetal existence. An historical perspective upon speciation also demonstrates its progressive naturalization through which differences between plants, humans and animals have been made irreducible. Deconstructing such processes unveils what Agamben terms "the anthropological machine," (2002, 55-65) that which situates speciation within the confines of the human mind. Through our "cécité réciproque," we, humans, forget about our perspectival position towards others and get lured into taking our observations as objective descriptions.

To meet with plants, the mechanisms of the anthropological machine that seek an essentialist reading of life must be thorn apart: "l'essence de la vie n'est accessible que sous la forme d'une observation destructive" (Agamben 2002, 97). Following Michael Marder, a non-essentialist engagement with human-plants relationality ought to turn towards our commonalities – nutrition, reproduction, and relationality, for instance – rather than our differences, which can be obtained by cultivating an intimacy with vegetal beings (2013, 181). Tracing the lines of a phenomenological approach to vegetal encounters, Marder undertakes a deconstruction of Western metaphysical assumptions of a separation between human and vegetal life by investigating vegetal vitality, a "riddle buried in the folds of western metaphysics" (2013, 27) that built life as "objectification and death"(2013, 19). Aristotelian assumptions, following Marder, have uprooted humanity from its material foundations, its very vegetality, its heterogeneous, disseminated, nutritional, and relational character (2013, 57). The prioritization of rationality over such qualities, it follows, confined humanity into the realms of conceptualism, shutting down the possibilities opened by our co-embodiment with others that take place beyond the anthropogenic mind. For Marder, to follow the plants is to listen to their "silent

deconstruction of metaphysics," to let ourselves reconnect with our own vegetality through phenomenological, deconstructive and weak thought encounters, albeit allowing such methodologies to be challenged by the virtues of vegetal being (2013, 55), opening, in other words, our human perspectivism to plant perspectivism.

Life, Marder claims, must be disjointed from its theoretical apparatuses:

> after we strip life of all its recognizable features, vegetal beings go on living; plant soul is the remains of the psyche reduced to its non-human and non-animal modality. It is life in its anarchic bareness, informed from the fact that it persists in the absence of the signature features of animal vivacity, and it is a source of meaning, which is similarly bare, non anthropocentric and yet ontologically vibrant. In a word, life as survival. (2013, 22).

Bare life, un-conceptual ontologies directed by mechanisms of nutrition, reproduction and relationality, motors of survival, gets to the core of vegetal existence. On the other hand, one should be remindful that articulating these mechanisms as such cannot be fully remote from conceptualism and that to a certain extent the very quest for reaching bare life might exclude writing and philosophical enterprises alike; the very word vegetal indeed has conceptual roots, even though at a bare level it goes on living, and so does bareness for that matter. This nuance stresses the importance of considering the potential of intellectual labor to integrate more-than-human ecologies from within, rather than representing their bare character from an external standpoint. Still, following Marder's argument, uncovering vegetal bareness, or what he calls plant-thinking, guides non-vegetal beings to the discovery of their own vegetality. If western metaphysics had fooled us into thinking we were at the pinnacle of some kind of hierarchy between all livings and that humanity was a form of life opposed to vegetality, listening to plant-thinking helps us uncovering our isolated roots. All beings share vegetality and plant-thinking aptitudes, not only what Aristotelian metaphysics would have called plants, but also humans and

animals: we all reproduce, eat and relate. Thus supposing that the cultivation of an ethical intimacy with plants is founded upon trans-species commonalities rather than differences, Marder pretends offering the opportunity to discover life in its non-conceptual bareness, life, that is, as dissemination and dispersal informed by ontological indifference, non-identity, and heteronomy. When uncovered, these axes form the components of an inclusive vegetal democracy, his project's political scope to which I will return in the last chapter.

Looking beyond a Western metaphysical conceptualization of life that holds us apart from vegetality, casting it as a structure upon which animal life can happen and a resource to be used by humans rather than as an ontological network to which we all belong, Marder succeeds in uncovering a sense of vegetal commonality shared by all earthly beings, inasmuch as they are alive and inasmuch as we understand life as survival. It seems however that Marder's refusal of conceptualism and glorification of bareness as an authentic ideal to hold in face metaphysical tyrannies eschew much dynamics of the vegetal world and its entanglements with trans-species ecologies. Are there sites of encounters that are not necessarily informed by commonalities across bodies, but rather by differences? These latter might very well be what brings, if not forces, differentiated species to keep interacting with one another despite a metaphysics holding them apart. Moreover, if eating, reproduction and other forms of vegetal relationalities are rich in propositions, framing them as part of plant's ontological indifference, their dispersion and dissemination no matter what, seems to assume a fundamental harmony. This overlooks the different power relationships that are constitutive of vegetal ecologies: at the end of the day, there are always plants to invade, kill, or parasitize, indicating that an ethics of conviviality is not inherent to vegetal ecologies.

The three pieces of literature to which I now turn address trans-species ecologies with a specificity that is lacking to Marder's work, making his argument closer to a conceptual negotiation of western metaphysics than to the elaboration of a new materialist ethics for human-plants encounters. When bringing his argument into a discussion about activism and resilience against agribusiness, as will be done in the last chapter, one might ask if activists would have resisted so persistently if their sole mode of encounter with plants was ontological indifference. Stories of resistance indicate that if we are to embrace vegetal heteronomy, ethics and democracy, there is a need for plants and humans to care about one another, and to develop practices of caring beyond and across the power relationships in which they are entangled.

III. Growing: cultural encounters

Emily Eaton's *Growing Resistance* (2012) focuses on the Canadian resistance movement against the introduction of genetically engineered wheat in the early 2000s, arguing that its victory is to be understood as symptomatic of the particularity of human-wheat relationships entertained in Canada. By addressing crops as agents in their own term, Eaton emphasizes that agriculture is one of many sites of more-than-human co-production, wherein humans shape plants as much as plants shape humans. This specific argument departs from analyses of resistance against agribusiness through a political economic lens to emphasize a model of organization getting closer to a form of new materialist politics. While the book gives a general overview of the struggle, moving from agricultural regulations and policies to issues related to the articulation of a resistant public discourses and negotiation of market laws, the chapter "The Difference Between Bread and Oil: People-Plant Relationships in Historical Context" is dedicated to the question of crops' agency. People-plant relationships therein fall under Haraway's notion of

companion species, suggesting that human and crops co-constitute one another through their industrial, agronomic and cultural encounters. By comparing the history of wheat and canola agriculture in Canada, Eaton demonstrates how diverging political, agronomic, and scientific practices create distinct relationships. If both crops can be addressed as companion species, the specificity of their distinct histories of relationality with humans makes them radically different nonhuman messmates. Following Eaton, each type of human-plant relationships converge into a culture, partaking of national identity, as well as a material for semiosis. Canadian wheat culture, as a more-than-human set of encounters, turns out to be about care for the crop conveying into a manifestation of national pride.

Eaton explores this argument through an historical account of the technical, industrial, regulatory, and marketing practices surrounding both crops, including policymaking, consumption habits, breeding techniques, and so forth. Crop breeding, for instance, highly differs from one crop to another as wheat is traditionally bred in fields by farmers, through careful and slow-pace selection, whereas canola is mostly shaped in laboratories and conceived as a product of scientific innovation (2012, 83). Throughout this comparative account, Eaton maintains that biology is intrinsically enmeshed within the social, and vice versa. Plants are shaped by humans as much as humans are shaped by plants. Breeding techniques, for instance, combine sociality (value judgments, economic considerations, market needs, etc.) with biology (the plants constitution, agronomy, fields' ecology, etc.): they are indeed biosocial practices (2012, 70). Eaton: "while it is true that the biologies of wheat and canola have been thoroughly altered by human manipulation and science, it is also true that farmers have adapted their practices and politics to the behavior of the two crops" (2012, 88). By putting forward the co-constitutive character of humans-plants encounters in the context of agricultural activities, Eaton advocates

for an understanding of food production as a site of multi-species entanglements and ecological formations to which nonhuman agencies partake as much as human ones.

Eaton's argument about biosociality however tends to limit the realms of biology to vegetal agents and sociality to humans, thus entangling the bio and the socio with one another by holding them apart. By eschewing the possibility of addressing the ways in which plants shape humans' biology and humans shape plants' sociality, Eaton confines her analysis to an anthropogenic perspective. The strong emphasis on their mutual co-shaping as elaborated through the specific political economy of monoculture tends to give the impression that the notion of biosocial entanglement is advanced from the standpoint of a human self-interested subject: plants and humans co-evolve inasmuch as plants still are commodified to serve human needs. It is hard to ignore how Eaton's emphasis on co-evolution between humans and plants is endowed with undertones of an evolutionary logic driven by self-interest, wherein trans-species engagements are utilitarian and informed by a conceptualization of the other as mere means for survival. This logic also assumes that human-plant relationships are caught in a process of mutual amelioration, wherein each agent, preexisting the encounter (and not constituted from their position of radical alterity), aims at progress. Whereas she claims to engage Haraway's framework of companion species, one might be reminded that Haraway is more inclined to address more-than-human relationalities as co-constitutive rather than co-evolutionary, a term indicating increased sensitivity to the formation of agency through encounters with others, and emphasizing the unavoidability of alterity. Trans-species co-constitutions are indeed about encounters that never start or end, wherein one is never fully separate from the other, constantly becoming with and across foreign bodies whose very boundaries never stop being negotiated.

Vegetal semiosis, following Eaton, partakes of a multi-species conception of national identity, whereby: “the symbolism and meaning of wheat and canola have, in part, made eaters and prairie people who they are” (2012, 88). This conceptualization of plants as semiotic agents resonates with Eduardo Kohn’s argument that the chief commonality of all types and forms of life is a capacity for symbolic thinking, the creation and circulation of signs: “all life is semiosis and all semiosis is alive. In important ways, then, life and thought are one and the same: life thinks, thoughts are alive” (Kohn 2013, 16). Such connection suggests that Eaton’s engagement with vegetal semiosis touches upon the very foundation of inter-species encounters, if not of life itself. It is worth wondering however if there are forms of encounters between plants and humans that escape this regime of semiotic exchanges. The argument that semiosis is the foundation of all forms and instances of life occludes the possibility that non-signifying encounters and meaningless affective exchanges be considered part of life at all. Moreover, it postulates that human-based interpretations of nonhuman signs evoke mutual understanding, suggesting that meaning in more-than-human encounters is transparent. While such an interpretation of humans’ interrelations with nonhumans might lend itself as a justification to increased commodification, extraction, or exploitation, it ignores the anthropogenic perspectives from which nonhuman signs get interpreted. While there certainly are semiotic ecologies through which many types of life come to exchange and relate, there are networks of encounters that cannot be observed, let alone spoken for, from a human standpoint. While Eaton and Kohn’s arguments challenge the discipline of semiotics by opening its concerns beyond the human, from a new materialist perspective theirs is yet another expression of Agamben’s anthropological machine, and its persistent refusal to engage with nonhuman perspectives.

Framing human-wheat companionships as manifesting into a culture might also be an instance of this confinement to anthropogenic perspectivism. Eaton's argument goes as follows: "those campaigning against GM wheat were, thus, able to mobilize a diversity of ways in which wheat is still culturally important to the public, including people's identification as Canadians, prairie folks and consumers" (2012, 73). While this makes a good case for a nationalist understanding of agro-politics, the cultural importance therein mentioned is concerned with a set of values reserved for a human public, just as questions of national identity are. By making more-than-human encounters part of a national culture, Eaton reduces the affective and agential qualities of plant-human relations to a matter of human interest. Culture becomes a tool of domestication, stabilizing a specific worldview, the human's, into a dominant paradigm through which to address the other's agency, affectivity and very own worldviews. Framing trans-species ecologies as a culture ends up reiterating differences, limitations and power relationships between species. In Eaton's view, plants and humans remain speciated, disjointed, and different; insofar as they meet, they will do so on human terms. How do anthropogenic mechanisms, such as culture, semiotics, and national identity, transform when equivocation arises and works its way through destabilization of perspectival positions? What lies on the other side of monocular perspectivism, and what makes it collapse? Reliance on terms that speak from a singular perspective risks reiterating the very domestication of nonhuman others that new materialism ought to debunk.

IV. Eating: you are and are not what you eat

In *Vibrant Matter*, Jane Bennett advocates increased attunement to the vitality of matter, "the capacity of things – edibles, commodities, storms, metals – not only to impede or block the will

and designs of humans but also to act as quasi agents or forces with trajectories, propensities, or tendencies of their own" (2010, viii). While the notion of vitality endows nonhuman beings or things with capacities of equivalent force than those of humans, it also removes agency from within the exclusive domain of the human individual. Agency rather results from interactive processes. It is distributed: "an actant never really acts alone. Its efficacy or agency always depends on the collaboration, cooperation or interactive interference of many bodies and forces" (2010, 21). From a new materialist point of view, vegetal agency is an assemblage of interactions between plants, but also insects, soil, microorganisms, compost, water, sun and humans. Assemblages of distributed agencies are orchestrated by affects, a quality that Bennett understands in Spinoza's terms as the capacity of any body, thing or object for activity and response. The broader political scope of Bennett's new materialism is to find a path for the democratization of human-nonhuman distributed agencies "not the perfect equality of actants but a polity with more channels of communication between members" (104). Provided that linguistic communication is exclusively human, how can actants of different types understand each other? Perhaps the co-constitution of distributive agencies through mediated affectivity might just be what their communication is all about. The question thus becomes: how can humans-nonhumans relationships be democratized not on the basis of mutual understanding but rather on their ontological condition of co-constitutive affectivities?

Translating vital materialities into a written medium is precarious. As agency is distributed among a wide variety of actants, who gets to take part in its interactive assemblages and who is left out? This is a recurrent methodological problem with any academic endeavors bequeathed with rhizomatic breadths: where do we put the boundaries around a network so that the contingencies of its specific interactions are not overlooked while also accounting for its

irreducible multiplicity. Recognizing such ambiguity, Bennett suggests to theorize events, which is exemplified by her book's division in chapters that each examines a specific case, from a blackout to debates about stem cells cultures. Restraining analyses to a specific event negotiates the tension between contingencies and multiplicity by acknowledging the position of the writer as arbitrarily constructing an assemblage whose boundaries are vulnerable. Reifying the writer as a witness to the event also makes her part of the very assemblage she is drawing, a much more sensible approach to human-nonhuman confederations than theories aiming at all-encompassing frameworks, the very structure of assemblages going against generalities. I adopt Bennett's methodological concern by framing this thesis' theoretical inquiry into the affectivity of trans-species encounters around a specific event: corn ecologies. However, as this section will latter demonstrate, my conception of what constitutes an event and how to purposefully frame it is distinct from Bennett's.

In "Edible Matter," Bennett inscribes eating into her constellation of events, all of which are connected by their common, although contingent, vitality. Eating becomes a site for assemblages to emerge, inviting encounters between two bodies: food's "connotative body" (comprising different actants – nutrients, molecules, genes, etc.) and the eater's body (itself an agglomeration of different actants – organs, nerves, muscles, tissues, genes etc.) (2010, 39). Drawing on Nietzsche and Thoreau's conceptions of eating as a powerful agentic event that collides human and nonhuman bodies with one another, resulting in reciprocal entanglements between the bodies of the eater and the eaten, Bennett demonstrates the way eating generates a new assemblage: "once ingested, once, that is, food coacts with the hand that places it in one's mouth, with the metabolic agencies of intestines, pancreas, kidneys, with cultural practices of physical exercise and so on, food can generate new human tissue" (2010, 40). Eating thus is not

really a question of intentionality, as different actants – taste, desire, perceptions, movements, hunger, current mood, as well as the eaten's constitution and cultural connotations – all interact to compose the act of eating. Once ingested, all actants mingle, blurring the limitations between the eater and the eaten's bodies and the very division between organic and inert matter:

> human and nonhuman bodies recorporealize in response to each other; both exercise formative power and both offer themselves as matter to be added on. Eating appears as a series of mutual transformations in which the border between inside and outside becomes bluffy: my meal both is and is not mine, you both are and are not what you eat (2010, 49).

This is reminiscent, Bennett claims, of Deleuze and Guattari's "vagabond quality of matter" (2010, 50) wherein each being, organic or inert, is in constant flux and never limited unto itself, constantly undergoing a process of recorporealization by which the assemblages within which it interacts becomes part of itself. Eating enacts metabolization, a dynamic series of encounters and combinations that testify to each actants' boundless vitality. In the event of eating, humans and nonhumans are never alone, opened to the others beyond their own perceptible delimitations.

This analysis of eating as a process of recorporealization and metabolization between the eater, the eaten and their respective assemblages offers potential tools to re-think this chapter's epigraphs, especially the Mayan saying. When eating corn, the human's and the vegetable's bodily boundaries blur; kernels meet with teeth, fibers with gums, sweetness with taste buds, starch with stomach, and so forth, all of which is interconnected and co-constitutive. Each time one eats corn, such powerful encounters take place, giving rise to a new, fluctuating, unbounded assemblage or, following Bennett, only bounded to the event of eating as a specific temporal experience. While this understanding of eating as a rhizomatic network of interactions among agencies brings a dynamic angle to the analysis, it seems there remains something particular about the perspective expressed by the Mayan claim. After all, such a network of interactions is

likely to emerge in both Mayan and westerner corn eaters but it certainly is not the case that anyone whose teeth venture into the activity of kernel mastication will come out of the experience with a sense of being corn. While this difference might be due to Mayans' increased attunement to food's vitalism and awareness of the recorporealization the act of eating comprises, it also indicates a broader problem in Bennett's proposition: the temporal closeness of the assemblage unto itself is in tension with the perpetual and continuously renewed self-openness of the eater's and eaten's bodies.

Food belongs to an assemblage that is not, structurally speaking, only limited to the action of eating itself: it comes from somewhere and is heading somewhere else. By limiting the assemblage to the very gesture of eating, Bennett overlooks the production and disposal stages of food's life cycle and the networks of actants engaged in these very phases. The action of eating, in the present, might give rise to a recorporealization between two multispecies bodies, but both also are connotative of where they come from and where they're heading. The eaten body also denotes previous trans-species interactions and recorporealizations between a vast range of multispecies bodies – plants, insects, soil, compost, microorganisms, cultivators, sun, water, farmers, etc.– and of the ones that will arise post-eating – compost, manure, or dumps. And so it is with the eater herself, whose action of eating is informed by previous experiences – past meals, physical activity, finances, involvement in the production of the food eaten, etc. – and future ones – digestion, food sensitivities, effects on energy, satisfactions, etc. This is pushed further by the fact that eaters generally eat many times a day every day, suggesting that the metabolization propelled by a nutritive gesture interacts with a set of previous and upcoming meals and their respective distributed agencies. Could eating in fact lead to perpetual

recorporealizations, self-renewing and varying in accordance to the bodies encountered in each meal, a continuously expanding or shape-shifting assemblage of assemblages?

Bennett's analysis of eating brings back the methodological paradox between contingency and multiplicity presented above: the necessity to bound the assemblage of edibility gets disrupted by its very own unbounded structure. By delimiting the event around eating, she creates the impression that food assemblages are always new events, always closed unto themselves, albeit opened to the multiplicity of encounters happening in the present time experience of eating. I suggest delineating food assemblages otherwise, around a specific site in a particular context (such as corn, a crop of struggles between agribusiness and small-scale local practices) instead of around broad gestures, like eating, to avoid overlooking both contingencies and multiplicities circulating across food assemblages. Doing so allows to encounter food in variety of practices and phases, growing, seed saving, marketing, selling, eating, digesting, and so forth, through all of which a multiplicity of actants come interact as connotative bodies full of their own others. Perpetual, continuous and cyclical meetings between humans and corn entangle them in a series of recorporealizations wherein each bodily assemblage merges into a new one. There might even be no human nor corn anymore, just beings whose ontology displaces vegetal and human actants across distributive agencies and trans-species affectivities.

By the end of *Vibrant Matter,* Bennett claims that: "all forces and flows are or can become lively, affective and signaling. And so an affective, speaking human body is not radically different from the affective, signaling nonhumans with which it co-exists, hosts, enjoys, serves, consumes, produces and competes" (117), indicating her recognition that the ways through which humans and nonhumans meet beyond speciation are multiple and obscure radical differences between types. If, following her emphasis, what each actant shares is affect, it seems

here that her reliance on Spinoza's conception entangles humans and nonhumans with one another by mere virtue of being there. But why relate? What brings beings to recorporealize? What is the substance of affect – what does it smell, taste and feel like? The next and last account of human-plant encounters complicates Bennett's use of affect theory to engage trans-species metabolization as more than biological mechanisms.

V. Observing: the affective ecologies of communication

In "Involutionary Momentum," science and technology studies scholars Natasha Myers and Carla Hustak engage with the practice of scientific observation of plant-insect relationships as a form of multispecies encounter including the observer. They suggest that plant-insect interactions should be interpreted beyond a calculating economy of reproductive behavior, as they also compose an affective ecology of intimacies, desires, pleasures, and experimentations, in which the interpreter takes part as much as plants and insects do. Using Darwin's field notes on orchids as a case study, they highlight the passages where we find him confused, confronted with the limits of his evolutionary logic, faced with the circulation of sensibilities, affinities, attractions and intimacies between bees and orchids that reach out to him, affectively entangling him in the ecology he was supposedly observing with detachment (2012, 79). While Darwin's evolutionary project could arguably be identified as symptomatic of the broader western metaphysics that conceptualized life through speciation, Myers and Hustak suggest a counter-approach to his writings opening his logic to trans-species encounters. Called the involutionary method, it invites reading more-than-human ecologies from within, embracing the "thickness of the space between bodies, where affects and sensations are transduced through excitable tissues" (2012, 78), the possibilities of "relationality and becoming with and across difference," "life

happening now, and now, and now," and the "affective push and pull among bodies, including the affinities, ruptures, enmeshments, and repulsions among organisms" (2012, 96-97).

Like Bennett, Hustak and Myers are not only concerned with the vitality of nonhuman individuals, but more precisely with the ways in which such vitalism leads to trans-species encounters, paying attention to what happens between bodies and to beings' mutual becoming with, alongside and across one another. Moving away from concerns with nonhumans' otherness to concerns with the encounter value of their interaction opens the possibility that the bodily boundaries of each actant mingle, that affectivity outshines physical delimitations, that at a certain point there is just too much vitality and circulation to perceive contours. An involutionary approach counteracts speciation in favor of fluidity, hybrid metabolization and rhizomatic encounters. Human beings, just like any other beings, potentially partake of such ecologies as is demonstrated by their inclusion of Darwin within the orchids-bees affective network he is observing, and as Myers' sensorial botanical kryia to "awaken the latent plant in you" suggests in yogic terms (2014). Hustak and Myers' involutionary approach also supplements Bennett's vital materialism by nuancing the role of affect within trans-species encounters. Affect does not only refer to a capacity to interact, but more precisely to mechanisms of interactions driven by intimacies, desires, repulsions, affinities, play, pleasure, disgust, and so forth. This engagement reconciles affect theory and its emphasis on Spinoza's conception with a common understanding of the word as referring to emotionality: affect is not just a mechanistic, biological, and/or indifferent push for interaction, but a set of substantial felt processes shared by earthly beings.

Trans-species affectivities reach to the interpreter, invited to integrate the ecology at hand by letting her senses be "attuned to stories told in otherwise muted registers" (2012, 77). To follow the plants, one must "dive into the soil, mingle with symbiotic fungi and microbes,

converse with insects, and be lured along with other plants cultivator, only some of which are humans" (2012, 81). Myers and Hustak's methodological commentary calls for engagement with nonhuman others beyond thinking and writing, or rather for letting thinking and writing be informed by encounters with nonhumans through an affectively engaged attunement to their otherness. In the case of an inquiry into vegetal agency, this is to be conducted through lived experiences within the multispecies plant world: grow a garden, save seeds, compost, collect wild fruits and vegetables, or what have you. Let this become your research method (frame it as ethnography if you wish) and let your research become life. Thinking, reading and writing mingle with sensing, feeling, and integrating, asking us to listen, respond, and be alert to the diversity of others encountered in the process. This is far from a call for more scientifically based approaches, but rather for more experientially grounded analyses as leaving the observer outside the ecology she is studying risks falling back into the auspices of anthropocentric sciences. Let's instead recognize our integration to more-than-human assemblages by actually integrating them.

While I did cultivate some of the corn seeds I will write about later on, I kept coming back to this fairly straightforward question throughout the season: what is the capacity of scholarly literature to account for a trans-agential assemblage, such as a given garden, with integrity to its poetic, affective and mostly cryptic ecologies? Could it be that the experience of trans-species ecologies from within and its academic expression are hold in tension through yet another equivocation, building upon the ones between humans and plants, and between the I and the other(s)? Following Viveiros de Castro:

> the equivocation is not that which impedes the relation, but that which founds and impels it: a difference in perspective. To translate is to presume that an equivocation always exists; it is to communicate by differences, instead of silencing the Other by presuming a univocality – the essential similarity – between what the Other and We are saying (2004, 8).

Writing thus becomes an act of translation, a process that communicates through differences while quivering both perspectives by making them meet – in this case, gardening becomes a neo-materialist argument and the scholar's hands dirty with mud and manure. The involutionary momentum is the equivocation itself, when "affectual multiplicity" (Viveiros de Castro 2004, 7) gets recognized as flows of ones and others substantially interacting on the basis of their perspectival, ontological, and material differences.

The intense affective circulations entangling humans, plants, insects and their related species with one another, Hustak and Myers claim, is an event of communication (2012, 100-105), thus of networked translations between a multiplicity of perspectival positions. Communication becomes a structure for theorizing vegetal distributed agencies, which distinguishes inquiries into vegetality from animal studies whose reliance on communication theory depends on animals' mutual capacity to lock eyes with one another. This absence of "cécité réciproque" between animals leads many scholars to analyze their inter-species encounters through the lens of semiotic communication theories that position actants as recursively sender and receiver of interpretable signs (2012, 80-81, 100-105). As vegetal encounters lack such perceptual reciprocity, exchanges between actants rather function through networked, affective, and material disseminations leading to continual dynamic recorporealizations. The circulation of substantial affects becomes what communication is all about, a set of meaningless, disseminated, dynamic, and networked material exchanges between a vast array of co-existing beings. Vegetal communication forms trans-species ecologies, of which humans, insects, soil, microorganisms, water and hosts of unbounded agencies take part, entangling with one another up to a point where: "we don't know what a signal is or what it can do, let alone what constitutes cross-species communication" (2012, 104).

In the vegetal world, plants are notable communicators as they:

> are alchemists who turn sunlight and carbon dioxide into volatile utterances and innovate forms of atmospheric media amenable for long-distance expression. They are artisans who craft mimetically responsive anatomies. They are also keenly attuned sensors whose bodies can register the subtlest difference in temperature, the slightest brush of the wing of a passing insect, and who can discern small differences in herbivores by detecting distinct substances in their saliva. Their roots and rhizomes form a network of connections as complex as an animal's nervous system, and they move actively in response to their ever changing world (2012, 104).

Such analysis is not isolating plants from their trans-species ecologies but rather brings the authors to enter into the plant's perspective through the work of equivocation, as: "equivocation appears here as the mode of communication par excellence between different perspectival positions" (Viveiros de Castro 2004, 5). Venturing in the other's perspective through their own, the authors emphasize the willingness of plants to embrace the work of an inherently multiple equivocation, their openness to a self-perspectival disruption through the encounters of insects', soil's, sun's, microorganisms' perspectives – and so do Myers and Hustak themselves with their own human perspective. Is there a point however where the translation stops translating, where communication through differences becomes communication through indivisibility, where the multiplicity of perspectives merges into an absence of perspectives, where misunderstandings no longer persist? This might be where trans-species ecologies take us, to a point where the multiple becomes one precisely because it is multiple. The one and the others have metabolized. They are as much distinct as they are the same. We might be corn and the corn might be us precisely because we are human and because corn is corn. We can ontologically be the same, translate our very beings into one another, all part of an irreducible communicative ecology driven by flows of recorporealization and substantial affectivities precisely because we are able to crawl back into

speciation and perspectival differences, because we can continuously reiterate the gap, because we can misunderstand the other, because we can be different as much as we can be the same.

VI. Conclusion

In this chapter, I have argued that the networked circulations of affects between arrays of beings constitutes the main mechanism through which humans, plants, and others meet and mingle, becoming trans-species companions fashioning material ecologies. Replacing the more common suffix 'inter' by 'trans' emphasized the critical difference between modes of encounters that stabilize agencies into species and those that embrace the possibility of dissolving these very limitations through recorporealization, metabolization, and affective processes. Agamben's critique of metaphysical speciation, Marder's advocacy for an ethical democracy of vegetality, Eaton's conflicting framing of trans-species encounters as cultural, Bennett's attention to edibility positioning vital-material agency as a motor of recorporealizations between bodies, and Hustak and Myers' engagement with involutionary engagement amongst trans-species affective ecologies as a form of communication, all offer different paths to explore and sustain this argument. Could it be however that leaps in the un-speciated are stirred by the others' otherness, that it is because a delimited self perceives others as others that their encounters blur delimitations, that one can become multiple as much as it can become one? Could it be in fact that an adventure in the realm of more-than-human affects does not contradict fully our metaphysics of delimitations? After all, no plant is going to read this paper, but this does not mean that these words have not met with plants. Maybe is it just that speciation and trans-speciation are two distinct but co-existing modes of being, in which case the only form of tyranny would be to prioritize one of these modes over the other, dismissed as a mere marginality, and to refuse their co-existence.

Yet this co-existence rather takes the form of a global struggle under the auspices of the Anthropocene, and its related economic and ecological crisis more than often ordered under a narrative of endemic apocalypse. In light of this literature review of neo-materialist theories concerned with vegetality, I now turn to a specific type of vegetal matter, corn, and explore its conflicting ecologies in an era in which the notion of species has become synonymous with threats of extinctions and other forms of ends. What politics, what ethics, what affects do we need for such a time? Arguably, the upcoming chapters draw the lines of distinct scenarios, exploring practices whose answer to this question highly differ from one another. While I first turn to the history of corn monoculture and its relation with extractivism to then move onto questions of resistance and survival to this economy, both stories ask one similar question, epitomic of this global context: how are we to engage with more-than-human life? As will be shown, some see corn as resources, others as fellows; some use corn, some are.

❖

II

Control:
the extractive ecology of corn monoculture

"Critical thinking is one of the forms that politics of the Anthropocene can or even has to take. Indeed, perhaps thinking is the most political thing we can do with regard to the Anthropocene, before we go and do anything else."
– Joanna Zylinska, *Minimalist Ethics for the Anthropocene* (125)

When *Wired's* Brandon Keim published the headline "Voracious Worm Evolves to Eat Biotech Corn Engineered to Kill It," (2014) exposing how insects and plants are standing against one another in an evolutionary war initiated by the human kind, the news seemed unsurprising. Common, indeed, for the age of the Anthropocene. In this familiar narrative, humans have sided with corn, making it a domesticator of our lands, plates, and bodies, the executioner of biodiversity, and the apparatus of an economy of careless consumption. While still debated, the appointment of our current era as the Anthropocene positions humanity as a geological force with scalar impacts on future of the biosphere. This is not as much an anthropocentric discourse as one that sheds light upon human interaction with raw resources, or more accurately with nonhuman materiality perceived as resources. It is in fact extractivist-centric. While the discourse of the Anthropocene undertakes the critical move of addressing the relation between extractive activities (big agriculture, mining, oil refining, etc.) and climate change, it nonetheless tends to homogenize humans and nonhumans as cohesive wholes by disregarding who exactly is exploiting, resisting or suffering. Forgetting to ask "who is the Anthropos?" (Sharp 2015), it enacts what I have called in the preceding chapter a speciation process, domesticating every human into its parameters and producing an over-encompassing "we":

> referring to what philosophy and common sense have designated as "humans" but also opening onto a complex and dynamic network of relations in which "we humans" are produced as humans and in which we remain entangled with nonhuman entities and processes (Zylinska 2014, 13).

Perhaps this is what lies at the end of the extractive journey: a redefinition of who is human, and who isn't, of who holds the privileges of extraction and who is extracted.

By presenting corn monoculture as an extractive industry, this chapter emphasizes that extractivism is a core mechanism of the Anthropocene as an era of global climactic changes, but also a discourse of speciation. As will be shown, extractivism, conducted through activities such as large-scale corn monoculture, and the concept of the Anthropocene are paralleled in their engagement with nonhuman materialities by means of speciation, drawing boundaries around hybrid ecologies. My attempt at bringing forward this specific character is framed by this thesis' continuum that suggests that more-than-human ecologies are divided between two broad modes of encounters, speciation, reiterating boundaries between entities, and trans-speciation, metabolizing across fluctuating and hybrid materialities. I thus proceed to give an historical account of the development of corn monoculture, stressing specific modes-of-encounter between humans and corn, as well as with a vast array of human and nonhuman agencies, and emphasizing the different power relationships, ideological paradigms, and political economies that such encounters put in place. Tracing the roots of what Lily Kay has pointed to as the emergence of a new form of biopower over life itself (2000), I investigate cornfields by asking: who is domesticating whom, and how? how do corn, humans, technologies, chemicals, industries, corporations and other messmates from related ecologies meet? what set of agential networks do such engagement creates? who exactly is the Anthropos, and who isn't?

The scientific, economic, political and cultural ideals informing the history of corn monoculture are abundant. While I hope that this account will shed a light on some of these, my main purpose is to bring attention to a specific site of more-than-human encounter with a new materialist sensitivity, pointing out to an ethical-political critique particular to the movement's discussion of the Anthropocene. I thus open the chapter with considerations about the relationship between new materialism and extractivism. I then proceed to account for the history of corn monoculture, which I divide into two historically specific projects: agricultural industrialization, and biotechnological development. In both sections, I present the main actors, technologies, events, and issues of these developments, as well as put forward the specific political ramifications of both projects, colonial ramifications in the first case, and the legacy of a postwar technoculture of control in the latter. As both accounts will demonstrate, the development of the industry of corn monoculture is informed by a specific mode of more-than-human encounter, manifesting into a biopolitics of control that domesticates vegetal otherness through mechanisms of invasion and isolation. In light of such accounts, I argue that the vital materialist site of corn monoculture exemplifies how the geological Anthropos constitutes an exclusionary network of human and nonhuman agents entertaining a perspective upon vegetal and indigenous others as sites for extractive intervention, dispossessed through apparatuses of control, invasion and isolation. The geological Anthropos, it follows, is the producer and product of a material-discursive process of global speciation for an era of endemic catastrophes, and the Anthropocene, an assemblage of extractive ecologies.

I. Privileged matter: extractivism and new materialism

Extractivism is commonly defined as an economy based on the large-scale exploitation of non-renewable resources. Corn monoculture and other agribusiness enterprises can thus be addressed

as extractive industries considering that their land-use and techno-chemical assets impede non-renewable resources such as soil and water (Giarraca and Teubal 2014, 48). Yet extractivism is also an ideology according to which the massive exploitation of nonhuman life constitutes a necessity for sustaining the current global capitalist economy (Veltmeyer and Petras 2014, 2). This suggests a definition that is not as based upon the material action of extracting a specific resource from a given ecosystem than on a structure of subjugation of otherness to the status of resource to fulfill the needs of a specific species, the human, or perhaps more precisely, the human as a consumer of goods. Thus extractivism is an economy of speciation, stabilizing given materialities in terms of their utility to a consumer species whose needs can only be fulfilled by an economy of perpetual growth. This is as such that corn monoculture and other sites of agribusiness can be addressed as extractive industries. This is also as such that it becomes evident that extractivism is to be understood as a set of inter-species encounters, as its activities require material engagements between human and nonhuman agencies. While these are informed by dynamics of exploitation, commodification, and subjugation, they are engagements nonetheless. Thus I ask: what place is to be given to extractive encounters within new materialist literature?

There is a tendency within this scholarship to give almost exclusive attention to more-than-human encounters appearing harmonious, balanced or egalitarian to the human eye, and to idealize them as peaceful polities or evidences that capitalists humans have it all wrong. For instance, the attention given to multi-species spiritualties, transcendental encounters and sacral practices amongst proponents of the ontological turn – such as excursions into dog dreams (Kohn 2007) or Mongolian landscape shamanism (Perderson 2013) – ignores the traces of conflicting materialities populating the sites in which such celebrations take place – consumption waste,

petrochemical pollution, over-logged forests, and so forth (Bessire and Bond 2014). Bluntly put, violence does not figure into the imagination of vital materialities, as it is precisely violence – the oppressive exploitation, hierarchization and commodification of nonhuman materialities for political-economic ends – that new materialism stands against. While envisioned as a theoretical tool of resistance against economies of species oppression, bracketing violence excludes from consideration a whole range of encounters that are just as constitutive of vital materialities. Bessire and Bond:

> philosophers may just be getting the point, but workers, farmers, scientists, engineers and medical professionals have long recognized and negotiated the dispersed agencies of the natural world. The easy dismissal of modernity as mononaturalism disregards the long litany of ways that particular format never really mattered in the more consequential makings of our present (2014, 447).

Bessire and Bond's critique calls back Marx's factors of production, human labor and nonhuman nature, whose relationality is fundamental to primitive accumulation and to capitalist materiality as embodied labor (Schweickart 2011, 24). There remain inescapable differences between hospitable and violent inter-species relations, but we ought to recognize that an ethics of conviviality is not necessarily constitutive of vital materialist relationships, but one of several possible orientations. Foremost, control, subjugation and violence are modes of more-than-human encounters persisting, if not predominating, into extractive ecologies.

Inter-species relationships might thus be defined as the experience of relationality through materialities extending beyond bodies discursively delimited as humans into agential networks, organized alongside distributions of power, whether these latter are oppressive or convivial. While this definition is inclusive of both extremes exposed above, it keeps their difference central. This brings us back to the Viveiros de Castro's notion of perspectivism exposed in the previous chapter, inviting us to take account of what plays in between diverging

perceptions of nonhuman materialities, as resources or as messmates, and to cultivate a sensitivity for the different power relationships such a tension entails. Paying justice to both perspectives with the same theoretical tool, as attempted by this thesis' juxtaposition of chapter two and three, suggests that the in-between is endowed with a potential of resiliency to the Anthropocene. On the other hand, dismissing extractive capitalism as yet another failure of anthropocentrism impedes this potential, as this very notion is produced by speciation processes, positioning "the human, and human consciousness, as the pinnacle of all creation" (Zylinska 2014, 55). Perspectivism stands against anthropocentrism precisely because perspectival tensions are not exclusive to the human kind, as human materiality is also perceived otherwise, from beyond or beneath its own boundaries. Chances are that flies and mosquitoes do not see humans but food; viruses, home; seeds, transport; corn, labor enabling its own species survival. This is especially the case with invasive species, whom, as Jason Groves observes, might very well use the circuits of global capitalism for their own advantages, mutating "the eco- into a horizon not constrained by any anthropology" (Groves 2012, 196). Just what this horizon looks like is a most daunting question for any all-too-human new materialist.

On the other hand, if both convivial and violent forms of more-than-human encounters ought to be addressed by new materialism, the emphasis on their difference discloses the oppressive mechanisms of the latter. Framing extractive capitalism as a form of inter-species relationality refutes its normative tendency to domesticate more-than-human ethics of conviviality as myths or cultural oddities. It is a move of reversed domestication. By addressing its engagements through the logic of dog dreams, edible recorporealizations, or floral sexualities, of vibrant matters and affective ecologies, the violence of extractive encounters comes forward. Against a backdrop of alternate boundaries and queer ethics, extractive capitalism is taken away

from discourses of resource-based economy to ones of biopolitics of domination. In this chapter, I thus address corn monoculture as a site of vital materiality standing against trans-species ecologies and affective materialities. By giving such an account, I emphasize how industrial and technoscientific processes have stabilized the crop's fluid ecologies into an extractive species. As the remaining of the chapter should demonstrate, such an examination of extractive sites discloses that the Anthropos emerges through ever evolving ecologies of control, weaved through networks of corporate, mechanical, chemical, technoscientific and genetic agents, as well as mechanisms of accumulation and dispossession.

II. A quiet weapon: corn and industrialization

Maize seeds cannot disperse autonomously. The industrialization of corn agriculture did not eradicate this human-crop partnership upon which maize reproduction relies, but transformed it in a way to blind both parties to their ubiquitous relationality. Entangled mechanisms of an industrial infrastructure, this updated form of reliance remained essential to their own species survival, inasmuch as corn was understood as a commodity, humans as consumers, and survival as feeding the global economy. This emerging industrial model of inter-species relationality renegotiated the epistemological boundaries of both species, as well as of their modes of encounter. Industrial corn puts on diverse disguises – syrup, starch, steepwater, gluten, oil, feeds – and infiltrates most of what we, consumers, eat, work, move, and entertain ourselves with. The horizon of our partnership reaches wide, both in terms of agricultural capacity, acres cultivated and yields, and of productive malleability, with harvests destined for a large network of goods industries, including livestock, processed foods, cosmetics, military, furniture, fuel, and

distillery. As put by Michael Pollan, if aliens were to land on earth today, chances are they would believe corn is growing humans (Pollan 2006, 21).

Writing these words, I notice that there might very well be corn in just about everything I am surrounded by: breakfast, clothes, laptop, and so on. Wandering a corn-based consumption economy, it seems like things might be going the other way around, that it is corn that is writing us. Scrutinizing corn's industrial network is horrific, as there is no way to trace back every agricultural technique and chemical used to grow it, every industrial process using it to produce commodities, nor every commodity that is made from it. Perhaps the only thing this chapter can do is to uncover how industrial corn has written up our lands and bodies, how we have been domesticated as its faithful consumers, made into a species of corn junkies. This account of corn industrialization suggests that if corn was first domesticated to in turn domesticate the human, a double-sided process of speciation, articulating corn into a commodity and factor of production and humans into capitalist consumers, informs the history of such industrial partnership. As boundaries were drawn around species according to the industrial priorities of an emerging extractive economy, processes of control proper to a biopolitics of invasion ensured their materialization.

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While a project of twentieth century America, corn industrialization's roots go back to settlement, both in terms of its perspectival heritage, as diet was part of what allowed colonizers to differentiate themselves from natives (Earle 2012, 8), and praxis, as corn succeeded where wheat had failed. Corn adapted itself to almost every possible climate on the continent, thus providing everything settlers needed, from vegetable and animal feed, to flour, beer, whiskey, rugs, twines, and heat (Pollan 2006, 25-26), as well means of payment in the trade of African slaves (McCan 2005). Following Alfred Crosby's claim that the remaking of the continent's

lands according to settlers worldviews, desires, and needs constitute a central colonial mechanism (1994), it is telling that a native inheritance like corn has become central to the development of the current extractive economy. Corn industrialization is rooted in a colonial continuum that subjugates the crop to Western economic worldviews, and makes it a material of conquest, a powerful agent in capitalism's invasion of American lands and bodies.

Industrial food and other commodities are to be understood as: "any food [or object] whose provenance is so complex or obscure that it requires expert help to ascertain" (Pollan 2006, 17). Taking the standpoint of a particular crop instead of the one of a specific industry opens unto a wide network of industries, stressing the centrality of extractive activities such as large-scale monoculture to the current consumption economy. Few other crops have made it as far along the axis of resource-based material production as corn has, which may either be because of the heritage it carries, its unique ability to adapt to climate and other agricultural variables or, probably most importantly, because of the many functions that a single kernel can carry out once broken apart in milling processes. Moreover, in the current economy, corn enjoys the double status of food and commodity, making it a "protocapitalist plant" (Pollan 2006, 26) against a variety of values carried along generations marginalized by extractive capitalism, such as heritage, deity, and family and bio-diversity.

This domesticated vegetal hybrid has thus become part of just about anything that is part of the American consumer-based lifestyle. At home, sweet corn is consumed as a side dish or as a meal – it even has its own holiday-ish event in francophone Québec*, épluchettes,* which can oddly be translated as "peeling feast". As livestock feed, corn for silage gets consumed as bacon, pork, ham, beef, lamb, milk, butter, cheese, poultry, eggs, among other agricultural foodstuffs. More versatile varieties of corn are disguised as starch, dextrin, syrup, steepwater, gluten, oil,

among others. As syrup, it is consumed as beer, bread, crackers, pastries, sauces, dressings, gum, candies, ice creams, canned and frozen fruits and vegetables, jams and jellies, baby foods, and so forth. As starch, it infiltrates items made of aluminum, steel, rubber, wood, leather, and cotton, as well as books, automobiles, clothes, paper, chair, furniture, electronics, towels, utensils, toys, etc. Corn steepwater is likely to be found in antibiotics such as penicillin, chlortetracycline, erythromycin, polymyxin, and steptomycins; corn meal in the bakery becomes cookies, cereals, and snacks, while in the factory it becomes wallpaper paste and dynamite. Corncob oil is transformed into lubricant and solvents (Fussell 2004; Pollan 2006; Walden 1966). This list never ends.

While this industrial dependence on corn might be understood as part of the colonial continuum discussed above, the period around and between the World Wars brought significant changes into cornfields. The elaboration of new hybridization techniques and their commercialization began the standardization of corn agriculture. Although seed hybridization practices has a long standing heritage, pioneer Henry A. Wallace shifted its priorities from aesthetic standards to productivity: higher yields, resistance to drought, hail, frost, insect, diseases and uniformity between plants to facilitate mechanical harvesting and to spread sun needs evenly between bushels (Walden 1966, 47). As Pollan observes: “the true socialist utopia turns out to be a field of F-1 hybrid plants” (Pollan 2006, 36). Wallace created the first F-1 hybrid seed in 1927 following such standards and his belief that yellow corn would be best suited for commercial purposes, such as livestock feeds and industries of goods production (DuPont). It was quickly found that these new hybrids would not reproduce themselves in a second generation, conveniently forming the biological equivalent of a patent by forcing farmers to buy seeds from private corporations every season (Pollan 2006, 31). In 1933, hybrid yellow corn was

first planted for commercial purposes covering around 10% of all United States corn and rising to 90% by 1965 (Walden 1966, 55). Facilitating mechanical harvesting and large-scale monoculture, Wallace's commercial hybrids turned out to be seeds of a quickly growing corn-based capitalism.

The rise of agricultural chemicals played a big part in the development of corn industrialization. Amongst numerous products, the development of the Haber-Bosch process allowed farmers to bypass the necessity to grow crops in rotation to ensure proper nitrogen production in the soil. In 1909, German scientist Fritz Haber developed a process of ammonia synthesis into nitrogen, commercialized as the first synthetic nitrogen product by Carl Bosch as soon as four years later. The Haber-Bosch process made possible the plantation of corn in the same field every year, making the farm manageable under: "industrial principles, as a factory transforming inputs of raw material – chemical fertilizer – into outputs of corn" (Pollan 2006, 45). Thanks to synthetic nitrogen, US corn production went from 1.6 tons per acre at the beginning of the twentieth century to 8.5 at the end. It is estimated that around half of the world's nitrogen is nowadays synthetic, which causes considerable environmental damage. While it varies from country to country, between 30% and 80% of synthetic nitrogen used is lost through atmospheric releases, soil erosion, leaching, wash offs, spills, and denitrification, causing nitrate leachings in lakes, ponds, and rivers, accumulation of ammonia and nitrate in the atmosphere, and increases in greenhouse gas emissions (Smil 2001). Surplus of ammonium nitrate in explosive fabrication facilities led postwar factories to convert to the production of synthetic nitrogen, suggesting that military leftovers fostered the industrial development of monoculture.

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The rise of industrial agriculture led to the reconfiguration of numerous industries. It is estimated that around 60% of world corn production goes to the livestock industry. Following

Pollan, this change is expressed in a shift away from the farm to the feedlot, perhaps better understood as a meat factory. The feedlot system represents a "victory of industrial thinking over evolution" (68), in that it disrupts cattle's nutritive relationship with the vegetal world, naturally feeding on grass, by forcing them onto a corn-based diet whose main advantage is shortened time-span to reach slaughter weight. Standard cattle feed is made of crushed corn kernels supplemented of liquefied fat and of a protein supplement made of molasses and urea, a form of synthetic nitrogen produced from natural gas (Pollan 2006, 74). As a bovine eats around half a bushel of corn a day, it is estimated that it eats around 35 gallon of oil in its life via corn, if the petroleum used to transport corn to feedlots and to make synthetic nitrogen are considered parts of the actual corn cob (Pollan 2006, 83).

If less important in quantitative terms than corn for silage (livestock feed), corn for grain, destined to go to processing plants where it is milled and broken apart into a variety of components, discloses the invasive quality assigned to industrial corn and its omnipresence in the current consumption economy. Starch is the principal element extracted from the corn kernel, highly valued for its adhesive and thickening capacities that proves useful for the production of diverse non-food items, as well as for sugar and syrup in foods (Walden 1966, chapters 8-10). Starch production results from wet milling processes, via which botanical and chemical parts of the kernel are steeped in water and sulphur dioxide to separate starch from protein, the latter mostly going to the preparation of silage. What remains of the kernels is then grinded, separated from the germ from which is extracted oil, and grinded again into starch (Pollan 2006, 87-90). From there, starch can be broken into glucose, converted into sugar or syrup for a variety of processed foods, as well as into dextrin, amylose or other forms of starches for a variety of industries such as paper, textile, metals, transportation, medicines, wood, leather, fuel, etc. Wet

milling generates a residue known as steepwater, fermented for antibiotics production, or transformed into oil or gluten. Less important than wet milling, dry milling produces corn meal and corn flour, as well as gelatins for a variety of non-food items (glue, explosives). Even the cob, once an important source of waste, was used during the Second World War for the fabrication of *furtural,* a lubricating oil and solvent, and is found today in items such as clay, pipes, and charcoal. As emphasized by Howard Walden, these various usages of corn for grain were first thought for industries providing commodities to the military, such as transportation, munitions, paper, food, and textile, and adapted to a postwar economy (Walden 1966, 164-170).

It is estimated that Cargill and ADM own around two thirds of all corn grown in America (Pollan 2006, 63). As put by Brewster Kneen's *Invisible Giant*, one of Cargill's best qualities is its capacity for remaining invisible while controlling every stage of the industrial food production chain globally. Cargill acts as an input supplier for farmers, a grain buyer, trader, and processor, as well as a commodity producer and a speculator at every policy level of this network (Kneen 2000, 10). It thus provides pesticides and fertilizers to farmers, buy corn back from them, operate grain elevators, dry and wet milling processes, and manufacture numerous products that have been presented above, such as syrup, ethanol, and livestock feeds, all of this under the umbrella of different companies. While these numbers might have changed over the last fifteen years, it was estimated in 2000 that Cargill's facilities produced around 600,000 tons of cattle feed, 100,000 tons of gluten meal, 50,000 tons of corn oil, and 270 millions liters of fuel-grade ethanol over the course of a single year. Moreover, Cargill adopts the common neo-liberal strategy of participating in agricultural policymaking via the formation of numerous lobbyist or trade association groups, acting to influence policies in a way that represent their interests. As put forward by Kneen, by engaging policies from the point of view of industries as a whole,

Cargill lobbyists and policymakers obscure the corporation's central position in these organization by claiming to defend the general interests of the sector as a whole. Some of the interests defended rather stand in conflict with those of laborers and producers, such as their advocacy for low market prices whereas farmers would mostly benefit from high crop prices (Kneen 2002, 34).

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The story of corn industrialization indicates an instance of biopower applied to a nonhuman materiality. Following Foucault, biopower is a form of governance that works at the level of the population, a given group or species, in order to "make live and let die" (2003, 241) through a normative conceptualization of what constitutes life (2003, 253). As Haraway observes: "Foucault's own species chauvinism had fooled me into forgetting that dogs too might live in the domains of technobiopower" (2008, 60), and so do plants and insects, stem cells and food, and atoms and electrons. Wallace's standardized hybrids, Haber's synthetic nitrogen favouring monoculture, and the progressive networking of corn usages for a variety of consumption and military industries form an assemblage of mechanisms working upon the corn species in order to make it live according to standards suited to a growing extractive economy. High yields, productivity, resistance, uniformity, seed malleability progressively became what life should be about for the corn species, letting other of its traditional characteristics, such as diversity, vanish and enacting this reign of the norm through apparatuses of production and control. The material application of such norms through industrial priorities and biopolitical mechanisms renegotiated the boundaries of the corn species.

As previously discussed, speciation is to be understood as the discursive-material stabilization of ontologies and fluid ecologies into species, concordant with Foucault's attention to the massifying logic of biopower: "biopolitics deals with the population, with the population

as a political problem, as a problem that is at once scientific and political, as a biological problem and as power's problem" (2003, 245), as long as populations, like species, are understood as resulting out of differentiation processes, as argued in this thesis' first chapter. As seen in the account given of corn industrialization, biopolitics' massifying mechanisms enact speciation through a logic of invasion, continuing to enforce ties between corn monocultures and colonialism by progressively invading indigenous and/or traditional lands, bodies, and techniques, rather than directly eliminating them (Wolfe 2006). Invasion in this case has three main targets: lands, plants, and consumers. The former is self-explanatory: greater demands for corn crops lead to land accumulation by corn industrialists in order to spatialize on that demand. As for vegetal invasion, it appears that in a land of highly diverse maize traditions and cultivars, yellow dent corn has been given increasing priority, progressively shaped through industrial ideals and its normative biopolitics. This dismissal of biodiversity, indigeneity, traditional practices and other trans-species organizations of maize differentiated and standardized industrial corn as a normative species, emphasizing how economic and material processes of biopower articulate speciation. Subjugated to diverse apparatuses of control, such as hybridization and synthetic fertilizers, this industrial species emerged against a backdrop of ever declining diversity.

As corn is made into a species of industrial interests, the account given above also demonstrates how it is used to infiltrate most commodities circulating across our consumption economy. Invading almost all spheres of the consumer lifestyle – food, transport, entertainment, work, home design, etc. – corn becomes the tool of an economy that subjugates human consumers into perpetual encounters with this product of extractive monoculture. Made into corn junkies, the crop becomes our own regulatory apparatus, standardizing the human species as a

consumer species. This gets us back to the discourses of the Anthropocene that postulate narratives of species war between humans and nonhumans, endowing the former with guilt and responsibility in regard to the threats, degradation, and violence imposed on the latter. Extractive activities do not only carry speciations of the nonhuman, for which all of the human kind holds responsibility: humans are indeed themselves subjugated to this economy of speciation. Made consumers, our own boundaries get biopolitically renegotiated, excluding other affects, materialities and encounters from our own species epistemology. This is such that the species of extractive monoculture meet: industrial corn becomes a tool allowing the extractive version of the human species to survive, as to survive we shall consume. The very notion of human survival and accountability in face of the climate crisis are disclosed as products of the discourse of the Anthropocene itself. This end we are meant to be so afraid of might in fact be the end of extractivism; not the end of life itself but of life itself as a capitalist apparatus of control or as the ontology of an extractive species known as the human-consumer.

While this industrial biopower stabilizes fluid assemblages of bodies, energies and affects into species, it does not follow that this process is willfully enacted by a sovereign subject. Instead, the specific system of corn industrialization seems to be operated by a network of industrial, economic, corporate and extractive agencies, constitutive of a broader geological force we have come to call the Anthropos. A new materialist approach to this biopolitics emphasizes the distribution of power across agencies, human, material, corporate, animal, material and so on, suggesting that, in this case, settlers' early observations and experiments with maize, Wallace's seeds, Haber's nitrogen, dextrin, starch, steepwater, livestock industries, milling, World Wars, fuel, plastic, metal, food, Cargill, ADM, as well as other agencies untold of here, such as policies or diet propagandas, constitute the sovereign's multi-agential body, the Anthropos' numerous

faces. Somewhat like colonization (this is not a coincidental parallel), *biopoliticization* as indicated here is not an event but a structure extending through time (Wolfe 2006) and through networks of sovereignties and forces alike.

III. Engineered to kill: corn and biotechnology

The story of corn industrialization indicates a project of vegetal standardization through invasive mechanisms eradicating trans-species ontologies, biodiversity and traditional practices, domesticated as mere fantasies, or unspeakable luxuries for which time and money are lacking. This suggests that corn is not only intimately bound up with the biopolitics of life, but also those of death. This is remindful of Achille Mbembe's demonstration of biopolitical governance's entanglement with necropolitics, "the subjugation of life to the power of death" (Mbembe 2003, 39). Following Mbembe: "to exercise sovereignty is to exercise control over mortality and to define life as the deployment and manifestation of power" (2003, 12). Commodifying life through controlled invasion of bodies, matters and relationalities, leading to bio-ontological eliminations, the industrial enterprise morphed into a biotechnological project by the end of the century, disrupting anew monoculture's balance between life and death, making of the latter the ultimate evolutionary mechanism, the one and only apparatus of speciation.

A sharp definition of biotechnology encompasses: "any technique that uses living organisms (or parts of organisms) to make or modify products, to improve plants or animals, or to develop microorganisms for specific uses," a description conveying the recentness of the term while including agricultural endeavors of long-standing heritage (Kloppenburg 2004, 1). In contrast to breeding and hybridization techniques, genetic engineering intervenes at the molecular and cellular level, bypasses sexual reproduction by connecting sexually incompatible

individuals, performs highly specific mutations, operates in the laboratory rather than the fields, and falls under private control (Fitting 2011, 39; Kloppenburg 2004, 2; Weasel 2009, 65). For Kloppenburg, the insertion of a foreign gene extracted from an unrelated species into another species, the common element to all genetic engineering practices, is troublesome: "the walls of speciation are crumbling" (2004, 3). However, as I have argued above, the "walls of speciation" are not only the natural outcomes of evolutionary processes remote from anthropogenic organizations, but also the results of discursive-material norms upheld by the interests of an extractive economy. Foreign genes, in this case, are tools for strengthening, not eroding, the technoscientific stabilization of crops into species.

Diving beneath biotech's bio/necropolitics, we find yet another network of discourses, techniques, practices, sciences, endeavours, stories, policies, and scandals, that even when focused on corn brings us into surprisingly related fields, such as cybernetics and postwar information theory, and back to extractive capitalism and its corn-based economy of consumption. The story of genetic engineering recounted here indicates an informational turn in monocultures, reshaping notions of life itself and speciation processes as questions of code and communication, and facilitating their commodification. This section takes interest in the isolation of species from their ecological settings as a requirement for informational life to flourish, and in the necropolitical agenda of the genetic engineering enterprise for eliminating unfitted and unwanted agencies, and its undermining of affective trans-species ecologies.

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While Gregor Mendel's experimentations on peas to study the passing of genetic traits and Thomas Morgan's development of gene mapping techniques from experiments with drosophilas are important moments in the early history of molecular biology, James Watson and Francis crick's description of the DNA molecule as a pair of two twisting strands running

opposite direction, initiating an understanding of DNA as a code, was a major breakthrough. As pointed out by science historian Lily Kay, Watson and Crick's conceptualization of life as information via which living organisms became understood as a book to be deciphered echoed the technicality of Warren Weaver and Claude Shannon's mathematical theory of communication, and Norbert Wiener's cybernetics and its advocacy for communication as an exercise of systems control (Kay 2000, 97). Enmeshed in a postwar nexus of information, knowledge and power, this nascent understanding of life as information, of DNA as text, and of communication as control informed a growing desire for intervention at the level of life itself: "if DNA is a text that we can read and if it is something we can transcribe, then it is also something we can copy, selectively manufacture, and alter" (Roof 2007, 94). It is under this postwar technoscientific paradigm that the following decades saw the discovery of ribonucleic acid synthesis and the successful isolation of endonuclease, the enzyme spliting the two DNA strands, both crucial advances for the development of biotechnology. Three years later, in 1972, Paul Berge used endonuclease to introduce foreign DNA into bacteria via a recombinant DNA process, an early inspiration for further genetic engineering developments (Peekhaus 2013, 4-5). In 1973, Herbert Boyer and Stanley Cohen successfully transferred a gene from bacterial plasmid into an African clawed toad, the first complete gene transfer from one organism to another, which became the common recipe for bacterial gene transfer in the field of medical biotechnology (Hart 2002, 64; Peekhaus 2013, 39). In 1976 Boyer and Robert Swanson founded one of the first biotech companies, Genetech, where two years later scientists succeeded in cloning human insulin by using recombinant technology and bacteria.

These early experiments paved the way for the 1980s biotech boom, characterized by shared hope and optimism reflected in numerous regulatory approvals by the Food and Drug

Administration (FDA) and experiments with genetic engineering for understanding and fighting the rise of the Human Immunodeficiency Virus (HIV). 1987 saw the first genetically engineered crop to catch public attention when the ice-minus bacterium was approved for field-testing, a product preventing the formation of ice crystals on crops (which usually causes crop failure). The news of open-air testing awoke public debates about risk factors, animated by the fear that such technologies could break havoc with meteorological patterns (Hart 2002, 70; Weasel 2009, 11). This first public debate led the Bush administration to publish a document entitled "the Four Principles of Regulatory Review for Biotechnology," encouraging focus on characteristics rather than process, minimal regulations, accommodations of rapid advances, and performance standards. Two years later, the same administration declared that no differences should be taken into account between genetically engineered and regular food, as much for regulation and labeling than consumption (Hart 2004, 78).

Under this new regulatory framework, numerous products came to market, such as anti-ripening Calgene's Flavr Savr tomatoes, Rhône-Poulenc's herbicide-resistant cotton, and Asgrow Seed's virus resistant squash. Due to a particular interest in creating products suited for major monocultures, genetically engineered corn came early to market, in 1996. The first corn product commercialized was Monsanto's Roundup®Ready® corn, seeds engineered to resist applications the company's herbicide, glyphosate, followed by pesticide-producing Bt corn. It is estimated that 52% of corn grown in the United States today is genetically engineered, with Bt corn making most of this percentage (Menda Cotez 2013, 59). As of 2010, of all genetically engineered crops grown worldwide, a rough 95% are soybeans, corn or cotton (Kinchy 2012, 6), showing indisputably strong connections between agricultural industrialization, monoculture, extractive capitalism, and the biotech enterprise. As pointed by Abby Kinchy, this lack of seed

diversity is mirrored by a lack of diversity in corporations in charge of controlling sales of genetically engineered seeds, with Monsanto controlling seeds for 60% of the land growing biotechnological crops in the United States (Kinchy 2012, 6), a figure rising to 87% in the rest of the world (Peekhaus 2013, 43).

Other corporations, such as AgrEvo and Novartis, imitate Monsanto's model by offering genetically engineered seeds suited to the needs of monoculture and dependent to their own trademarked chemical inputs. Other common tactics include the patenting of genetically engineered seeds, breaking with traditional agriculture's reproductive cycle and constraining farmers to buy seeds each season. Monsanto particularly excels at enforcing corporate control with strategies that include compulsory agreements with their customers that restrict the use of their products to monocultures and grant the company access to customers' fields, acquiring shares in companies with rival products, and engaging with local farms to gain access to indigenous genetic resources. Such industry control results in decreased availability of conventional seeds, while forcing farmers out of traditional techniques and constraining them to perpetually increasing input costs (Peekhaus 2013, 45-48). It follows that amongst the many deaths engineered by the enterprise of Agro-biotechnology are traditions and heritage, as well as farmers' rights and autonomy.

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Genetic engineering is to be understood as a technoscience, a generative matrix combining science, politics, technology and culture (Haraway 2003), and materially-discursively exercising bio-necropower over vegetal agents and trans-species ecologies, weaponizing code, subduing life to communication as control, and materializing information into commodities (Peekhaus 2013, 6). The range of techniques and technologies used to carry these mechanisms are varied, but all start from a common process: a specific gene is extracted from a foreign

species and introduced into the genetic makeup of another, for which there are two methods. The infection method consists of attaching the foreign gene to a mobile structure infiltrating a soil bacterium, agrobacterium tumefaciens, carrying the gene into the plant. However, numerous crops, including corn, are immune to such infections. The second method is known as the gene gun technique, and consists of coating numerous particles onto a micron with thousands of altered DNA molecules and firing this package into the plant's cell tissues. As genes do not always get to infiltrate the genetic makeup of targets, identification techniques, such as antibiotic reactions, fluorescence, or lightening up, are necessary. Foremost, as not all genetic makeups express the intended trait, the foreign gene is inserted alongside a promoter virus ensuring that it "turns on" (Hart 2002, 92-99; Kinchy 2012, 6).

Initiated by Monsanto in 1996 with Roundup®Ready® (first tested on soybeans and released for corn the same year) herbicide resistance is one of the most common traits of genetically engineered crops. Roundup®Ready® seeds are designed to survive massive applications of Monsanto's own herbicide, Roundup®, a glyphosate combination whose action is to "inhibit an enzyme involved in the synthesis of the amino acids tyrosine, tryptophan, and phenylalanine, which are critical to plant survival" (Peekhaus 2013, 43). The upcoming expiration of Monsanto's patent on Roundup® partly justified the interest the company held in turning to genetic engineering in the late 1990s, as the cultivation of these new patented genetically engineered seeds to resist the company's own brand of herbicide would continue to force farmers buying Roundup®, a model of market control imitated by companies such as LibertyLink.

Herbicide-resistant genetically engineered crops raise crucial environmental concerns. Foremost, by encouraging massive uses of herbicide, the enterprise promotes the indiscriminate

destruction of unwanted vegetals, extracting cultivated crops from their vital ecologies. This normative framework in which vegetal life accrues value only when it can be (forcibly) isolated from other non-valued vegetals contrasts greatly with agricultural schools like permaculture and biodynamic farming, and points to the discursive construction of weeds as nuisances (Fukuoka 2009). Weeds, hedgerows, wild flowers and wild plants, all damaged by herbicide applications, encourage diversity to bloom by forming vegetal-animal ecosystems that do not necessarily exclude cultivated crops (Hart 2002, 41). Another issue is evolving weed resistance, necessitating increased applications of stronger herbicides and stronger herbicide resistant varieties, establishing a vicious circle wherein wilderness and technosciences perpetually fight against one another in an escalating war for a victory that will never be achieved. A shocking example of this evolutionary battlefield is to be found in Roundup® waste pounds along the Mississippi River in Louisiana, nicknamed cancer alley, where colonies of bacteria and wild plants have remade their genetic makeup to survive Monsanto's chemicals (Weasel 2009, 17-19). Herbicide-resistant genes are one of the biotech enterprise's main tools in its necropolitical campaign against the wild unfits, a campaign that both relies upon and promotes an understanding of vegetal life as differentiation, competition and seclusion.

YieldGard®, Monsanto's Bt corn, came to market around the same time than Roundup®Ready®, in 1996. Bacillus Thuringiensis, Bt, is a soil bacterium first discovered around 1900 in Japan. Each Bt subspecies creates its own unique toxic crystals and spores that, once absorbed by insects larvae, produces alkaline in their gut, paralyzes their intestines and prevents nutrient absorption, making it a very efficient insecticide (Weasel 2009, 20-21). Since its discovery, Bt has been used as an organic alternative to chemical pesticides, even praised by Rachel Carson in her classic *Silent Spring* (1962). In 1981, scientists at Washington University

isolated Bt's gene responsible for the production of toxic crystals and spores and, in 1988, Monsanto started experiments on tomatoes to genetically engineer crops that would produce the bacterium themselves. While the first trials failed, as the Bt gene did not stick onto the plant, success was achieved two years later with the use of a synthetic Bt gene and another target, cotton, and quickly moved into the development of other products, such as potatoes and corn. Genetically engineered Bt seeds produce the bacterium in each part of the plant: roots, stalk, leaves, pollen, cob and kernel, thus making sure every insect is exposed to its pesticides, including beneficial ones (Hart 2002, 102-106).

The fact that Bt pesticide has long been labelled as a "biopesticide", and valued as an alternative to chemical pesticides, played in favour of companies when they started to apply for regulatory approval of genetically engineered Bt seeds. Worries were nonetheless expressed as to what were the consequences of internal Bt applications, in comparison to usual external applications, which Monsanto countered by proving the bacterium would vanish from the human body in less than thirty seconds. By 1996, numerous Bt crops were approved, including Monsanto's YielGard® and Novartis's Event 176 corn. In 1999, John Losey from Cornell University published the results of a study on the effects of genetically engineered Bt corn on monarch butterfly populations, demonstrating that contact with corn pollen would lead to quick death, causing problems of population decreases in the long-term (Losey 1999). Further studies found ladybugs and lacewings were exposed to similar dangers when in contact with Bt corn (Hart 2002, chapter 8 and 9). Evolutionary resistance is also a common problem within Bt fields: insects, just like weeds, continuously develop increased Bt resistance. While these dangers are common concerns today, Bt crops still are the most popular genetically engineered crops on market. With Bt, technoscientific necropower extends beyond targeted unwanted and unfit

individuals as death morphs from intentional strategy to unintended side effect partly as a result of the very ecological dynamics the product is designed to circumvent.

Beyond the techniques developed to produce them, the common denominator of genetically engineered crops such as corn is the ideology that to thrive, crops must be made into killing machines. This necropolitical logic of separation, hostility and elimination is brought to an ironic climax with "Genetic Use Restriction Technologies," commonly known as the Terminator gene, whose function is to render seeds infertile, thus isolating crops from their own lively and reproductive apparatuses. While still under regulatory moratorium, this form of organic planned obsolescence is defended as a security mechanism against risks of gene flow and cross-fertilization, although the main interest is biological enforcement of the patent and the economic relations it entails, forcing farmers to buy new seeds every year (Peekhaus 2013, 69). While biotechnology normalizes corn through mechanisms of death and isolation purported by its understanding of life as a decipherable (and thus controllable) code, weeds, pests, reproductive apparatuses and related agencies are made codeless by these very technologies, mere noise in the game of life against which the Anthropos stands.

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Beyond concerns with biodiversity, opponents of genetic engineering express worries with the unnaturalness of the technology (Fitting 2011, 51), its practice of biopiracy and theft of indigenous genetic heritage (Hart 2002, 190; Shiva 1997), its creation of a biohegemony, whereby the bios becomes an expression of corporate interests (Newell, cited in Fitting 2011, 38), and its overlooking of genetic agency, of vegetal and environmental genomes as ecosystems of complex interactions vulnerable to the introduction of foreign agents (Mae Wan-Ho, cited in Hart 2002, 255). Critics have also suggested that the future of crop improvement might rather lie in finding ways to reshuffle crops' genome (Robert Goodman, cited in Hart 2002, 256).

Opponents share worries about biotechnology's risk factors, environmental ones, biodiversity decreases and evolutionary resistances as presented above, as well as health hazards, such as food allergens and toxicity (Kinchy 2012, 8). The two following contamination stories are moments where these risks and worries became tangible.

Aventis Cropscience's StarLink was the only Bt corn approved for restricted use in livestock and other non-food industries, as studies found high risks of allergenicity related to StarLink's generation of the Cry9C molecule. Despite such restriction, a chain of allergic reactions to Kraft tacos across the United States in 2000 was proved related to the presence of Aventis' corn in Kraft's products. While Kraft used corn produced by Azteca Milling, a company using only non-genetically engineered corn, detection tests found great inconsistencies, with grain testing negative while flour positive. Due to these hints of involuntary genetic contaminations, Kraft recalled all its tacos and related products, the first food recall related to biotechnology, and Aventis and the USDA bought back StarLink productions from farmers. When doing so, it was discovered that most farmers were unaware of the restrictions associated with StarLink, such as selling harvests only for livestock and non-food milling companies, and avoiding sowing StarLink beside other corn varieties due to high contamination risks. By the end of 2000, around three hundred food products suspected of containing StarLink were recalled, and it was estimated that within four years StarLink would have worked its way out of the food chain, as long as it would not sow itself accidentally (Hart 2002, chapter 13). The StarLink saga is one of the rare moments in the history of corn monoculture where its industrial network crumbled at each of its intersections: farming, regulation, milling, production, mediatization, and consumption. Going up the chain in reverse, contamination, a phenomenon with a somewhat

saboteurial agency, came to disrupt each node the industry had stabilized as the just the way things are to be done.

During the same period, in Oaxaca, Mexico, home to the world's largest corn diversity, fields were being tested for genetic contamination. In 2001, two Berkeley scientists found evidence of maize cross-pollination with different Bt corn brands, including StarLink (Quist and Chapela 2001).[1] These contaminations were highly worrisome as it was then strictly prohibited to grow genetically engineered corn in Mexico, suggesting that contaminations were caused by corn imports from the United States (Fitting 2011, 35-45). While this is the most mediatized case of genetic contamination, similar cases include papayas in Hawaii, canola in Australia, and flax in Canada. Genetic flow, while impeding diversity, also creates risks of cross-fertilization with wild plants resulting in the creation of super-weeds or invasive plants, as well as reduced seed quality (Kinchy 2012, 8). Once transgenes reach a field, complete erasure is almost completely impossible (Fitting 2011, 46) and, over time, distinguishing between transgenic and non-engineered plant might become unfeasible (Hart 2002, 123). Developing their own agency (Müller 2006) transgenes reach a point where they escape the Anthropos's project of capitalizing informational life through control of the text (Müller 2006). Freed of their engineered code, they reach back the ecologies of affective materialities, flowing through the rhythms of their own agentic liveliness, while still acting disruptively, as the Anthropos' trace remains indelible.

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This account of genetic engineering demonstrates that its practices, products and history are informed by a broader conceptual heritage coming out of postwar technocultures of information and communication, materializing through an emergent form of biopower reliant on

[1] The article was discredited by *Nature* for motifs of flimsy methodologies, but real motifs behind this decision remain debated.

understandings of DNA as information, text, and/or code, of life itself as order, and of communication as control. This nascent biopolitics "promises new levels of control over life through the pristine metalevel of information, through control of the word, or the DNA sequence" (Kay 2000, 327), while taking advantage of this new conception of life itself as informational, pointing to "another, inconsiderable history of biotechnology in which life itself is synonymous with the uses of life" (Thacker 2005, 61). If biopolitics is to be understood as a form of governance normatively making populations and/or species alive, the shift to informational biopower is also about "the production and reproduction of life itself" (Hardt and Negri 2000, 24), that is, of life as a series of code, teasing the sovereign-Anthropos always further, caught in front of a text always up for more editing and rewriting, a text that in the end is both the writer and the written, the sovereign and the subject (Chun 2011, 110).

The materialization of this postwar knowledge-power nexus into technoscientific endeavors is meant for commodification. Following Peekhaus, if the informational understanding of life itself is tainted with genetic reductionism and essentialism that disregards the adeptness of living organisms, it is so because it is intended to serve a corporate capture of vegetal life:

> agricultural biotechnology has been appropriated by capital as an element of broader accumulation strategies, including the way that the increasing commodification of both biotechnological information and materiality have been insinuated in the trajectory of contemporary capitalist social relations (Peekhaus 2013, 9).

Key to this genetic economy is information's double-sided status as a commodity and a factor of production, something that both possesses exchange value and is used to endow other materials with exchange value, or in terms of communication theory, both the message and the medium. The enterprise of Agro-biotechnology's biopolitical regime of control thus gave birth to a new form of sovereignty, one that is not so much about knowledge than about control and ownership

(Peekhaus 2013, 53). In the opening of this chapter, I suggested an understanding of extractivism as the exploitation of nonhuman materialities as means for primitive accumulation. The commodification of life itself as a series of controllable codes through biopolitical practices such as genetic engineering appears to be a manifestation of what we might call informational extractivism, an active component of the broader economy of extractive capitalism.

In Wiener's understanding of communication, control, feedback loops, individuals' responses, and their potential to interact with and influence the governing agent, are central (1954). At its origins, then, this nexus of information, communication and control was not imagined as a complete sovereign exercise but as a much more interactive phenomenon. If the corporate imagination of genetic engineering plays into desires of total control over life itself, the numerous environmental drawbacks presented above – contaminations, biodiversity loss, and evolutionary resistance – indicate the inevitability of feedback loops. Even as it aimed at homeostasis, cybernetics was premised on the inextirpable instability of all living systems – information cannot be reduced entirely to a commodity, or a factor of production, because it always retains an agentic force of its own, intrinsically entangled within networks of affectivities, vitalities, and materialities. Organic material can be represented as information, but it cannot thereby be stripped of its agency and interactions within hazier trans-species ecologies. The corporate enterprise of genetic engineering strives to stabilize such matter as a technoscientific apparatus, a tool for its biopolitical process of vegetal speciation, or rather, its necropolitical project of isolating mono-crops from vital ecosystems and non-commodified informational networks alike. However, like information in a feedback loop, even vegetals reduced to apparently perfect information, or those cast out as others to be eradicated, always seem to return in one way or another.

The biotechnological enterprise of corn-monoculture feeds upon its constitution of networks of otherness, indigeneity, codeless matter, informational agency, pests, weeds, wild plants, bacteria, micro-organisms, farmers rights and autonomy, evolutionary ecosystems, confirming that "capital is an organism that cannot sustain itself without constantly looking beyond its boundaries, feeding of its external environment. Its outside is essential" (Hardt and Negri 2000, 224). The enterprise's isolation of corn from trans-species ecologies as manufacturer of fundamental networks of otherness can be understood as biopiracy or biocolonialism in regard to its theft of indigenous genetic resources (Shiva 1997, Thacker 2005), as informational extractivism or scientitization in regard to informatic agencies (Kinchy 2012), and as an environmental threat in regard to the engineered deaths of pests, weeds, wild plants, beneficial insects and ecological agencies alike. It follows that the biopolitical project of corn isolation from trans-species ecologies to further its speciation is also one of exclusion, drawing the lines of which species can be endowed with exchange value against a backdrop of codeless, unfit, and threatening agentic ecologies. It is not only that the enterprise of biotechnology's biopolitics is inevitably enmeshed with a necropolitics of otherness, but that it creates otherness to feed upon it, pushing further its primitive accumulation and commodifying killing practices. As indicated by the phenomena of evolutionary chemical resistance, biodiversity loss, and genetic contaminations, without ecologies to destroy, there would be no biotechnological development, and the more there is to destroy, the more profit there is to make.

IV. Conclusion

The account of the development, technologies, and socio-political context of corn monoculture given in this chapter emphasized the industry's extractive character. This was achieved by

adopting a new materialist sensitivity to explore a site of large-scale resource exploitation of vegetal matter, advocating that such attention to oppressive, exploitative or violent more-than-human encounters ought to be addressed by proponents of this movement. By grouping this history in two broad moments, agricultural industrialization, and biotechnological development, I have emphasized the industry's biopolitics, standardizing vegetal life as invasive in the former case and secluded in the latter. While industrial biopolitics is enmeshed with colonial ideals, normatively making land, corn and humans alive according to the political-economic worldviews of extractive capitalism, the upbringing of corn monoculture into the fields of biotechnology indicates its relation to a postwar technoculture of information and communication as control, lending life and death to commodification. The extractive worldview therein exposed conceptualizes vegetal agencies into either raw matter up for grabs, lending itself to commodification, or ecological nuisance threatening economic development. Such understandings and engagements with vegetal agencies are to be understood as processes of speciation, redrawing the lines of what corn is and is not following political-economic and extractive interests.

The project of corn monoculture is episodic to the cataclysmic era of the Anthropocene. Alongside other extractive enterprises it nonetheless gets pointed to as yet another failure of humanity, yet another proof of our species' incapacity to lovingly engage the intricacies of our extinguishing world. As announced in the opening of this chapter, I believe that accusations based on homogeneous account of species ought to be nuanced with a critical perspective disclosing the specificity of actors and agents engaged in producing and perpetuating the Anthropocene. I have also attempted to demonstrate that such a discourse resonates with the speciation mechanisms of extractive industries. Thus by accounting for the development of corn

monoculture through a vital materialist lens emphasizing the power relationships circulating across its more-than-human encounters, I have argued that extractive activities form their own ecology. The distribution of agency and power across corporate, ideological, economic and technoscientific actors discloses that extractive encounters are not so much made through a human exploitation of nonhuman materiality, than through politically interested networks of decentralized relationalities. The Anthropocene is not about human singularity, even less about its supremacy. The Anthropos is an all-encompassing figure, a constellation of various extractive ecologies, each forming their own confederation of distributed agencies through a biopolitics of control. The term Anthropocene is indeed etymologically speaking not so representative of the political-economic dynamics producing our current geological and climactic conditions, and might better be reframed as the *Capitalocene*, the *Extractivocene,* or, even, the *Anthropobscene* (Wark 2015, 223).

Stories of resistance tell otherwise. Ecologies against ecologies, extractivism against vitalism, species against trans-species, can the Anthropos be resisted to? What happens beyond and beneath its global scope, its biopolitical mechanisms, and its commodified life and death nexus? The next chapter dives into vitalities endangered by the extractive ecology of corn monoculture, hoping to define trans-species engagements and disclose the political potential of their conservation.

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III

Extinct:
the survival ecologies of heirloom corn conservation

"Comment peut-on déclamer la mort des survivances?"
– Georges Didi-Huberman, *Survivance des lucioles* (54)

"In the era of extinction we can begin to imagine imaging for other inhuman worlds."
– Claire Colebrook, "Framing the End of Species" (61)

Whether it is their indication that somewhere in the midst of eternal winter a sense of apocalypse has become tangible or their mise-en-scène of humanity's very own graveyard, there is something almost too otherworldly about the Svalbard Global Seed Vault's official pictures (annex). The bank stores seeds from the world's current 1750 seed banks, safeguarding genetic diversity from environmental and geopolitical hazards. Not so innocently nicknamed the doomsday vault, the project is both symptomatic of discussions around the Anthropocene as a new geological era of anthropogenic global changes and massive earthly extinctions, and a gift to a post-Anthropocene age whose name is not yet known. Perhaps is it not as much an instrument for our own species survival than a legacy to futurity bequeathed with the trace of an earthly past of conflicting assemblages, both an archaeological evidence of this hostile land history and a survival guide for lives to come. Svalbard Global Seed Vault is an archive of earthly life and its trans-agential material assemblages caught at the dull edge of extinction: "[the] slow unraveling of intimately entangled ways of life that begins long before the death of the last individual and continues to ripple forward long afterward, drawing in living beings in a range of different ways" (van Dooren 2012, 12).

As old as agriculture itself, seed conservation comes in a diversity of forms and views: "[it is] a set of practices including the planting, tending, harvesting, storing, eating and replanting of seeds (and other propagating material), as well as the attendant processes of exchanging and knowledge building" (Phillips 2013, 3). While traditional seed saving practices are conducted from small-scale situated engagements, the Svalbard Global Seed Vault departs from their cyclicality to ensure that only specific instances of humans-plants entanglements survive (van Dooren 2009, 381). Its emphasis on security, intellectual property, and genetic resources foregrounds an informational understanding of vegetal life endowed to the broader extractive economy presented in the previous chapter. This project thus compels consideration of the potential of local practices and small-scale traditions in the face of global devastation: can they resist hegemonic biopolitical control and extractive economies? Can trans-species ecologies survive the Anthropocene? In this chapter, I want to suggest that in a context of global climatic mutations, in which it is estimated that around seventy-five percent of crop diversity is already extinct (FAO 2015), small-scale situated trans-species engagements, such as heirloom seed conservation, become means of survival to this setting, and of resistance against its orders. Small-scale in situ seed saving, I hope to demonstrate, is about practicing politics of the otherwise.

If according to Didi-Huberman, "la politique des survivances se passe forcément de la fin des temps" (2009, 72), *elle(s) se passe(nt) néanmoins depuis la fin des temps*. Following scholars such as Bennett (2010), Latour (2004), or Zylinska (2015), amongst others, we are in need of a political framework for addressing new materialities (or ontologies) and disclosing the organization of more-than-human relationalities, material forces, and distributed agencies. I have previously shown that extractivism and its biopolitics of control is one such model, predominant

to the current global economy. However, it is far from the only possible form of organization that more-than-human polities can take. Yet it is against this extractive backdrop that I will present three such models, grappling onto the possibility of vital materialist forms of political resistance. Following this thesis' continuum, the resilient character of such polities lay in their refusal of extractivist speciation, organizing through encounters beyond, beneath and across species, and forming networks of recorporealized, fluid and vagabond affects. In this chapter, I engage with in situ heirloom corn seed saving to shift perspectives from a large-scale singular ecology of standardized technoscientific crops, to small-scale plural ecologies of diverse heritage plants. I begin by discussing new materialism's relationship to survival and resistance. I then turn to three corn seed saving stories, through each of which I expose a different model of trans-species politics: (1) Zapatistas' seed saving actions against the introduction of genetically engineered maize in Mexico, and the vegetal democracy of appearance, (2) the Iroquois White Corn project, and botanical decolonization, and (3) everyday labor, and the banal politics of matter. I argue that what unites these different practices, stories, ecologies and politics is a shared concern for survival, distributed across agencies and resisting the speciated hegemonies of the Anthropocene. In an age of endemic extinctions and hegemonic economies, to survive is all there is to organize for.

I. Ecologies of survival: resilient materialism

Positing trans-species ecologies as capable of political organization, Bennett asks: "what is the difference between an ecosystem and a political system? Are they analogs? Two names for the same system at different scales? What is the difference between an actant and a political actor?" (2010, 94). While I take up Bennett's invitation to face the question of nonhuman actants and

vital matters' political capacities, I diverge from her attempt to fit all instances of vibrant materiality into a single framework – namely, a broadened democratic ecology of appearance, to which I will return in the following section (2010, 94-109). A multiplicity of political models shapes more-than-human ecologies, including extractive ecologies' biopolitics of control and their deprivation of nonhumans from political capacity. New materialism, it follows, is an approach or a set of perspectives onto the world in the present, not a prior, essential, uncorrupted state of nature to which we might return (Zylinska 2015, 132). New materialism is an approach that is sensitive to the emergent distribution of agency, affectivity, and power beyond, beneath and across species, not a polity whose constituents and constitution can be fixed in advance. In other words, new materialist approaches confirm the radical contingency of all political orders, including the regimes of extraction characteristic of the Anthropocene. However, new materialism is also inflected by the sense of necessity arising from the dynamics of exploitation, extinction and depoliticization to which the contingent political order of the Anthropocene has given rise. Thus, we are obliged to inquire into the possibility of more-than-human alternate polities even though every detail of their compositions cannot be determined in advance of their emergence.

What grounds the moral obligation to consider trans-species possibilities beyond the Anthropocene? Survival emerges as a common thread. Amongst a multiplicity of alternate trans-species polities, to survive becomes an imperative of resistance against global extractive orders and the threats to life, hybridity and politics posed by the Anthropocene. Somewhat paradoxically, survival becomes strategically meaningful in this context only if it can be shorn of its anthropocentric connotations:

> what might be thought is the extinction of the climactic eye: can we imagine a mode of reading the world, and its anthropogenic scars, that

> frees itself from folding the earth's surface around human survival? How might we read or perceive other timelines, other points of view and other rhythms?" (Colebrook 2013, 60).

Critical of the climactic eye as symptomatic of an extractive worldview whereby nonhuman materialities are understood as resources to sustain a human continuum, Colebrook advocates for survival despite humanity, life, and species; survival as a continuation of the otherwise. Following Yates McKee's invitation to use survival as an ethico-political imperative and a mode of reading ecologies (2012, 81), this chapter postulates that Colebrook's advocacy for post-climactic survivability can be found within trans-species practices such as seed saving. By virtue of their small-scale, localism and situatedness, they go unnoticed in the large-scale story of climate change, the massive scope of extinction threats, and extractivist control. Engaging the smallest and more banal sites of trans-species agencies, their practice take place beneath life, humanity, species, setting free more-than-human affects from the stabilized life of climactic species (Colebrook 2014, 91). Their lack of appearance is aligned with Georges Didi-Huberman's poetic elaboration of the figure of the firefly: "êtres luminescents, dansant, erratiques, insaisissables and résistants comme tels," (2009, 19) creatures of a strange conjuncture of survival and resistance, rejecting the very possibility of total destruction by embracing the imperceptible. Fireflies' intermittent signals dodge over and under hegemonic systems, resisting by keeping on. Merging Colebrook's call for survivability beyond the climactic eye with Didi-Huberman's survival-resistance nexus, this chapter establishes survival ecologies as ontologically imperceptible, organizing against extinctions, extractions and speciations.

The tendency of survival ecologies to disappear places them in tension with the dominant tradition of political theory that associates political agency with appearance, and which therefore

casts resistance in terms of a struggle for recognition or the right to appear or to be heard in the public sphere (Arendt 1958; Habermas 1962; Taylor 1994). Even more radical contemporary theories, such as Jacques Rancière's conception of politics as a space of contention over the distribution of recognition and participation (1998) or Stephan Darcy's conception of militant action as the language of unheard voices (2013), hardly speak to survivability as a form of post-climactic resistance. While this nexus might find affinities with Hardt and Negri's revolutionary promise of the multitude, a resistant swarm of decentralized singularities gathered under a common motive, it stands against the formation's transparent contestations of power structures for the re-establishment of a more democratic and just social order (2004, 100) as survivability is about escaping these very orders to practice otherwise. Judith Butler's argument for survival as the conservation of vital conditions, including the possibility of appearance in spaces of visibility (2009), also fails to capture the spirit of withdrawal that characterizes the survival resistance nexus. In Butler's account, visibility emancipates individuals from a system of public misrepresentation which makes certain lives livable and others killable, while in a context of earthly extinctions survivability might rather be manifested through the capacity of disappearing from these representational systems altogether. Butler's conception of survivability, however, does come closer to post-climactic survival when framed within her broader argument about alterity: "it is not as an isolated and bounded being that I survive but as one whose boundary exposes me to others in ways that are voluntary and involuntary (sometimes at once), an exposure that is the condition of sociality and survival alike" (2009, 54). Here exposure becomes a mode of encounter between and across bodies in which threatened subjects are faced with the precariousness and arbitrariness of their material delimitations, echoing trans-species ecologies' flight from economies of speciation. Coupling survival and resistance suggests a departure from

broader discussions around these issues that tend to remain within the power systems they are intended to contest (appearance, visibility, representation, etc.) favouring instead a flourishing of the radically otherwise. Survival as resistance is not as much about the visibility of contestation as it is about a mode of practicing difference with and through others.

Thus we might start imagining a sphere of disappearance. Following McKee, survival catalyzes into traces, an in-between material event indicating both absence and presence, appearance and disappearance, threats to which entities and ecologies are exposed and their capacities for continuation (2010). How are we, then, to make the trace disappear, if it is only as such that its ecologies might survive? A shift of perspective must occur: keeping in mind the Anthropocene and its era of large scale industries, masses of extinctions, and big politics, I purposely turn to small-scale ecologies whose local situatedness and contingencies make them unsuitable candidate for the big narratives of climate change, extractive control, and endemic apocalypse. Banal in their auspices, such practices stand against Anthropogenic worldviews, principles, and techniques, including their politics (biopolitics of control), their commodification of nonhuman materiality as resources (extractivism), and their stabilization of fluid agencies into delimited entities (speciation). Small-scale practices follow Colebrook's call for a notion of survival that (almost) does not account for species delimitations, the climactic eye, and anthropogenic continuities. As already suggested in this thesis' first chapter, trans-speciation arises through material actions and practices in which different arrays of affective entanglements take place. In the world of vegetal encounters, these include, eating, gardening, observing, digesting, smelling, etc., each creating different modes of recorporealization, metabolization and affective entanglements. The three stories to follow each reveal a different mode of organization, but all answer to a political necessity in their own way: surviving to extractivism by practicing

otherwise. Unnoticeable to doomsday narratives, these stories enact different worldings, modes of encounter, and organizations, remindful that trans-species ecologies might keep on going beyond and beneath the time of species.

II. Maya Mother Seeds in Resistance: growing more-than-human democracies

Ian Quist and David Chapela's discovery of genetic contamination within Mexican cornfields constituted an offense to Tzotzil Mayans' very way of life as a people of maize: "you see, the seed cannot survive without its people, and we cannot survive without our corn" (Brown 2013, 162). Intrinsically enmeshed with threats to biodiversity and biosecurity was the destruction of Tzotzils' traditions, disclosing the vulnerability of *criollos* (corn landraces), indigenous people, and their trans-species ecologies, to the disruptive agencies of extractive ecologies. This vulnerability extended to the specific Mayan ontology whereby corn and human reciprocally are, and make, one and the other (see chapter one). As the national outrage raised by such contamination converged into "In Defense of Maize," a series of public forums organized by various NGOs to summon measures for increasing biosecurity such as field testing, public awareness, rights declaration for biodiversity preservation and indigenous cultural autonomy (Fitting 2011), Tzotzil's Zapatistas convened of another form of insurrection. It is out of the first forum, in 2002, that the Maya Mother Seeds in Resistance project was born, a community managed seed bank for safeguarding *criollo* seeds from transgene flows. Part of the Zapatistas' broader educative project of the School for Chiapas, promoting the transmission of Mayan philosophies, practices and traditions such as ecological agriculture (School For Chiapas 2015), the bank's purpose is to insure the survival of native corn seeds against threats of contamination,

thus not only protecting maize biodiversity and indigeneity but also its trans-species ecologies, heritages, and relationalities.

In the project's first phase, students and activists proceeded to collect corn seeds from Tzotzil growers. Seeds were then stored following a traditional set of techniques. First, they were mixed with ash and lime to protect them from humidity and eucalyptus from insects, and stored in ceramic containers for a short time period. To insure seeds stored for long-term conservation had the proper moisture level (under six percent) they were shattered with a hammer; only seeds that didn't mash could be conserved. The resulting selection was then transferred into plastic bags, dated and brought within the school's collective freezer, where the seeds could get permanent protection from contamination and related threats. It was quickly realized that this process came with its limitations: seeds collected had already been open-pollinated, thus making the conservation of one hundred percent pure *criollos* hardly possible. Such conservation techniques were in fact preserving a specific seed generation and not the "constantly evolving Mayan cultures nurturing and relying on these seeds" (Brown 2013, 166). Moreover, many activists felt that these techniques were "dragged into the commoditization of seed and all of its administrative and technical complexities" (Brown 2013, 166).

Thus the Zapatistas moved into the project's second phase. In an attempt to overcome the exclusivity of their savings, they invited farmers from all of Mexico to save their own native corn seeds within their facilities, thus creating a more diverse collection. By making their *criollos* part of the Maya Mother Seeds in Resistance collection, growers were agreeing to claim no ownership over their seeds, thus opening the project's contestation of biotechnological agriculture to one against a regime of property rights over seeds. It is also in this second phase that Zapatistas undertook the elaboration of a global distribution platform, making *criollos*

varieties available to gardeners and maize enthusiasts worldwide while inviting them to participate to the collection's continuous growth, which still goes on today. As a result, the original seed bank at the School for Chiapas was: "eclipsed by a worldwide living seed bank of Zapatista corn. This Zapastita "seed bank" includes scientifically pure grow-outs at undisclosed locations, peasant plantings in Africa and solidarity gardens in major cities" (Brown 2013, 175).

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From a new materialist stance, contamination threats faced by Tzotzil people, maize and ecologies are endangering more than seeds or biodiversity; they are threatening Tzotzil's practices, traditions, generations and relations between distributed agencies amongst insects, plants, pests, humans, microorganisms, water, and so forth. Transgenic corn is disclosed as forming its own dominant sphere of vegetal appearance, against which Tzotzil ecologies are made vulnerable, unworthy of continuity, killable. The Maya Mother Seeds in Resistance collection becomes a facility for saving "more options for tomorrow" (Phillips 2013, 166), options for cultivation and options for affective encounters. By articulating its activities as a form of resistance against genetic contamination and related economies, Zapatistas reclaim a place for a diversity of maize species and related trans-species ecologies within cornfields. If genetic contamination is read as a form of exclusion, could it then be that their activities draw the lines of a reclamation for a more-than-human democracy?

Following Bennett, a vital materialist democracy does not aim at reaching flawless equality but increased representation for nonhuman agencies and communication between "linguistic subjects" and "mute objects," thus broadening the public sphere to include nonhuman actants just like excluded human types have been included into processes of democratic representations before (108-109). Bennett follows Jacques Rancières' conception of the political act (albeit opening it to nonhuman realms): "the exclamatory interjection of affective bodies as

they enter a preexisting public, or rather, as they reveal that they have been there all along as an unaccounted-for part" (2010, 105). Such interjection, it is argued, overthrows indeterminately the dominant perceptual regime of the current public sphere. With a concern similar to Bennett's, Michael Marder (2013) contends that such a polity is already blooming within vegetal ecologies. Vegetal democracy, he suggests, is a polity of shared divisibility between all living entities which we, anthropogenic creatures, can access by uncovering our own botanical roots. Marder: "the dispersed life of plants is a mode of being in relation to all others, beings qua being with" (2013, 51). As previously exposed in chapter one, Marder's framework of vegetal democracy is based upon plants' capacity for transcendence of material and discursive species delimitation, characteristic of bare-life, stripped of metaphysical and conceptual apparatuses. Vegetal democracy stands against any form of economic order as their organization is rather based upon an ethics of the self-gift, whereby perpetual recorporealization of the self and the others dynamically collides arrays of affects without totalizing them under a new form of hegemonic ordering. It is a democracy based upon material differentiations (2013, 52).

If threats of transgenic contamination result from an extractive imaginary postulating yellow corn as a standard for agricultural enterprises, the Maya Mother Seeds in Resistance project reclaims a place for native maize within the crop's gene banks, fields and plates, defending encounters exceeding species stabilizations. Under Bennett and Marder's frameworks, the project works toward a broadening of what might be called a sphere of maize appearance. By putting forward the material and ontological connection Tzotzil people share with maize, activists purport that it is not only a diversity of cultivars that are in need of conservation, but also their related practices and relationships wherein divisions between the one and the others are not so clear. Their creation of an international seed distribution network pursues such

reclamation through mechanisms of dispersion, allowing *criollos* to live on by growing within, propagating in, and evolving through the diverse ecologies of their asylum lands. By encouraging foreign growers to save seeds in open pollination, the Zapatistas enact core principles of more-than-human democracy: dispersions, recorporealizations and differentiations amongst diverse fields of appearance. These aspects of the group' actions, alongside their refusal of property rights over vegetal life and their advocacy for the destruction of contaminated plant individuals, allow Tzotzils' worldviews, practices and ecologies to appear as disruptive factors within the sphere of extractive agriculture. One of their tenets: "for a world where all the worlds fit" (Brown 2013, 159).

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While Marder's and Bennett's models of more-than-human democracy provide a compelling moral ideal in an era of anthropogenic demises and offer a coherent framework to address the activities of the Maya Mother Seeds in Resistance project, they nonetheless tend to romanticize nonhuman otherness. Moreover, they hardly account for the imperceptible quality of survival ecologies, that is, for moments of resistance that do not attempt to obtain visibility. Amongst a host of invisible ramifications, consider Brown's acknowledging that the Tzotzil word for resistance, *stzi'kel vocol*, translates as "withstanding suffering", suggesting that:

> the apparent consensus… revolved around the idea of being, resisting, and persisting. Thus, to be a Zapatista is to be in resistance; Zapatistas are prepared to withstand whatever suffering the government brings in order that there can be dignity, democracy, and justice in the world for everyone (2013, 159).

Alongside dignity and justice, democracy is here convicted as a goal, and not as an internal mechanism or structure for organizing. Resistance is however detached from such endeavors, pointing to deeper forms of organization, perhaps unique to Tzotzil people, a mode of being or way of life. By withstanding suffering, an understanding that certainly entertains colonial

ramifications to which my outsider position can hardly speak, the Zapatistas ensure that their people, world, and affective entanglements survive to a world and era of extractive hegemony and of assimilation to its worldviews, practices and economy. This deeper connection to the meaning of resistance is hidden from the Zapatistas' actions, emancipating its ecologies away from the perceptual regime of extractive control. Also imperceptible in their actions, albeit narrated as part of their program, is the ontological entanglement of maize and human bodies proper to their community whose daily renewal through arrays of practices (growing, eating and cooking corn, for instance) takes other forms when brought outside of Mayans fields. International growers and seed collectors might for instance feel a stronger connection with the more-than-human democratic scope of the project due to its transparency, than with Mayans' remote ontology whose resilient character remain locally specific. This shallowness is in fact embodied in the seeds themselves: while they may materially embody Tzotzil entanglements between humans and plants, when seeds sprout what appears to the human eye is, well, corn plants. Not a set of fluid entanglements between the distributed agencies of humans, plants, insects, mud, genes and other, carrying long-held affective traditions, ecologies and practices: just another bushel of corn.

Thus another form of politics lay beneath the more-than-human democracy enacted by the Maya Mother Seeds in Resistance project, one in which survival is ensured by making the materialities and affectivities in need of conservation disappear from actions geared towards appearance. In this case, both models are complementary as it is hidden underneath such reclamations for democratic representation that imperceptible survival operates. This latter critique nonetheless points to important limitations to Bennett and Marder's respective reading of more-than-human democracy. Bennett's call for the inclusion of nonhuman actants within the

sphere of democratic representation, "in something like the ways in which we have come to hear the political voices of other humans formerly on the outs" (109), overlooks that representative democracy is based upon a specific set of worldviews, those of empowered groups and actors maintaining the system as it is. As Jodi Dean observes:

> because the appeal to democracy presupposes democracy is the solution to the problems of democracy, because it incorporates in advance any hope things might be otherwise as already the fundamental democracy promise and provision, it is a dead end for left politics (2009, 94).

Mindful of Dean's caution towards democracy, I believe Bennett's framework risks the assimilation of nonhuman actants into the established parameters of democratic representation, rather than their empowerment. On Marder's side, his suggestion that democracy is completely otherwise in the plant world – dispersed, affective, free, ethical, and "eschewing the metaphysical binaries between self and other, life and death, interiority and exteriority" (2013, 53) – overlooks the vast arrays of power relationships that are at play within vegetal ecologies themselves. The desire to represent the otherness of the vegetal world should not come at the expense of fully engaging its actual materiality. While the Maya Mother Seeds in Resistance project can be read through the lens of extended democracy, with the critical effect of ensuring the appearance of threatened *criollos* within a sphere of extractive control, these limitations suggest that another politics might be needed to ensure survival to this community's trans-species ecologies. Just what a politics of imperceptible survival might look like cannot be answered through a democratic representation of more-than-human relationalities.

III. Iroquois White Corn Project: towards a botanical decolonization

When I sowed three Iroquois White Corn seeds in the spring of 2015, I may not have felt a connection to Iroquois heritage as strong as Jane Mt. Pleasant's:

> When I plant this traditional Iroquois corn, I feel intimately connected to generations of Iroquoian farmers who have participated in this same activity each spring for centuries. In fact the only reason I can plant this corn today is because of the careful, persistent, and knowledgeable attention of indigenous farmers who have cultivated corn across varied landscapes and many generations. So every spring when I plant corn again, I join that long line, stretching back thousands of years, of corn cultivators who have ensured the survival of this crop for future generations (2011, 2).

Yet I couldn't help but feel fascinated by the fact that these tiny seeds were embodying much that my eye could not see: a trans-generational set of histories, multi-species encounters, traditions, and, indeed, episodes of settler violence and of uprising against colonialism. The seed's history goes back to the years 1,000 CE, in the village of Ganondagan, when and where Haudenausonee farmers started producing corn surpluses and adopted the crop as a staple, supporting the elaboration of the Iroquois Confederacy (Johansen & Mann 2000, 66). Then and onward, Iroquois White Corn was grown following the three sisters technique, sowed along beans and squash, thus forming a companionship based on principles of mutual support: beans fix the circulation of nitrogen in the soil, squashes form mulch protecting plants from pests and preserving moisture, and corn stalks support beans to grow up (Johansen & Mann 2000, 67). Traditionally, women held plantations: "thoroughly intertwined with corn as sustainers of life" (Mt. Pleasant 2011, 4). This intimacy is alleged within traditional Haudenausonee stories, such as the creation story of Sky Woman wherein Otsista and her two daughters came from the sky each in the form of a crop from the three sisters to give agriculture to the land: "corn emerged from the body of a woman, and its arrival in Iroquoia was intimately connected to the beginnings of life on Earth" (Mt. Pleasant 2011, 4). Carried along generations of Iroquois White Corn in the form of seeds and their surrounding practices, the story of Sky Woman suggests that intimate fluctuations between vegetality and feminity are enmeshed within Haudenausonee's

understanding of life, perpetuated through generations of agricultural activities convening into trans-species ecologies.

When Frenchman Marquis Denonville and his troops visited Ganondagan in 1687, a conflict over fur trade led settlers to burn down the whole village, including almost all of Iroquois White Corn fields, bushels and seed conservatories. This seed's vulnerability to extinction is thus a legacy of settler colonialism's botanical component, manifested by widespread land redesign and destructions of native plants (Mastnak et. al 2014). Extinction threats have been carried along seed generations, as declines in Iroquois agriculture became ever more important throughout settlement and modernization, reaching almost full inexistence by the twentieth century. It is as part of a larger movement of political and cultural uprising in the 1970s, reclaiming indigenous sovereignty and calling for the restoration of traditional institutions, that Iroquois agriculture regained interest (Mt. Pleasant 2011, 10-14). In 1996, John Mohawk founded Iroquois White Corn with the intention of revitalizing Ganondagan's community while making their precious seed bloom anew. Iroquois White Corn seeds were no longer just a material entity carrying Haudenausonee history, worldviews and traditions; they had become embodied evidence of episodes of colonial violence and oppressions to new orders of life, a material marked by perpetual extinction threats, and a site of conflict over territorial sovereignty and rights to survival.

By ensuring that all Iroquois White Corn seeds are hand-planted, handpicked, hand-husked, and hand-processed, members of the project promote their seeds as not just another heirloom plant but also as the legacy of ancestral labor techniques and indigenous traditions (Iroquois White 2015). Upholding these cultural tenets of corn agriculture for the marketization of their traditional seeds, members do not articulate their enterprise as a contestation of

mainstream agriculture or of colonialism's botanical ramifications, but rather attempt to promote, share and celebrate the values of traditional and indigenous practices. There remain tensions within the community with regard to the marketing of seeds, as some see commercialization as subduing their heritage to a capitalist logic of extractive value, and others as giving up to colonial systems of oppression (Mt. Pleasant 2011, 25). The community is not secluded onto itself as seeds circulate amongst a variety of indigenous and non-indigenous distribution platforms, farmers markets and seed expos alike. Moreover, the organization invites community members and outsiders to volunteer and learn on a community-based level about the technicalities of growing Iroquois White Corn. The crop has many particular technical needs, including methods of protection against cross-pollination, natural insect and disease resistance procedures, and careful seed selection from areas of the field as diverse as possible (Mt. Pleasant 2011, 20-35). As conveyed by Mt. Pleasant's quote opening this section, growing Iroquois White Corn is seen as an affective and intimate encounter with different aspects of Haudenosaunee traditions, practices, histories and materialities, including a long-standing indigenous heritage and the legacies of colonial distress.

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If the Iroquois White Corn project does not articulate a specific political reclamation, its history, activities and materialities remain entangled with the botanical scope of settler colonialism, initiator of their seed's vulnerability to extinction. Regardless of their silent political views, the group's investment in ensuring its survival might be addressed along the lines what Tomas Mastnak, Julia Elyachar and Tom Boesllstorff call botanical decolonization (2014). This suggests an understanding of political resistance that exceeds arguments, closer to a situated mode of being than a direct uprising. Mastnak et al. argue that settler colonialism operates through a triadic relationship between land, plants and people, thus stressing the crucial position

of vegetal subjugation in the project of settler colonialism, as well as the latter's responsibility in ushering the Anthropocene. Against the violent character of this triad, botanical decolonization faces threats and events of extinction and refutes the oppression of indigenous people, lands and plants through material interventions, such as the destruction of non-native gardens or gardening with indigenous seeds (2014, 370). Thus botanical decolonization is conducted throughout a decentralized network of small-scale actions, a slow pace politics with the long-term purpose of tearing apart colonial subjugations of people, territories, and plants materially and inter-specially.

Botanical decolonization challenges late liberalism's "flattening of ecological difference," (Mastnak et al. 2015, 370) unsettling a biopolitics of vegetal standardization that works against difference, biodiversity and trans-agential fluctuations, and stabilizes trans-species ecologies into extractive resources. Thus botanical decolonization works along the lines of a resilient materialism, refuting oppressions through material engagements across distributed agencies and amongst trans-species affectivities. Botanical decolonization is not however a politics of return to a pre-colonial environment, akin to ecological nostalgias for wilderness past, but rather one of creating "emergent ecologies that persist over time even as they evolve" (375), working towards new orderings for a new time. It stands up for indigenous futurity, ensuring the survival of native more-than-human ecologies, traditions, and practices. As botanical decolonization is an umbrella phenomenon, weaved through a decentralized network of local actions, its resilient character emerges only if considered on a collective scale; it is as part of such a network that the Iroquois White Corn project partakes of politics. When considered alone, native plant gardens, indigenous seed saving facilities or even the destruction of non-native gardens are imperceptible to the encompassing scope of settler colonialism. Yet this fleeting quality might be what allows vegetal indigeneity to survive botanical colonialism and its

ecologies of extinction and extraction. If following McKee, indigenous activists have reframed survival as a rights-claim seeking to redress "the uneven allocation of climate-related vulnerability along already-existing lines of marginality and disenfranchisement" (2012, 97), botanical decolonization conducts such redressing through decentralized material engagements amongst native and non-native ecologies. Under this framework, sowing Iroquois White Seeds is no longer a nostalgic gesture but one making a place for material agents to convene into emergent ecologies of resilience, working towards indigenous futurity.

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Unlike the common use of the term decolonization as a synonym for social justice or as an umbrella for designing all forms of resilience against oppression (Tuck and Yang 2012), botanical decolonization is neither metaphorical nor concerned with decolonizing the mind. To the contrary, its scope is material, pointing to the embodiment of colonial ideals onto botanical ecologies and working to emancipate vegetality from the oppressive dynamics of a more-than-human colonialism. Just like decolonization, it makes itself "accountable to Indigenous sovereignty and futurity" (Tuck and Yang 2012, 35), ensuring the survival of native nonhuman agencies and their flourishing across the territories they call home. Yet, botanical decolonization differs from decolonization itself in that it does not seek a total repatriation of land and ways of life to indigenous people, or, in some views, the complete annihilation of settler societies, rather working towards the emergence of anti-colonial ecologies. Its decentralized vegetal-material scope makes it closer to Fanon's view of decolonization as a "chaotic, unclean break from a colonial condition that is already over determined by the violence of the colonizer and unresolved in its possible futures" (Tuck and Wayne Yang, 20). Botanical decolonization however differs from Fanon's absolute praxis for unsettlement, violence: "la violence du régime colonial et la contre-violence du colonisé s'équilibrent et se répondent dans une homogénéité

réciproque extraordinaire" (Fanon 1961, 47). Instead of seeking destruction of settler vegetality through violent insurrections, botanical decolonization favours a practice of the otherwise – violent, peaceful, or neither – growing new ecologies of indigeneity across settled territories.

Another drawback of framing actions such as the Iroquois White Corn Project as belonging to a politics botanical decolonization comes from the gesture of framing itself. As the project lacks transparent political demands, is it appropriate to address their activity as political at all? This touches upon the problem of speaking for others, reaching upon both the field of indigenous studies and new materialist theories: "questions arise with regard to the inadequately theorized (even if not unacknowledged) moments of articulation on the part of the materialist philosopher who speaks about and for other actors" (Zylinska 2015, 133). Thus to speak or write about indigenous communities or nonhuman materialities, one has to recognize her position while avoiding reiterating preexisting power relationships. In chapter one, I have suggested that to avoid falling into assimilating muted nonhumans (or other oppressed agencies) into the speaker's dominant paradigm, one should embrace the workings of equivocations, the encounter through which perspectives of the I and the other can shift, quiver, evolve, or stay the same, but meet nonetheless. In the current case, planting Iroquois White Corn seeds and thus creating a space for diverse agencies to meet beyond and beneath my own stabilized perspectives was a way to engage processes of equivocation between the ecologies of my home and remote ecologies (vegetal, indigenous, etc). But does material-affective investment, such as growing the seed one is writing about, suffice to endow one with the right to speak about or for others? As suggested by Linda Alcoff one should start to examine this issue by recognizing the impetus to speak for what it is: "a desire for mastery and domination"(1991, 24). Following Alcoff's call to re-imagine the structure of speaking (1991, 23), I suggest that by understanding the encounters

between the speaker and the other(s) as an equivocation, the impetus to speak for can be rethought as a mode of engagement rather than an attempt at mastery. As previously suggested, practices of speaking, such as writing, are materially engaged within the ecology they are giving accounts of; through the workings of equivocation they become part of an ecology of encounters and not a dominant voice structured to assimilate its content.

If their trans-agential affinities might make of botanical decolonization a new materialist form of politics, the scope of its insurrection also exceeds the frontiers of resilient materialism. It might very well feel tempting to establish a connection between new materialism and botanical decolonization's investment in indigenous sovereignty, rights, and restoration. Such connection would however assume an inevitable bond between every struggle for the emancipation of the oppressed; fallen out of the space of equivocation, pre-existing power relationships between the speakers and the others are reiterated, overlooking the contingencies and specificities of the latter's own struggles. A vital materialist politics of botanical decolonization might rather be considered as an ally to indigenous resistance and broader projects of decolonization, but cannot in any way pretend to form its ultimate quest. The tensions it entertains with more traditional views on decolonization, such as on the use of violence or the eradication of settled states, are integral to their relations.

Botanical decolonization nonetheless appears to provide a coherent framework to address the political scope of projects such as Iroquois White Corn, inasmuch as one seeks to understand its more-than-human organization from a bird's eye point of view. Through such reading, survival is ensured from a network perspective, that it is, from within the interrelations between hosts of decentralized ecological practices gathered in a somewhat common cause defended on a broader scale. Bluntly put, such politics is contextual: the local serves the global; the small is

geared towards the big; heirloom site-specific gardens ensure the survival of indigeneity. Yet both seed saving projects presented thus far are made of myriad material encounters, organizations, labor, and techniques, so much of which exceeds our limited human perspectives. This is disappearance at a deeper level: materials escaping collective spheres of appearance meeting those escaping the anthropogenic individual's perception. How do such agencies organize, and moreover, how are we to notice them?

IV. Everyday practices: for a banal politics of matter

The last story lacks a narrative. A Google search about seed saving lists pages of random DIY blogs, instruction manuals and wikihows, each combining technical directions and advice with garden stories of infections, frosts or cross-pollinations, for instance. On Reddit, it leads to a series of casual anecdotes, queries and advice, from searches for proprietary seeds whose patent might be expired to instructions for conserving seeds in rice to increase dryness. *Valkyrie123*:

> I've been growing Abernaki Calis Flint open pollinated corn and damn it is good. It's an off shoot of Roy's Calis Flint that has been selectively bred for cold short seasons. I've also been growing Ashworth sweetcorn. Best damn sweet corn I've ever eaten. I live in northern Minnesota and the growing season is short and the nights are cold. Very difficult to grow most crops up here. Anyone got any cold weather crops that are doing good? (Reddit 2015).

Amongst tales of finger cuts, surprises at seed pod explosions, and contemplations of plant growth patterns (2013, 132), scholar Catherine Phillips confesses:

> I do not want to save seeds today. I do not want to be in the garden. I have other things to do. But they are talking about a frost overnight, and the seeds aren't ready. I need to cover them and hope they make it through. The plastic sheets I have will have to be Gerry-rigged with stakes to hold them up and bricks to hold them down – not the best option but I hope it does the trick. Why couldn't the weather wait until the weekend? Or the seeds have been mature enough last week-end? (2013, 171).

When one of my Iroquois corn plants was crushed, it needed to be tied with sticks and ropes at the very moment it happened. Not a big deal though in comparison to the number of seeds the Zapatistas had to shatter with a hammer to test dryness, or to the required careful selection of seeds from Iroquois white corn plants growing in as many diverse sections of the field as possible, which my 10 square meters balcony could hardly afford anyway. When a squash plant sprouted from the homemade compost in which my three corn plants were growing, I decided to let it grow, an involuntary hint at the plant's origin and its sisters. The squash it produced turned out to taste just terrible enough.

And thus could I keep on patching bits and pieces, continuously missing much as gardens and fields are full of ever more events escaping human eyes and words. These are banalities of the everyday: techniques, instruments, labor, sensations, and anecdotes that constitute seed saving as a praxis. Yet, they also are about the very interactions between the gardens' dispersed actants, humans, plants and others. How are we then to write about such punctual events in which distributed agencies and instruments convene to necessitate most of the gardener's attention, or even below her arena of intervention, but never organize in a coherent whole? In the assemblage above, I did not attempt to consolidate these events' randomness but rather to demonstrate the incongruity of their everydayness to textual endeavours seeking to make an argument out of a specifically delimited case. Yet banal events, labor and techniques are what seed saving, let alone gardening, is all about.

Scholarly literature on seed saving practices tend to present heirloom seeds as something more: embodiments of memory and heritage (Nazarea 2005), chunks of given cultures or ways of life (Nazarea 2013, Veteto & Welch 2013, Gonzales 2013), epitomes of biodiversity (Nazarea 2013, Rhoades 2013), or even affective materialities of vitalism (Phillips 2013). Even if

techniques and instructions such as hammer shattering or field selections are evoked in Brown (2013) and Mt. Pleasant's (2011) accounts of the seed saving enterprises presented before, they support a broader socio-political agenda. While these are all significant interpretations, their insistence on the ethical, political or environmental substance of heirloom seeds and their conservation practices suggests a more important concern for whom has a right to survival than with its means. Unlike these accounts, banalities of the everyday do not assemble into coherent narratives. Their politics is one of the non-story, or perhaps of fragmented tales whose parts and pieces can all but be reassembled into a coherent whole, weaved through banal texts, matters, techniques and myriads of other moments escaping linguistic translation. Through imperceptible assemblages, everyday resistance rubs along broader socio-political conflicts and dominant orders rather than reaching for direct confrontation (Phillips 2013, 181-185), material conventions for survival at the local-scale. To the auspices of big narratives, whether extractivism, popular uprising or indigenous sovereignty, these uncoordinated events are insignificant: so easily crushable, or at least forgettable, why should their survival even be cared for?

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By claiming that: "seed saving is a collective practice" (2012, 21), Catherine Phillips encompasses a variety of encounters between a diversity of actants, including tools, techniques and matters, as partaking to conservation practices. The gardener and her seeds are not stabilized entities. Phillips recognizes that mere technical accounts of seed saving tend to miss: "the material, sensory, affective, emotive and cognitive aspects of everyday experience… [ignoring] that both the seeds and I came to this encounter with our histories" (2012, 16-17). However, this does not mean that everyday labor is not enmeshed within arrays of agential materiality, and unsuited for political analysis. To the contrary, the politics of everyday practices is enacted

alongside an ethics of intimate encounter by which agents come to make a difference for each another. Following Karen Barad, Phillips suggests that such ethical-politics is defined by situated engagements in which responsibility and accountability for vital relationalities are taken from all parts (2012, 26). Despite their imperceptibility to the large-scale narratives of extractivism or environmentalism, such practices are not confined to themselves: "acting as part of larger socionatural assemblies, saving intervenes. Seed Saving presents possibilities for worldly engagement, but it is only through taking up these opportunities that worlds and participants can be changed" (2012, 155). While their inventions can be directed at different causes, such as contesting corporate control of agriculture or creating self-reliance, for instance (2012, 183), their ways of cultivating the world otherwise constitutes their resiliency. It is by encountering, engaging and evolving with and across nonhuman agencies otherwise than extractive industries that small-scale practices of seed saving ensure the survival of local ecologies. Thus comes in the issue of scale: what do shattering corn seeds with a hammer, gazing at corn ears' sensuous forms, or growing the "best damn corn" in the Appalachian climate do in the face of an industry that standardizes vegetal beings through widespread mechanisms of control? How do their politics of local unquantifiable differentiations stand against a politics of global quantifiable hegemony?

Phillips' vital materialist politics of the everyday calls upon James C. Scott's engagement with everyday resistance, defined as the contestation of orders imposed upon working classes by the superordinate class through banal, informal and covert actions interested in immediate gains (1985, 32). Everyday resistance belongs to the anarchist domain of infrapolitics, wherein political activity is performed outside the visible sphere of mainstream polities (Scott 2012, xx). Scott:

> Quiet, unassuming, quotidian insubordination, because it usually flies below the archival radar, waves no banners, has no officeholders, writes

> no manifestos, and has no permanent organization, escape notice. And that's just what the practitioners of these forms of subaltern politics have in mind: to escape notice (Scott 2012, 12).

Yet the resistant character of daily practices emerges through the convergence of singular events into a broader manifestation of insurrection: "everyday forms of resistance make no headlines. Just as millions of anthozoan polyps create, willy-nilly, a coral reef, so do thousands of individual acts of insubordination and evasion create a political or economic reef of their own" (1985, 36). Banal practices become the very material for weaving a broader social project of uprising. Daily practices depend upon a broader context to become political at all, which is emphasized by Scott's human-centered understanding of his field of study, peasant conflicts, as a class struggle: "the prosaic but constant struggle between the peasantry and those who seek to extract labor, food, taxes, rents and interest from them" (1985, 29). If peasant daily practices of resistance are not transparently articulated as such, they are nonetheless weaponized, reactive to orders imposed on them by the superordinate class. These practices include: "foot dragging, dissimulation, false compliance, pilfering, feigned ignorance, slander, arson, sabotage, and so forth" (1985, 29). Following Scott, by contextualizing such as part of a broader social conflict, these everyday gestures can be addressed beyond mere expressions of peasant behaviour, as they become contestations of labor orders (1985, 37).

Indeed one does not practice arson or slander for the simple love of arson and slander, as one does seed saving for the love of seeds (although many seed savers articulate their activity as political, not all do). This suggests that daily practices do not need to be reactive to a broader socio-political context for their political character to emerge. As both can be addressed as manifestations of Scott's framework by reason of their modest scale, situatedness and covertness, everyday resistance does not have to come under the form of undoing order but can also be

manifested as doing things otherwise, that is, outside of this order. Moreover, by suggesting that outside of labor struggles everyday actions can only be addressed as expressions of peasant behaviour, Scott eschews the possibility of addressing a capacity for political organization amongst the vital agencies of banal events themselves, and regardless of a broader socio-political struggle. Scott, in other words, overlooks the very material entanglements of everyday resistance, understanding matter as means for covert politics rather than a set of agencies with which to practice everyday resistance. Thus if seed saving techniques, labor, instruments and other daily events are to be addressed as convening into everyday resistance, both Scott and Phillip's framework ought to shift from a conception of on-field actions as a material for politics to a form a politics in itself, emphasizing the role of multi-agential relationality in constituting everyday resistance as a form of survival.

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Following Mckenzie Wark, this shift to a material politics of the everyday recommends renewed attention to the question of labor. Wark suggests that such politics ought to embrace the labor point of view, which: "is about the struggle of and within the realm of things, of how things organize themselves and how they might – through labor – become otherwise" (Wark 2015, 217). This emerging conception of resistance purports that things (matter, techniques, instruments and other agential entanglements of the everyday) can contest existing orders by creating different ones. Wark: "Resistance has to be rethought a bit…as a labor that presses on an earth pressing back. But certainly there can be no resort to the figures of Gaia any more than to Prometheus" (169). From the labor point of view, everyday resistance is neither about ecological homeostasis nor capitalist realism, neither about a return to the heyday of wilderness past nor about finding survival solutions within the language of extractive capitalism. Against a romantic left that advocates for a total annihilation of extractive economies, corporate control

and the likes, everyday resistance from the labor point of view is organized through practices that disappear from these very systems. Such politics emerge from cultivations of the otherwise through inhuman perspectives, embracing labor as the material organization of dispersed agencies, things, instruments and other forces.

It could here be contested that taking the labor point of view sounds like yet another instance of speaking for others (i.e. things and instruments). For Wark however, the labor point of view is a mediating perspective, embracing a standpoint around which the I and the others, the human and the nonhuman, the gardener and her seeds, convene. Labor is our common ground, where we as ecologies re-convene, recorporealize, metabolize, or negotiate in various ways the stabilization, limitations and breaches of our respective bodily limitations. Thus, writing about the labor point of view is not so much a gesture of speaking for others or of making room for nonhuman agencies within an anthropogenic medium than it is about embracing writing as itself a form of labor, an inhuman mediation between human and nonhuman agencies, a site of distributed encounters and negotiations. Writing forms its own everyday resistance, cultivating possibilities and organizing its dispersed human and nonhuman agencies alongside banal techniques, sensations, and instruments. Words are social materials, surviving or complying to order, organizing through writing as a labor with its own materiality, and not the immaterial life of the mind (109-110). This vital materialist model of politics can only be written about inasmuch as words are understood as matters engaged in the labor of writing, as partaking of its polity: to write about seed saving as such a form of politics is to recognize the very limitation of writing about seed saving at all.

Taken together, Phillips' understanding of seed saving practices as a new materialist form of everyday politics, Scott's notion of everyday resistance against dominant orders and Wark's

reading of the labor point of view in the Anthropocene draw the lines of a different model of vital materialist politics; one we might call the banal politics of matter. On one hand, everydayness, banality, and small-scale situatedness convene in actions whose quality lies in their imperceptibility, their ability to contest by disappearing from normative narratives. On the other, normative narratives are eschewed by the otherwise, divisions between nonhumans and humans, subjects and objects, right and left, mediated by the inhuman perspective of labor. This is a resistance of practicing banally, of convening materially in ways that make sense to the material organization of labor itself and not to a broader socio-political conflict. While there are many technicalities, instruments and everyday moments I could keep writing about, there are just too many dispersed agencies escaping the auspices of writing. By taking the labor point of view of our common convention, we are able to draw the lines of an alternate political model, but the banal politics of matter just happens, it has its own way, it does its own thing. Seed savers, those that self-articulate as politically engaged and those that don't, all organize on their own, negotiating dispersed agencies, techniques, moments, and instruments from a labor point of view, mediating the human and nonhuman perspectives of their local ecologies. It goes on and on, with close to no one noticing.

V. Conclusion

This chapter opened with a short reflection on the Global Svalbard Seed Vault to emphasize from the start an un-reconcilable distance between the worldviews of seed saving practices organized at distinct scales. The Svalbard project engages survival as an anthropogenic problem: in an age of global climactic mutations, genetic biodiversity is to be conserved as a resource for human life to keep on flourishing, and thus controlled by a biopolitical infrastructure working

towards the continuation of an extractive economy. This is the same distance we have encountered before: speciation against trans-speciation, extractivism against the otherwise, endemic apocalypse against ecologies of possibilities. Yet in terms of materialist politics, this distance is not only to be understood as a dichotomy, as exemplified by the three seed saving stories (and lack thereof) presented in this chapter, each exemplifying a different mode of doing politics beyond the human – more-than-human democracy, botanical decolonization, and the banal politics of matter. These three models are not exclusive to the cases presented, nor are these cases solely informed by the model they have hereby been associated with. If there exists a broader constellation of new materialist polities, work is to be done to understand ecological organizations in the terms many other political frameworks, such as socialist-communism, anarchism, or identity politics. In a world wherein extractive capitalism dominates the political spectrum of vital materialities, there is an imperative to stand up for politics of the otherwise, which might even include considering how other right-leaning models translate beyond the human.

Throughout this chapter's exploration of new materialist politics and seed saving practices as local, situated and accountable engagements amongst trans-species ecologies, I have argued that survival is a concern shared by their varied forms of organization. Their understanding, however, deeply differs from the Global Svalbard Seed Vault's. Survival emerges as a politics of resistance to the Anthropocene and climate change rhetoric, core mechanisms of extractive capitalism. Contra anthropogenic survival, convening towards the continuation of a secluded biology, this form of post-climactic survival is about continuation itself, regardless of species delimitation and orders. Perhaps closer to geology than to biology, it esteems trans-agential materialities and arrays of possible distributions of power, relationalities and responsibilities.

The peculiarity of its ecologies lies in their capacity to disappear from the sensational stories of anthropogenic demises, extractive necessities, and climactic near-ends. By worlding otherwise, they suggest that extinction be endowed with a different breadth. Being extinct might mean more than being vulnerable, mourned, or done with; being extinct might emerge as a substantial possibility – disappear to survive; becoming-with, through and across geo-ecological continuities. Ecologies of survival materialize politics of banality, difference and trans-affectivity as the most promising modes-of-encounter for futurity as an otherwise.

❖

Conclusion:
Better ends

Perhaps the only response is to write against this dream: to conjure another possible future. The question then becomes how to work athwart the apocalyptic future that this garden dreams so furtively? What other fantasies can be conjured?"
– Natasha Myers, "Edenic Apocalypse: Singapore's End-of-Time Botanical Tourism" (15)

"The world's effervescence, its exuberant creativeness can never be contained or suspended. Agency never ends; it can never run out."
– Karen Barad, *Meeting the Universe Halfway* (177)

In my attempt to practice seed saving, I ended up losing seeds. Even though my three Iroquois White plants died before complete maturation, I was not disappointed in my intention to materially-affectively engage in a small-scale ecology of trans-agential organization. To the contrary, the punctual death of each corn plant (no matter how sad, for someone who's very fond of anthropomorphizing his plants) seemed to support this thesis' argument fairly well. The first plant was crushed while moving between apartments in the middle of the summer as one of my helpers inadvertently dropped a flowerpot over it (she was not so enthusiastic at the idea of moving a whole garden in pots). The other plants grew up until the beginning of fall, each producing corn ears. Despite the excitement, most fruits were eaten by birds, which had started hanging out on my balcony as my neighbour was feeding bread to them. The remaining bushels were invaded by an unfamiliar insect, ripening the whole fruit and killing what was left of the plants. There I had it: control is distributed, power shared and negotiated, and organization disorganized, hazardous, chaotic. Each small death indicated that while I was very well integrated to the distribution of agential forces across the ecology of my balcony garden, my

exercise of control as an anthropogenic agent was completely limited. Incremental ecologies were disclosed in all their ephemerality; this experiment, a mere anecdote in a complex world of matter.

This thesis has argued that matter unfolds into agential ecologies whose practices, modes-of-encounters, and relationalities come to enact diverging material stabilizations, more-than-human ethics, and vital politics. Vegetal matter is disclosed as a site for diverging engagements, a possibility for distinct ethics of encounters, configuring a variety of organization models across species boundaries and converging into distinct economies. By contrasting the economy of extractive capitalism, as exemplified by corn monoculture, with the economies of small-scale practices, such as heirloom seed saving enterprises, I have exposed some of these distinct models of relationalities, meaning to emphasize how difference comes to matter (Barad 2007, 136-137). Taken from the broader context of the climate crisis and the Anthropocene, the fact that global extractivism is often pointed to as an accountable paradigm for drawing the globe in this situation demonstrates how both narratives and their discursive engagement with the questions of nonhuman materialities, extinction, and survival embrace similar logics. Local practices convening into trans-species ecologies and organized through a set of alternative ethical-politics demonstrates that, contra these broader narratives, cultivating the world otherwise is not only a possibility but also a moral necessity. While embracing this continuum fairly well, this last episode from my balcony garden also points to some of its critical limitations.

With this experience of vegetal loss, I was challenged to recognize that anthropogenic delimitations cannot vanish completely. As was suggested in chapter one, it might even be the case that the possibility for trans-speciation depends on the existence boundaries in the first place, at least as far as human activities such as writing or agriculture are concerned. While for

Bennett anthropomorphizing nonhuman matters can help to increase our attentiveness to others' vitality as well as to recognize the alien character of the human kind itself (2010, 120), the entanglement of anthropogenic boundaries and unbounded matter further suggests that both are co-constitutive. For matter to be engaged as matter, delimitations are necessary to make types and kinds graspable to apparatuses of production that rely on delimitation, such as writing and gardening. How could any of this discussion be possible if types and kinds could not be identified, criticized, and re-made? It remains that any body, thing, or other type of matter is inevitably entangled across networks of relationalities, but they (and we) need to manifest in a somewhat bounded form so they can be engaged, either affectively, ethically or politically.

Zylinska: "The 'I' [stands] for an entangled and dynamically constituted node in the network of relations to whom an address is being made and upon whom an obligation is being placed, and who is thus made-temporarily-singular precisely via this address" (Zylinska 2014, 75). Produced and re-produced, selves, things and other forms have bounded aptitudes and are confined to limited activities. Increased attention to non-humanity can make the gardener sensitive to plants' growth; she might feel with and across the plant's tissue, cells, and bodies; she might become through plants and plants becoming through her. But a corn ear will not suddenly sprout out of her skin. While this writing experience has been influenced by diverse vegetal encounters, in the end, it is as a bounded human subject that I write these words. Perhaps is it because we have limited aptitudes that we come to relate, organize and become with and through others. Constantly reminded of our own confines, trans-species encounters invite us to experiment forgetfulness across the chaos of trans-agential life. Attempts at making politics within its fabric come to confront, and have no choice but accept, that some of this life might be too dynamic, too effervescent, and too different, that it turns out to be completely apolitical.

Both epigraphs above invite to conjure another world, one in which futurity is rich in possibilities rather than synonymous with loss, and one in which material effervescence is blossoming rather than marginalized. In light of this optimism, it might seem like the phenomena of extinction, death, and other forms of ends are unsolicited into neo-materialist futurities. But then if agency "never runs out," what happens to it when a given configurations, no matter how small or banal, such as my balcony garden, inevitably ends? Does it go somewhere else, recorporealize otherwise and elsewhere, reconfigure the world around absence rather than presence? Can agency just stop caring; can it disjoint itself from any forms of ethics? Barad might be right that on a cosmic scale agency never ends, but from a radically contingent perspective it is evident that within small-scale punctual, local and anecdotic events, agency continuously disappears. The vibrant universe of multi-agential matters whose agency never runs out unfolds by endlessly killing localized configurations. Perhaps is it then that punctual ecologies perpetually emerge everywhere to not only enact better material delimitations, but also to disappear better.

Yet as it has been suggested in the last chapter, disappearing can also be understood as a gesture of survivability, favouring organizations of the otherwise. Disappearing, as has been argued, can in fact be understood as constitutive of material configurations' resilient differentiations, allowing their ecology to exist outside of narratives of life, appearance, or salvations. Vital materialism might thus not only be about creating an ethics and politics of life, but about materializing better deaths, about integrating incremental ends, about embracing extinction as a substantial possibility. While I have pretty much refuted any essentialist or fundamentalist reading of what might constitute plants' deeper truth, vegetal matter seems inevitably ephemeral. Vegetal matter refutes the extractive and biopolitical hegemonies

generated by the narratives of climate change, earthly extinctions and the Anthropocene by continuing to repeatedly disappear. Writing these words at the very moment the Conference of the Parties on climate change (COP21) is taking place in Paris, there seems to be one consensus: we want out, out of the climate crisis, out of the Anthropocene, out of extractive control, and out of the Apocalypse. How to end better, then, is a question we should be concerning ourselves with. Perhaps seeds aren't the only form of matter that should pay a visit to the Arctic North.

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Annex

Reference: Photographs by Mathias Heyde©, *Svalbard Global Seed Vault* / *Svalbard Globale frøhvelv*, Flickr. Accessed November 6 2015. See whole album at https://www.flickr.com/photos/landbruks-_og_matdepartementet/sets/72157623004641656/with/15413050910/

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