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Permacinema

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Abstract: This article charts the contiguity of farming and film, blending permaculture and cinema to advance a modality of sustainable film theory and practice we call "permacinema." As an alternative approach to looking and labour, permaculture exhibits a suite of cinematic concerns, and offers a model for cinematic creativity that is environmentally accountable and sensitive to multispecies entanglements. Through the peaceable gestures of cultivation and restraint, permacinema proposes an ecologically attentive philosophy of moving images in accordance with permaculture's three ethics: care of earth, care of people, and fair share. We focus on work by Indigenous artists in which plants are encountered not only as raw material or as aesthetic resource but as ingenious agents and insightful teachers whose pedagogical and creative inputs are welcomed into the filmmaking process. By integrating Indigenous epistemologies and cosmologies we hope to situate permacinema in the wider project of cinema's decolonization and rewilding.

Keywords: permacinema; permaculture; the vegetal turn; indigenous film; phytography; ecocinema; degrowth

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> It is only in plants by virtue of the sun's energy caught up by the green leaves and operating in the sap, that inert matter can find its way upward against the law of gravity. Simone Weil, "Human Personality" ([1] p. 81)

1. Introduction

In the physical light whose touch enlivens the photosensitive strip and the metaphorical light thrown on the projected world lies the vegetative soul of film. The recent "animal turn" in the arts and humanities was quickly followed by the "vegetal turn." Both have enabled the untethering of thought from habitual forms of human-centred seeing and its reorientation towards a biodiverse, more-than-human vision of life.[1] With the re-turn to realism, especially the work of André Bazin, the rise of ecocinema, new materialism, and flat ontology, film too has been undergoing a number of paradigm shifts.[2] We take "thinking cinema—with plants" to explore not only the medium's vegetal affinities but also the kinship between cinema and plants as "growing beings." If film thinks, it lives, and whatever lives grows. "The common Greek word for plant, *phuton*," writes Michael Marder, "is etymologically linked to nature, *phusis*," and, despite his hierarchical distinctions between them, "Aristotle . . . includes both plants and animals under the umbrella of *ta phuomena*, growing things. Putting the matter of vegetal life positively, he now argues that 'all things that grow [*ta phuomena panta*]' are alive because they are capable of growing and decaying ([2] p. 242).[3]

Marder argues against the "animal turn" (the "zoocentric paradigm"), which he sees as residually anthropocentric in its reliance on sentience. The turn to plants (the "phytocentric paradigm"), he claims, offers the broadest, most inclusive shift in our thinking precisely because whether or not plants are living beings remains contested: "[t]he most doubtful kind of life turns out to be the most universal" ([2] p. 242). But does moving from zoocentrism to phytocentrism achieve the desired result of a truly comprehensive

conception of life?[4] To avoid replicating the problems of centrism as such (rejecting both zoo- and phyto-exceptionalism) we may wish to redirect our thinking to the entanglement of all life, where nothing and everything is privileged simultaneously. In this regard, the animistic and kincentric models we explore below pose, we believe, more viable paradigms.

Unlike the top-down categorisations of western philosophy, "in Native ways of knowing, human people are often referred to as 'the younger brothers of Creation'" ([3] p. 9). Moreover, "Indigenous ways of understanding recognize the personhood of all beings as equally important, not in a hierarchy but a circle" ([3] p. 385). As the planet's life systems buckle under the strain of extractive capitalism, a revaluation of cinema's relationship to living/growing beings is, perhaps not urgently enough, underway. At stake are ways of living that depart from the (pseudo-botanical) economic orthodoxy of limitless growth, increasingly acknowledged as detrimental to human and planetary wellbeing.[5] Paradoxically, then, to grow like a plant may be more closely aligned with the politics, ethics, and aesthetics of *degrowth*.[6] It is at this juncture, where earthly survival itself is at stake, that filmmaking and horticulture converge as complementary, life-affirming practices.

Our essay explores the contiguities of farming and film, blending permaculture and cinema to advance a modality of sustainable film theory and practice we call "permacinema." Permaculture is a systems-based approach to farming, grounded in cooperation rather than conflict with nature. Permaculture is based on "protracted and thoughtful observation rather than protracted and thoughtless action; of looking at systems . . . and of allowing systems to demonstrate their own evolutions" [4]. As an approach to looking and labour, permaculture itself exhibits a suite of cinematic concerns, offering a template for cinematic creativity that is environmentally accountable and sensitive to multispecies relationships. Through the peaceable gestures of cultivation and restraint, permaculture is a model not only for sustainable filmmaking but for an ecologically attentive, non-extractivist philosophy of moving images in accordance with permaculture's three ethics: care of earth, care of people, and fair share.

Permaculture, from "permanent" agriculture, is "an agricultural system that can be carried out in perpetuity" ([5] p. 2). Since its founding in the late 1970s by Bill Mollison and David Holmgren, the definition of permaculture has significantly expanded. Agricultural in origin, subsequent iterations increasingly apply permaculture to other, potentially all, areas of life. Terry Leahy describes this as the shift "from permanent agriculture to permanent culture" (12) [5]. Jesse Watson defines permaculture as "an ecological approach to the design of whole systems. It is an ethically bounded framework of ecological design that can be used to design everything from landscapes and farms to business enterprises and other cultural projects, on nearly any scale" (Watson 2016).[7] [6] As the definition of permaculture is stretched, however, it risks dilution and appropriation by the very mechanisms it seeks to correct: "[t]he commodification of terms such as permaculture may have detrimental effects on the practical impacts of the movement. Sustainability, as a term and a framework, provides a sobering case study in the effects of commoditization through industrialization and marketing" (Spangler et al., 2021) [7]. An equally serious difficulty is the movement's historical blindness, "rebranding Indigenous practices and knowledge as 'permaculture' without proper acknowledgment and reconciliation" [7].

Many of the strategies and design solutions championed by permaculture have been known and widely practiced by Indigenous communities long before the emergence of permaculture. As predominantly white (and male), the movement has justly been criticised for a "failure to acknowledge the similarity of permaculture's proposals to Indigenous cultures of land use and for re-packaging Indigenous land management practices as an innovation originating within permaculture" [8]. In *Iwígara: American Indian Ethnobotanical Traditions and Science* (2020), Rarámuri ethnobotanist Enrique Salmón explains that Native methods like the "repeated cycles of clearing, fire, and careful use, on a scale unimaginable today, may be considered a form of advanced permaculture" (23) [9]. And Tewa scholar Gregory Cajete claims that "[p]eople in the Americas are only now beginning to explore and rediscover a food heritage that is second to none in the world. The new science

of permaculture . . . is in reality applied Indigenous science" [10]. Nor is permaculture exclusively plant-based, which is problematic for all ethical and some environmental vegans. We believe that plants enjoy a life beyond their human utility. Even horticulture, therefore, is not free of violence. Nevertheless, the Indigenous ecological and artistic practices we investigate here begin from encounters with plants as subjects whose capacities for regeneration are encouraged, not curtailed, by growing, harvesting, and eating. Our use of permaculture is thus qualified and critical; by focusing on films made by Indigenous artists referencing Indigenous epistemologies and cosmologies, we hope to situate permacinema in the wider project of cinema's decolonization and rewilding.[8]

In what follows we highlight one area of permacinema: work in which plants are encountered not only as raw material or as aesthetic resource but as ingenious agents and insightful teachers, whose pedagogical and creative inputs are welcomed into the filmmaking process. To think cinema through its vegetal entanglements, we discuss two moving image projects deploying hand-processing techniques with sections of plants and blooming flowers grown on filmmaker Philip Hoffman's farm near Mount Forest, Ontario, Saugeen Ojibway territory. Hoffman runs the annual Film Farm "independent imaging retreat" devoted to the support of artisanal filmmaking, especially 16mm film. In her wide-ranging discussion of materiality, ecology, and DIY film cultures, Kim Knowles claims that "Film Farm demonstrates how artisanal film practice can open up entirely new experiences of the world that connect art and politics in very physical ways" ([11] p. 19).[9] In contrast to a "purely skills based" commercially driven film pedagogy, Hoffman's workshop follows a "'process cinema" approach: "drawing attention away from the final product and emphasising a more mindful practice of observation, reflection, being in the moment and responding instinctively to one's surroundings" (145) [11]. Integral to Film Farm's mission is also "(e)ncouraging the participation of artists typically under-represented in mainstream film production" (Philip Hoffman website 2022) [12].

Our first example is part of the Saugeen First Nation community filmmaking project, *Saugeen Takes on Film* (STOF).[10] The second is a triptych of films by the Odeimin Runners Club, an "Indigenous and Black-Persons-of-Colour (IBPOC) media arts collective" ([13] p. 48). The three films were inspired by Octavia E. Butler's cli-fi novel *Parable of the Sower* (1993), and by "odeimin [strawberry, or heartberry] teachings," adopting the plant's relational capacities maintained through its network of runners: "strawberry teachings link us in the physical and metaphysical sense, as women, as mothers, as artists, as storytellers, and as descendants from several nations" ([13] p. 50).

Film Farm has offered a number of workshops on plant processing to Saugeen and other First Nation artists. In return, Indigenous community members shared their knowledge of the powers of local herbs and plants. The films made by the Saugeen artists and by the Odeimin Runners Club explore cinema's ability to facilitate rather than bulldoze Indigenous knowledges, connections, and communities. The use of culturally meaningful plants endemic to the filmmakers' territories links the films to their local environments, to seasonal rhythms, and to sustainable regimes of extraction and sharing. The creative exchanges between plants, Film Farm, the Saugeen First Nation project, and the Odeimin Runners Club shape our understanding of permacinema: cinema as anticolonial, capable of fostering multispecies sovereignty and hospitality. By consenting to the ecological and cinematic fecundity of plants, these artists use film to restore relations between people (both human and not) and place, relations disrupted by settler colonial plundering.

We conclude with Alisi Telengut's hand-painted film *The Fourfold* (2020), steeped in Mongolian and Siberian animistic and shamanic traditions. Using a stop-motion animation technique on a single sheet of paper or metal, Telengut incorporates a range of materials, including plants, the traces of which accrue on the photographed surface. The resulting mixed media landscapes are created under the camera, with little use for post-production. Although Telengut uses a digital camera, her images are cultivated through slow manual labour. By discussing a range of Indigenous films with and about plants, we hope to

establish permacinema as an idea and a constellation of principles at the intersection of film-philosophy and radical ecology.

Our choice of corpus was informed by filmmakers' employment of Indigenous harvesting strategies that elevate instead of eviscerate multispecies ecosystems, and translate animistic and kincentric cosmologies into cinematic registers. Philip Hoffman of Film Farm introduced us to films by the Saugeen First Nation artists and the Odeimin Runners Club. The Canadian filmmaker Dan Browne, with whom in 2018 we programmed a screening of Canadian diasporic cinema, introduced us to Telengut.[11]

Every film, however, negatively impacts the world. All production requires taking [14,15], and even in giving—distribution, exhibition, and streaming—the cinema continues to take [16]. Writing about cinema's carbon footprint, Nadia Bozak points out that "(f)ossil fuels and natural resources drive the global economy and their availability and fluctuating prices determine the conditions of all our lives—that the moving image or any other culture industry is embroiled in the business of extracting and burning earth-bound energies should not be a surprise, and yet it is" ([14] pp. 7–8). As Nicole Shukin suggests, the photochemical emulsion depends on the presence of animal remains in the gelatine, while the cinematic assembly line recalls the disassembly line of the slaughterhouse (Shukin 2009) [17]. Gelatine, "aka animal glue," is produced by boiling the "skin, bones, and connective tissues of cattle, sheep, and pigs" sourced from meatpacking facilities ([17] p. 104). During exposure, silver halide crystals absorb light and an invisible image of the subject forms in the emulsion. When the film is developed, this latent image becomes visible and (ostensibly) permanent. The image's emergence coincides with gelatine's withdrawal as the figurative and literal background out of which photochemical imagery can occur. A reliance on silver is as problematic as cinema's appetite for animal bodies.

Digital technologies are no less voracious. They are extractive enterprises operating in fraught ecological and political contexts. Purportedly ephemeral, data is always embodied, stored in vast databanks sequestered "somewhere up north, preferably on the permafrost" ([18] p. 25). The melting icecaps become the wellsprings of digital clouds. "Data," writes Jussi Parikka, "feeds on the environment both through geology and the energy-demand" (24) [18]. Digital residue survives as "obsolete electronics . . . shipped offshore where mercury leaches into groundwater and, if burned, becomes toxins that poison the air" ([14] p. 156). Sasha Litvintseva claims that "[m]edia technologies are entangled in the history of colonialism and an ever-advancing extractive frontier, from lithium mined in Chile salt flats to rare earths from Inner Mongolia" ([19] p. 111).

By linking cinema to agriculture, moreover, we acknowledge cinema's toxic runoffs since the advent of agriculture exacerbated the depletion of water and soil, and the loss of biodiversity through monocultures. Although many of its benefits are undeniable, large-scale agriculture has also been linked to reductions in human health [20]. As we edge closer to a world unable to sustain human life, we must ask: is cinema beyond repair? In our conclusion, we push permacinema to its limit, imagining its ultimate rewilding at the point at which a cinema of nature retrieves its primordial form as movement in time.[12]

2. The Gleaning Eye

The botanical element in cinema emerged early on in Louis Lumière's *Repas de bébé* (*Baby's Lunch*, 1895)—a true cinematic perennial. Although it centres on a human family's meal, the film is famous for viewers being "captivated instead by the elusive movement of plants" [21]. We find the film a rich source for a cinematic phyto-philosophy, and have each returned to it several times in our individual writings. If despite its ubiquity the motif of leaves in the wind resists becoming a cinematic cliché, this is because of its enduring and original power: eliciting pleasure in the sight of the contingent, non-narrative, and autonomous life of plants that momentarily flips (human) foreground and (nonhuman) background. Moreover, the disinterested gaze in whose eyes plants do not serve any particular purpose, but simply *are*, critiques the notion that cinema is, by nature, extractive and predatory [22–24]. Yet, Lumière's film works in spite of itself, against the grain of

the hierarchical split between human foreground and vegetal background, the result of a conspiracy between plant and machine. *Repas* elucidates both the potential and limitations of a western relation to plants that sees them as mere setting or resource. The Indigenous films discussed below approach plants differently as participants in world and community-building, part of what Salmón calls a "kincentric" ecology [25].

If eating in Lumière is the ritual of a newly affluent bourgeoisie, Agnès Varda's *Les Glaneurs et la Glaneuse* (*The Gleaners and I*, 2000) explores consumption under the conditions of scarcity. The characters in *Gleaners* subsist by foraging or scavenging for food.[13] They range from members of rural communities to urban "dumpster divers" who eat what others throw away. The lowly gesture of gleaning participates in the world from the margins. Gleaners stoop to pick up what was left behind, discarded yield, or food unfit for the market. Gleaning exposes the structural deficiencies of capitalist modes of production by recasting trash as treasure through acts of salvage [26,27]. *Gleaners* is concerned with ecology and equity—care of Earth, care of people, and fair share—but gleaning for Varda is also aesthetic. It lends itself to artistic practice, but not without problems.

The film's star agricultural crop is the humble potato, a perennial tuber crop favoured by permaculture.[14] Indeed, the potato has become a kind of mascot of the film and even of Varda herself.[15] Marder sees the film as attempting a less violent form of consumption that honours plants by reducing the destructive impact of eating. "Gleaning," he writes in "Is It Ethical to Eat Plants?" "respects plants by consuming what has been left or discarded," avowing the "ontological freedom" of vegetal beings ([28] p. 35). Similarly, in aesthetic terms, the world is "let be" when images are gleaned along the way and it is the subject herself (in this case Varda) who, in a gesture Marder calls an "inversion of exposure," the camera captures and displays. *The Gleaners and I*

> interweaves the experiential and alimentary dimensions of gleaning in an aesthetic medium especially propitious to what the filmmaker herself designates as the gleaning of images . . . . the beings (both human and nonhuman) are let be without being framed in a formal narrative, while Varda exposes herself (for example, her aging hands and hair) before the lens of the camera, refusing to make sense of the images she had gleaned. ([28] p. 35)

Many plants eat by gleaning, and Varda's style of filming approximates plants' style of eating. However, Marder reminds us that actual gleaners

> more often than not, have no other choice but to procure food by seeking what remains after the harvest or in the aftermath of wasteful consumption in urban centres. Not so with the aesthetic gleaners, such as Varda herself, who engage in this activity not out of necessity but out of the freedom afforded by art. This divide is telling and troublesome to the *nth* degree. ([28] p. 35)

Varda is the sympathetic observer, not a member of the communities of gleaners she meets. The film's anti-capitalist politics are finally subsumed by the artistic project in which gleaning is a privilege, not a need. Thus "only provided that aesthetic freedom is transposed onto the realm of necessity would gleaning become a truly ethical way of eating and experiencing" ([28] p. 35).

Lumière and Varda's films offer glimpses into an alternative, non-extractivist, non-consumerist cinema, modelled on plants' ways of eating and being. However, these are only glimpses. They are often matched, and outweighed, by cinema's devouring impulses to capture and eat up the world.

3. The Good Enough (Mother) Earth

> The world is not enough.
>
> But it is such a perfect place to start, my love.
>
> And if you're strong enough.
>
> Together we can take the world apart, my love.

("The World is Not Enough," Garbage)

The bulk of big budget films today subscribe without irony to the proposition of the 1999 James Bond film *The World is Not Enough*.[16] The logic of taking apart the world in order to satisfy uncontainable wants goes hand in hand with the accelerationist fallacy of the world's insufficiency, when the world is all there is. Forgoing the characteristic irony of the (earlier) Bond films, cinema must rediscover abundance and pleasure within the confines of the earth. What would a degrowth cinema, for which the world is just enough, look like? Degrowth may seem counter-intuitive, even unnatural, partly because growth, conceived as a wilful self-propelling effort to innovate and accumulate, has become synonymous with life itself. However, growth-based models are not natural facts. As Kothari et al. argue, the "western development model is a mental construct adopted by (*read* imposed upon) the rest of the world that need [sic] to be deconstructed . . . . Deconstructing development opens up the door for a multiplicity of new and old notions and worldviews" ([29] p. 366; emphasis in the original).

In "Human Personality," cited in the epigraph to this essay, Simone Weil posits plant life as an organic model that bypasses the power-driven western notion of growth. Plants feed on light that sustains them by circumventing rather than by harnessing gravity.[17] Plants' orientation towards the light mirrors the supernatural mechanism by which human beings receive divine light for spiritual sustenance. Thus, plants and humans (and photosensitive film) need light in order to thrive. Through the process of photosynthesis, plants overcome the weight of gravity and reach upwards. Following in the way of plants, we too can be exalted. Weil treats photosynthesis as the biological image of supernatural grace [30].

Anishinabek scholar Robin Wall Kimmerer makes a similar point when she writes that plants "live both above and below ground, joining Skyworld to the earth. Plants know how to make food and medicine from light and water, and then they give it away" ([3] p. 9). Sunlight cannot be sought and possessed, only received. The gratuity of light reflects the logic of the gift, which plants embody:

> A gift comes to you through no action of your own, free, having moved toward you without your beckoning. It is not a reward; you cannot earn it, or call it to you, or even deserve it. And yet it appears. Your only role is to be open-eyed and present. Gifts exist in a realm of humility and mystery—as with random acts of kindness, we do not know their source. ([3] pp. 23–24)

If there is something broadly religious about the idea of degrowth it is the seeking out of ways of thriving that are not purely transactional and which lie, mysteriously, outside the realm of force, that is, outside of the modes of extraction, extension, accumulation, possession, and appropriation that ultimately deplete rather than sustain. Weil's Christian mysticism has much in common not only with some of the more radical spiritual traditions of the west but with Indigenous cosmologies, whose intimate connection to plants revolves around alternative formulations of giving and receiving.[18]

Plants as analogs and metaphors of artistic practice, as kinned collaborators and chemical conspirators that demand "respectful harvesting"—these are some of the key ideas of permacinema [9]. Yet, as we go on to show, the social dimension of permacinema is no less important. It asks how art could retrieve a sense of worldly enoughness, and "recalibrate contemporary hemispheric relations outside of colonialism such that the settler position is one of being good guests with responsibilities to the hosts" ([13] p. 57).

4. Permacinema in Action

> Instead of a dualistic point of view of animator animating "the dead," the human, the objects, the technical apparatuses, all become important in the process of an entangled and inseparable phenomenon—creating the animation. Alisi Telengut [31]

De- and regrowth coincide in plants, who guide us in producing landscapes of biotic abundance, practicing hyper-local regimes of reciprocity. Like plants, combining the stems' upwards and the roots' downwards momentum, degrowth blends two ostensibly opposing trajectories. Preserving abundance requires sharing territories' comestible wealth with human and more-than-human others to feed everyone in collective, sustainable ways. The One Dish, One Spoon treaty is an Indigenous agreement of resource management and land stewardship practiced in the north eastern parts of Turtle Island. The treaty is marked through wampum belts displaying a white field with a dish (representing the earth) containing a beavertail (standing for everything needed to live).

The Ancestors' Gift (2019), made by Anishinabek citizen of Saugeen First Nation Natalka Pucan, opens with lesions over a white screen, orienting our attention towards physical film's receptivity to plants' touch. Gradually two figures, Pucan and her daughter, appear, holding hands in a bright field of plants (Figure 1). A straight cut, and Pucan's camera follows a hand as it brushes over the One Dish, One Spoon belt, suggesting a synchronicity between this practice and cinema.

Figure 1. Mother and daughter holding hands, *The Ancestors' Gift* (2019).

A voiceover spoken by Pucan's mother tells of how there is no ownership over the landscape's ecological wealth, which belongs only to "Mother Earth." Traditionally, knowledge of this agreement is transmitted generationally. In the film, knowledge moves across three generations: from Pucan to her daughter, and from Pucan's mother to them both. We occasionally see Pucan's brother, who is also party to this inter-generational exchange. Through Pucan, cinema participates in the circulation of Indigenous teaching, becoming a medium through which ancestral knowledge is safeguarded and shared. Through cinema, Pucan invites us to participate in these exchanges, too.

The One Dish, One Spoon treaty dates back to the Haudenosaunee Confederacy's origin. "The Haudenosaunee Confederacy was formed," writes Onondawaga and Nyagwai scholar Darren Scott Thomas, "when a prophet known as the Peacemaker explained the benefits of peace to the original five Nations." Known as the "Gayensragowa (Great Law of Peace)," it was intended to resolve the conflict between warring tribes ([32] p. 90). According to the Cayuga Nation's official website, this occurred in the 12th century [33]. The Peacemaker's message included the metaphor of a dish and a spoon upon which the treaty was based:

> (t)he meaning of this agreement was the idea that Creation is here for the benefit of all humankind, and there should be no war, conflict, or fear of being able to

> enjoy the gifts of the Creator. That if we consider the dish being Creation, we must share and take care of all the benefits of Creation for all the generations to come. ([32] p. 90)

The treaty helped conclude the 17th century Beaver Wars that had erupted between Indigenous Nations following increased settler contact. Anishinabek Nations have abided by its principles for centuries. The Ojibway Nation's oral history recalls agreements made with the Sioux Nation concerning the sharing of territories during the hunting season, securing mutual survival whilst avoiding conflict [34]. Haudenosaunee historian Rick Hill argues that One Dish, One Spoon is as relevant now as it ever was:

> (o)f particular importance in this age of environmental degradation is the fact that the dish with one spoon is also a covenant with nature. "Nature says, 'Here's the great dish and inside the dish are all the plants, the animals, the birds, the fish, the bushes, the trees, everything you need to be healthy and therefore, happy. . . .'" "The three basic rules are: only take what you need, second, you always leave something in the dish for everybody else, including the dish, and third, you keep the dish clean . . . that was the treaty between us and nature, and then the treaty between us and everybody else. ([32] p. 91)

The treaty is evidence of original, advanced, and expanded permanence-oriented agricultural forms practiced by Indigenous cultures for millennia, long before permaculture's three ethics of care of earth, care of people, and fair share.

Elsewhere in *The Ancestors' Gift*, plants are picked in the forest, then placed in a dish. Extraction strategies align with the One Dish, One Spoon treaty: harvesting concludes once the bowl fills up. We then see three plants growing together. Pucan's daughter digs around one with a trowel, leaving the others. Motion is decelerated, signalling the physical and spiritual care required to navigate this potentially fraught encounter. Pucan's daughter takes just what is needed, practicing restraint. Placing the plants inside the dish telegraphs that these goods will be shared, not hoarded.

Pucan used lilies and other local plants to "flower process" her film. Processing with flowers, salt, and washing soda replaces the harsher chemicals, like Dektol, of conventional processing methods, and invites plants to modify the films' form, content, colour, and even sound. In 2018 and 2019, Saugeen First Nation citizens attended two Saugeen Takes on Film (STOF) workshops at Chippewa Hill at the Saugeen First Nation Training Center, located about 100 km north of the Film Farm. The workshops taught participants how to develop film with local flowers and plants, and Lori Kewaquom, Saugeen First Nation Advocacy Coordinator and knowledge keeper of plants, taught Hoffman how to request plants' permission before picking. "I told Lori that when we take the leaves and flowers from a plant we always take less than 25% of the plant," explains Hoffman. "She answered: 'Next week I will teach you how to ask the plants how much you can take.'" Reflecting on Kewaquom's guidance, Hoffman wonders: "Do they agree with me using them for processing film? In a way, their answer is in their continued growth and beauty, and that beauty resurfaces in the images that surface from the film processing. This is a healthy conversation between me and the plants" [35].

The Ancestors' Gift flowers alongside plants' rhythms and seasonal cycles, humbly subordinated to vegetal schedules. The film's time of gestation synchronises with the time of plants' growth, not the other way around.[19] Moreover, plants' organic patterns of growth are empirically observed and cultivated to secure edible and medicinal abundancies, and certain cinematic qualities: lilies are endemic to Pucan's territory. Their material inclusion connects Pucan's film to her local landscape. In Anishinabek cosmology, lilies communicate inter-generational trauma. As the film communicates ancestral knowledge as a means of overcoming forced erasures and settler epistemologies, the use of lilies was deeply meaningful.

Where the One Dish, One Spoon treaty signals a permaculture-before-permaculture, Pucan's permacinema is grounded in vegetal collaborations. *The Ancestors' Gift*'s production context is key to our understanding of permacinema as a constellation of practices and

ideas pertinent not only to the growth of cinematic media but also to the communities and ecosystems where the works are created. In this regard, Film Farm's STOF workshops are particularly illustrative, first, as projects of community building where human and more-than-human beings encounter one another via the artisanal prism of hand-made film, and second, as evidence of what Mi'kmaq scholars Murdena and Albert Marshall and biologist Cheryl Bartlett call "Two-eyed Seeing,"

> learning to see from one eye with the *strengths* of Indigenous knowledges and ways of knowing, and from the other eye with the *strengths* of Western knowledges and ways of knowing, and to using both these eyes together, for the benefit of all. ([36] p. 335; emphasis in the original)

"It is the blending of the *two-eyes* that establishes a learning scenario from the best of both worlds," Thomas writes (91; emphasis in the original) [32]. Permacinema takes shape between different forms of seeing and being, including the being of plants. Physical film is a site through which the "eyes" of not only western and Indigenous but of vegetal ways of knowing triangulate, enriching each other's perspectives. *The Ancestors' Gift* exemplifies the fertility of such encounters.

The STOF workshops were arranged by Hoffman, Adrian Kahgee (from Saugeen First Nation), and Debbie Ebanks Schlums (Black and Chinese Jamaican), who, with Rebeka Tabobondung (Wasauksing First Nation) comprise the Odeimin Runners Club. In their co-authored article, they develop

> an "a-colonial" approach to building cross-cultural relations based on *odeimin* teachings. *Odeimin* means "heartberry"—or "strawberry"—and it grows and thrives by sending out runners, thereby creating a networked lattice of relations between individual plants. These plants are a metaphor for individuals and communities—one cannot survive disconnected from relations with each other. . . . The *odeimin* contains within it the idea of nourishment as physically and spiritually essential to the body, incorporating an understanding of connected communities as part of the self. ([13] p. 49; emphasis in the original)

The collective's first artistic collaboration, *Everything I Touch I Change* responds to Butler's 1993 novel *Parable of the Sower*, about climate-migration and planetary exodus in a post-apocalyptic United States. The collaboration produced a triptych of films, each by one member. Individually and collectively the works articulate odeimin teachings, proposing strategies for reclaiming Indigenous territories and multispecies relationships. "Each of us had a different response to it [*Parable of the Sower*], but they were all linked in some way," explains Kahgee:

> (o)ne of the common threads, I think, was that connection to land, for all of us. That deep connection that we all have to land. . . . In Octavia's book, she always talked about creating a whole new religion that looked to the stars, took us outside what was. But for me, for my cosmology, from my point of view, everything is right here. [37]

In another cli-fi story, Christopher Nolan's blockbuster *Interstellar* (2014), humans must master interstellar travel to escape an anthropogenically exhausted earth. "We used to look up at the sky and wonder at our place in the stars," laments astronaut-turned-rancher Cooper (played by Matthew McConaughey), "now we just look down and worry about our place in the dirt."

The intertitles of Kahgee's *Everything Is Right Here* (2021) propose a different trajectory: "everything is right here, all we have to do is give thanks." Each film in the triptych is also an exercise in counter-mapping, activating alternate cartographies to those imposed over Indigenous landscapes by settler cultures. The collective operates like a strawberry plant, rejecting colonial impositions aboveground, as strawberries do belowground, via their boundary-defying roots.

Everything Is Right Here and Schlums's *The Traveller* (2021) employ filmmaker and scholar Karel Doing's practice of "phytography," while Tabobondung's *Mammoth Bone* (2021) applies the same technique to a mammoth's tusk (Figure 2).

Figure 2. The Odeimin Runners Club lay materials on film, producing phytograms.

What is phytography? Many plants contain polyphenols, molecular packets like those within popular photographic developers. If soaked in a solution of water, soda, and vitamin C to encourage the release of their chemicals and placed against receptive media, plants can develop photographic imagery [38]. Subsequently, if whole plants or plant sections (stems, leaves, or petals) are placed against surfaces after being appropriately soaked, imagery of plants' bodies besides their chemical reactions with the substrate can form (Figure 3).[20]

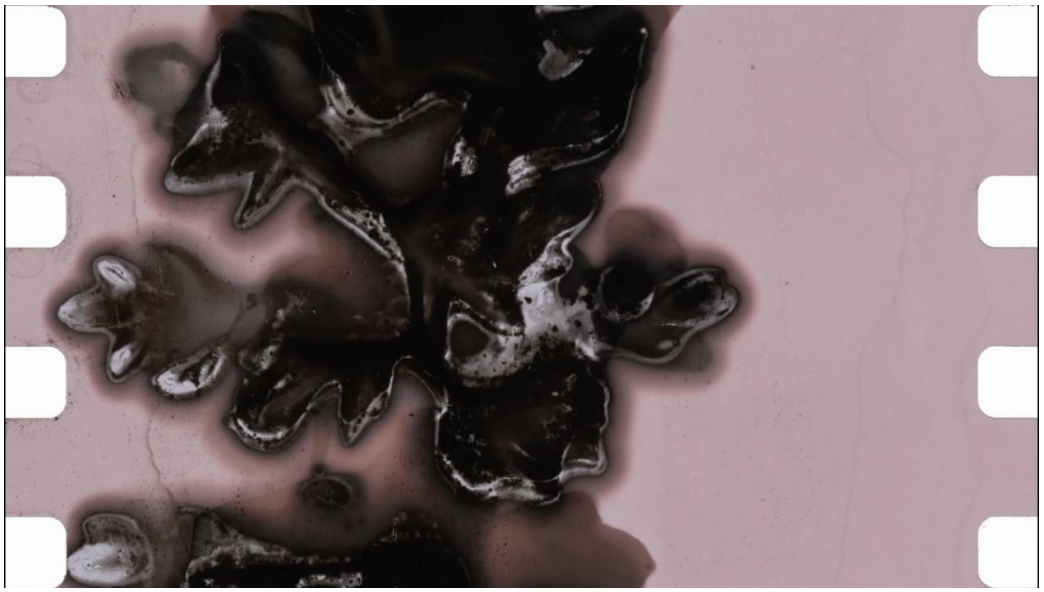

Figure 3. A phytogram, *The Traveller* (2021).

Physical film reacts to phytochemistry and, if animated during projection, conveys vegetal gesticulation. Plants signify along two pathways: gesticulation and chemical exchange. Thus "phytograms" (phytography's media products) provide windows onto "phytosemiosis," the system by which plants relay meaning extrapolated from their environments ([39] p. 266). Phytography taps into plants' methods of conveying meaning, through their bodies, and by exchanging chemicals. These methods constitute, as forest ecologist Suzanne Simard states, "the language of plants" ([40] p. 201). "My phytochemical explorations are mere experiments," Doing says, "attempting to explore a possible shared semiotic realm between plants and humans. . . . The plants are my teachers, I am an absolute beginner, eager to learn" [41]. Phytography stems from plants' teacherly gestures, germinating into artworks made by plants that, Doing argues, translate "a plant's experience of the world into an image that is legible for humans: plant sensation captured on film" ([42] p. 32).[21]

Phytography "physically and chemically embeds cultural and environmental knowledge into the material and resulting images," Kahgee, Schlums, and Tabobondung explain. "Thus, the importance of the process and the importance of the plants we selected have equal weight with the constructed images in giving meaning to the works" (54) [13]. Kahgee made her phytograms with dandelion, trillium, cedar, sage, and strawberry plants: all local to her territory, bar dandelions, that were brought by settlers. However, dandelions have since been embraced by Anishinabek people for their medicinal virtues. Schlums, who comes from the Caribbean, employed "sorrel, which is Jamaican," bananas, and other tropical plants, like palm. Importantly, "a Christmas drink is made from it [sorrel] in Jamaica," which "comes from an African tradition. The plants came from Africa to Jamaica and are very much part of our culture." As this drink is "celebratory," sorrel distil into the film a keen sense of "aliveness, and living into the future" [37]. In Kahgee's film, phytograms first appear against a starry sky, facilitating the transition to the second image of a rockscape. Schlums, too, links space and the earth through phytography. In Anishinabek creation stories, the daughter of Skywoman, who fell to earth from the Skyworld bearing the few seeds that would later grow into the full spectrum of vegetal life, died during childbirth. Distraught, Skywoman buried her child, whose heart produced the heartberry ([3] p. 23).

In this story, strawberry plants bind the sublunary and the celestial, anthropic bodies with the body of the earth. In Kahgee's and Schlums's films, strawberries and other plants literally call us back to the world, through phytography. By cinematically expressing the meaning of the odeimin in Anishinabek worldviews, and by exploring film's susceptibility to phytochemistry as a means of materially transmitting such knowledge, the Runners tap into a permacinematic impulse: telling us that everything is right here, and that securing futurity means giving thanks.

By contrast to the Odeimin collective, Alisi Telengut, a Canadian artist of Mongolian origin, works in comparative solitude, yet in the company of water, plants, and rocks. Telengut's grandparents lived nomadically on the Mongolian grasslands, and their traditional knowledge is often included in her films. Telengut employs a unique animation method that has its antecedent in William Kentridge's practice, synthesising digital technology with Indigenous Mongolian beliefs and traditional practice, transforming hand-made artefacts into audiovisual media. Telengut works on one surface, either paper or metal, painting with pastels and sculpting by hand, creating three-dimensional artworks on A4-sized substrates. Individual images are painted, photographed, and then re-arranged, erased, or painted over. The films are produced live on such surfaces, which, upon completion, form three dimensional objects. These procedures are repeated over months, resulting in two interrelated yet distinct artworks: a digitally rendered film made via stop motion animation, and a sculptural artefact made by hand [43].

Telengut's art invites a permacinematic reading due to her protracted, laborious hands-on approach through which she partners with mineralogical and vegetal others. Indeed, Telengut's practice is strikingly agricultural. Telengut works mainly with conifers (such as foliage of cypress and fir) and mosses. Conifers grow across the Northern Hemisphere, and are dominant species in the taiga forest. Mosses, on the other hand, are the primary

food sources of the reindeer living in the north of Mongolia. Telengut also uses red clovers, commonly considered as weeds in Canada, but also valued for their medicinal properties. The films' imagery grows through the gradual accumulation and fusion of organic and inorganic matter, stewarded by Telengut, to form cine-landscapes of multispecies design. Consequently, we approach Telengut's practice as a form of "cine-gardening," guiding cinematic landscapes towards increasing levels of environmental complexity through the execution of terraforming techniques: introducing new plants to the cinematic surface, for example, or sculpting ravines of pastel through which water runs.

"Animation is a long journey of solitude," states Telengut in *Solitude* (2016), a documentary on her practice [44]. "It's about serving your ideology through hours of contemplation, labour, or even torture." [44] The prolonged time of Telengut's production underwrites her practice's permacinematic character. However, it is not that Telengut simply works slowly, luxuriating in the tempered flows of slow-living. Telengut works frenetically, constantly, and hard across large tracts of time to tune into rhythms beyond her own.

Unlike in Saugeen teachings, in Indigenous Mongolian cosmologies, plants are not necessarily kin. Though not kin, humans and plants are entangled and co-determinate. Moreover, "plants have sentient souls much like our own," writes Buryat shaman Sarangerel in *Riding Windhorses* (2000) [45]. As in *The Ancestors' Gift*, in Telengut's *The Fourfold* a grandmother shares key cultural knowledge with her granddaughter, and us. In voiceover, Telengut's grandmother introduces us to an animistic worldview: "Nature is the homeland of human beings, Tengri is the deity and the father sky. Earth is mother with rivers nourishing all beings. Paganist and pantheist gods co-exist with all mortals." Like Pucan, Telengut takes cinema as a means of archiving ancestral knowledge and facilitating its transmission across generations and cultures.

While for some Indigenous thinkers, relational ontologies risk appropriating (and abstracting) Indigenous knowledge, Telengut speaks of them as complementary.[22] "In Indigenous and animistic beliefs," she says,

> humans are considered deeply imbricated with the soil, water, and the environment. Animism is in fact a relational ontology [instructing us] to act respectfully to non-human others and the more-than-human world, rejecting the dualistic and anthropocentric perspectives of modernity. [31]

The artisanal aspects of her practice are intimately tied to Indigenous Mongolian crafts: knitting, weaving, and embroidery. Telengut's embodied approach connects her to her relatives and culture, and to the other beings involved in the production, enabling productive exchanges across time and the species divide:

> The communities' stories and relationalities are weaved and crafted into the fabrics and materials with unique patterns, designs and techniques. In this sense, I see under-camera animation as a similar process that not only reveals aspects of materiality and tangibility, but also indicates the animation process as a phenomenon where humans, non-humans and the technical other are entangled in the co-creation. [31]

The Fourfold includes real plants, whose physical presence enhances Telengut's animation. "This is not to devalue my painted animation," she says,

> it is my attempt to develop a form of perception or sensitivity to expand my own as well as the viewer's bond with nature. . . . This gesture allows the animation process and my body to be in a co-creating and even a symbiotic relationship with the plants, stones and particles. They become active agents and voices in the creation process which deconstruct the human-centred perspective. [31]

Plants are not only animate-*d*, but animat-*ing*. Midway through the film, plants emerge from a river, proliferating from background to foreground, until finally enveloping the image. Horizontally across the screen, a forest of diverse plants forms, bisected by a river

of glittering ultramarine (Figure 4). Typifying the uncontainability of vegetal life, plants are never static but ceaselessly quiver, alive.[23]

Figure 4. Plants march across the screen and seemingly return our gaze, *The Fourfold* (2020).

We began with the idea of a cinematic horticulture that takes its cues from Indigenous knowledge and ecological design, and from encounters with plants as biosemiotically proficient companions.[24] Agricultural by association, permacinema remains conceptually sedentary. In *Surrender* (2019), her journey through the American west, Joanna Pocock encounters "the hoop,"

> a seasonal migratory way of living by following one's food source. This lifeway was practised for thousands of years by indigenous Americans in the Great Basin . . . . It was a lifeway that worked with the seasons, leaving plenty of the Earth's resources untouched for future generations . . . . As they travelled the hoop, they deliberately put the seeds of the plants that they harvested back into the ground in order to keep the cycle intact. (71) [46]

Like Varda's film, Pocock's nonfiction novel is a work of gleaning. She meets environmentalists, hunters, and urban rewilders on and off the road, making connections and gathering stories. One of the book's most memorable and moving encounters is with Finisia Medrano, a "radical rewilder" who lives on the hoop [47]. Medrano's commitment to the hunter gatherer way of life is uncompromising. "For Finisia . . . the rot of civilization began with agriculture. Once we became sedentary and started storing our food rather than going out to find it, we became landowners. Our gaze shifted from seeing land as belonging to all people to seeing it as something to be owned and exploited" ([46] p. 100).

Could (or should) a fully rewilded cinema be imagined? A cinema unfettered by institutions, finances, artistic ownership, even the mechanics of capture—a cinema on the hoop, embedded in and attuned to the patterns and progressions of the earth?

5. Postscript. Cinema in Perpetuity?

> A narrow Fellow in the Grass
> Occasionally rides—
> You may have met Him—did you not
> His notice sudden is—

> The Grass divides as with a Comb—
> A spotted shaft is seen—
> And then it closes at your feet
> And opens further on—
> (Emily Dickinson) [48]

Every living being, we think, enjoys a cinematic power, that is, signifying whilst moving in time. "Motion is not only written on a filmstrip . . . a snake slithering through sand is doing something very similar," says Doing [41]. A plant's body, when moving, is a work of cinematic art. Cinema is the "superb conciliation of the Rhythms of Space (the Plastic Arts) and the Rhythms of Time (Music and Poetry)," wrote the early French critic Riccardo Canudo in 1911 (1988, 59) [49]. Vegetal life intertwines with the medium of cinema, whose unique identity is articulated through a recourse to the synthesis of motion and time. Perhaps this is why Lumière's *Repas de bébé* continues to fascinate: the moving leaves are already an image of cinema's own obsolescence.

If cinema is an industrial technology *and* an energy possessed by life as such, the cinematic may be present in the absence of a camera and other anthropogenic motion capture paraphernalia. It is possible, then, to enjoy the *cinematic* without the *cinema*. Confronting "the end of cinema" (yet again!) does not, however, render it redundant.[25] To attribute cinematic capacities to nonhuman others elevates both living beings and the cinema at the point of their mutual entanglement. We speak of "permacinema" as a launchpad for further inquiry into human, more-than-human, and cinema's non-exceptional existence on the continuum of earthbound creative expression.

And yet the prospect of cinema's extinction is no fantasy. Rapid environmental decline will precipitate not only humans' but cinema's demise unless largescale structural changes occur, which is unlikely. Permacinema responds to these challenges by turning to modes of production that can exist and endure beyond cinema's industrial context, and by speculating on a future in which the cinema no longer exists. The reality of cinema's finitude calls us to explore other ways in which cinematic experiences might be enjoyed. Plants' gesticulations and rhythms, the tentacular meanderings of fungal hyphae, strike us as a more expansive kind of (perma)cinema, perhaps even its only true form.

If life operates cinematically prior to the arrival of the cinematic apparatus, every living being enjoys a cinematic power that not only precedes but, more importantly, exceeds the act of filming. From this conclusion we might draw comfort: the cinema will live on, indeed outlive us, via the gestures of plants and other living beings and forces. "When I think of the word cinema," writes filmmaker Alex MacKenzie,

> I think first of a meeting space where there is a collective experience that effects each individual differently but maintains a common thread that reaches us all . . . That said, if cinema needs to be sacrificed in order for there to be a "two hundred years from now," I am okay with that too. I think if we can collectively watch the sun rise and fall and learn to appreciate that more, then a direct relationship with the world might be a better way to go. [50]

Now, Kahgee's comments become doubly significant: "everything is right here." When we can appreciate the snake's body weaving through the grass, a sunlit "spotted shaft," what need have we for cinema?

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Notes

1 On the animal turn in film see Jonathan Burt's *Animals in Film* (London: Reaktion, 2002), Akira Mizuta Lippit's *Electric Animal: Toward a Rhetoric of Wildlife* (Minneapolis: University of Minnesota Press, 2008), Nicole Shukin's *Animal Capital: Rendering Life in Biopolitical Times* (Minneapolis: University of Minnesota Press, 2010) [17], Anat Pick's *Creaturely Poetics: Animality and Vulnerability in Literature and Film* (New York: Columbia University Press, 2011), and Laura McMahon's *Animal Worlds: Film, Philosophy and Time* (Edinburgh: University of Edinburgh Press, 2019). Shukin's discussion is particularly relevant in the present context since she views cinema as implicated in the violent "rendering" of nonhuman life. On the vegetal turn in film see for example Chris Dymond, "New Growth: To Film Like a Plant," *Ecocene* 2.1 (2021), pp. 32–50 [38], and Terea Castro, Perig Pitrou, and Marie Rebecchi's *Puissance du végétal et cinéma animiste: La vitalité révélée par la technique*. Paris: Presses du reel, 2020.

2 On the return to realism, see Herve Joubert-Laurencin and Dudley Andrew's seminal edited volume *Opening Bazin: Postwar Film Theory and Its Afterlife* (New York: Oxford University Press, 2011), Richard Allen, "'There Is Not One Realism, But Several Realisms': A Review of *Opening Bazin*," *October* 148 (2014), pp. 63–78, and Lourdes Esqueda Verano, "There is No Such Thing as One Realism: Systematising André Bazin's Film Theory," *New Review of Film and Television Studies*, 20.3 (2022), pp. 401–423. On the link between Bazin and animals see Jennifer Fay's "Seeing/Loving Animals: André Bazin's Posthumanism," *The Journal of Visual Culture* 7.1 (2008), pp. 41–64. See also Fay's *Inhospitable World: Cinema in the time of the Anthropocene.* New York: Oxford University Press, 2018, on the interlacing of cinema and the Anthropocene.

3 In *De Anima*, Aristotle distinguished between the different faculties of soul in plants and animals. He says: "The faculties we spoke of were the nutritive, perceptive, desiderative, locomotive and intellective, plants having only the nutritive, other living things [414b] both this and the perceptive." Plants lack perception (that all animals enjoy), and reason (which only human animals enjoy). Aristotle, *De Anima* (*On the Soul*). Hugh Lawson-Tancred, trans. London: Penguin, 1986.

4 In response to Marder, one could point out that not only plants photosynthesise, nor were they the first to do so. It is generally believed that the chloroplasts in contemporary plants derive from an event of ancient endosymbiosis, when a free-living cyanobacterium was engulfed by another organism. See, for example John A. Raven and John F. Allen, "Genomics and chloroplast evolution: what did cyanobacteria do for plants?" *Genome Biology* 4.3 (2003), article 209. https://genomebiology.biomedcentral.com/track/pdf/10.1186/gb-2003-4-3-209.pdf (accessed on 29 August 2022).

5 The OECD's own report, *Beyond Growth: Towards A New Economic Approach*, acknowledges that while "[e]conomic growth continues to generate the benefits of higher national income . . . the dominant patterns of growth in OECD countries over recent decades have also generated significant harms" (12 September, 2019, https://www.oecd.org/naec/averting-systemic-collapse/SG-NAEC(2019)3_Beyond%20Growth.pdf (accessed on 29 August 2022).

6 Degrowth remains hotly debated. For the case for degrowth, see Giorgos Kallis, *Degrowth*. New York: Columbia University Press, 2018, and Drew Pendergrass and Troy Vettese's *Half-Earth Socialism: A Plan to Save the Future from Extinction, Climate Change and Pandemics*. London: Verso, 2022. For a critique of degrowth see for example, Leigh Phillips, "The Degrowth Delusion," *Open Democracy* 30 August, 2019, https://www.opendemocracy.net/en/oureconomy/degrowth-delusion/ (accessed on 29 August 2022).

7 Watson's article originally appeared in *Permaculture Design Magazine* (formerly *Permaculture Activist*) 98, Winter 2015.

8 The Odeimin Runners Club collective prefers the term "a-colonial" to indicate a resistance to "oppressive capitalist systems while taking a different path: one outside of colonialism's hegemonic frameworks" (Schlums, et al. 49). [13]

9 Knowles describes Film Farm as a "utopic endeavour" (144), at once inside and outside the world. This is significant when considering Film Farm as a site of resistance. Knowles is open and honest about her own experience at Film Farm: "[w]e were about to close ourselves off from one kind of world, where the contentious politics of Trump and Brexit (still too fresh in my mind) were raging, in order to immerse our bodies and minds in a kind of physically engaged art-making that might be considered by some as escapist, frivolous even. I grappled with these thoughts throughout the journey, trying to make sense of the relationship between art and politics" (150). [11]

10 The 2019 programme of *Saugeen Takes on Film* was screened at the Fabulous Festival of Fringe Film (18-27 July, 2019), a long-running festival of experimental film that brought together Philip Hoffman, Debbie Ebanks Schlums, and Adrian Kahgee. The programme included Natalka Pucan's *The Ancestors' Gift* (2019), Sharon Isaac and Kelsey Diamond's *Thunder Rolling Home* (2019), and Tiffany Kewageshig and Cassidey Ritchie's *Tune In* (2019). The 2018 festival programme featured Pulcan's *Mii Yaawag* (2018), Emily Kewageshig and Taylor Cameron, *Zgaabiignigan* (2018), and Jennifer Kewageshig 's *How Far We've Come* (2018). For information on the 2018 and 2019 STOF workshops at Film Farm, see https://philiphoffman.ca/process-cinema/ (accessed on 29

August 2022). See also the Archive/Counter-Archive open house event, during which the STOF films were enjoyed alongside wild edibles and traditional food, https://counterarchive.ca/saugeen-takes-film-open-house (accessed on 29 August 2022).

11 The use of plants in film processing is an established practice. Our selection of case studies demonstrates the correspondence between plant processing and Indigenous studies. Other recent examples of plant processing of film include Jacquelyn Mills' documentary *Geographies of Solitude* (2022), Karel Doing's feature In Vivo (2021), and Dagie Brundert's short *i am a* (2022). The Atlantic Filmmakers Cooperative (AFCOOP), for instance, runs eco-processing workshops, https://afcoop.ca/2017/09/eco-processing-film/ (accessed on 29 August 2022).

12 In the chapter titled "Energy," Bozak describes a truly carbon-neutral cinema as "a cinema that does not leave a residue; a cinema, therefore, without a permanent infrastructure or, perhaps, any physicality at all" (17). Our conclusion suggests that such a cinema already exists. [14]

13 Varda explored similar themes far more bleakly in *Sans toit ni loi* (*Vagabond*, 1985). The film takes place in rural France and follows the life of its itinerant character Mona (played by Sandrine Bonnaire), whose death opens the film. Mona exists on the margins of society, without shelter or law, a complete outsider. In the later film, Varda returns to the question of the law, which gleaning as a liminal practice continuously challenges. For a reading of both films, see for example Allan Stoekl, "Agnès Varda and the Limits of Gleaning," *World Picture Journal* 5 (Spring 2011), http://www.worldpicturejournal.com/WP_5/PDFs/Stoekl.pdf (accessed on 29 August 2022).

14 The potato (*Solanum tuberosum*) was cultivated in the Andes and transported to Europe by colonists around 1562, thirty years after Francisco Pizarro reportedly encountered potatoes in Peru. See J.G. Hawkes and J. Francisco-Ortega, "The Early History of the Potato in Europe," *Euphytica: International Journal of Plant Breeding* 70 (1993), pp. 1–7.

15 At the opening of her art exhibition *Patatutopia* at the 50th Venice Biennale in 2003, Varda appeared dressed in a potato suit.

16 By some delightful coincidence, the film's theme song was performed by the band Garbage. Indeed, the by-products of a never-enough psychology and economics of growth are surplus and waste. The proposed solutions of the "green economy" (Kothari et al., 2014) and "green capitalism" (Buller 2022) have so far failed to tackle the world's ever-increasing tonnages of trash. See Ashish Kothari, Federico Demaria and Alberto Acosta, "Buen Vivir, Degrowth and Ecological Swaraj: Alternatives to sustainable development and the Green Economy," *Development* 57.3–4 (2015), pp. 362–375, and Adrienne Buller, *The Value of a Whale: On the Illusions of Green Capitalism*. Manchester: Manchester University Press, 2022.

17 On plants' indifference to power-possessing and enhancing modes of being see Michael Marder's "Resist like a plant! On the Vegetal Life of Political Movements," *Peace Studies Journal* 5.1 (2012), pp. 24–32.

18 Weil was interested in modes of reflective detachment, what she called "attention," that have existed for centuries across east and west. They include Meister Eckhart's idea of "gelassenheit" (letting be), and the Indian "aparigraha" (the virtue of non-possessing or non-grasping in Jainism).

19 Hoffman introduced us to thinking about the synchronicity of plants and films' gestation periods, when processed with flowers. In our interview, he said: "My statement 'the film will bloom when it is ready' relates to the gestation time of an artwork, when the unconscious is aligned with the creative process, and a work is ready to be born" (Hoffman 2022). [35]

20 See Karel Doing's blog on phytography, https://phytogram.blog/ (accessed on 29 August 2022). See also Doing's 2020 article, "Phytograms: Rebuilding Human-Plant Affiliations." [42]

21 The impact of plant juices on photographic emulsion was verified in William Henry Fox Talbot's early photograms, although he ignored plants' agency. On this, see: Dymond (2022) "How to Look at Plants?" [21]

22 In their article, the Odeimin Runners Club resist conflating their relational approach with Bruno Latour's Actor Network Theory (ANT): "*odeimin* teachings extend beyond ANT by acknowledging spiritual and cultural forms of knowing and relating beyond that which can be explained by senses and deductive reasoning alone" (Schlums et al., 54). [13]

23 Many of Telengut's artworks can be seen on her website: http://alisitelengut.com/ (accessed on 29 August 2022), which also includes links to many interviews. In May 2021, Telengut conducted a particularly informative interview with Haliç University, available on YouTube: https://www.youtube.com/watch?v=ep8AW8IhNjE (accessed on 29 August 2022).

24 Biosemiotics, the pre-linguistic biological production and reception of meaningful signs, operates in two dimensions: movement and time. As Eduardo Kohn explains, "all life is semiotic and all semiosis is alive. . . . the locus . . . of a living dynamic by which signs come to represent the world around them to a 'someone' who emerges as such a result of this process. The world is thus 'animate.' 'We' are not the only kind of we." (16) Biosemiosis is the primary meridian through which "multispecies relations are possible . . . and also analytically comprehensible" (9). We verify others' possession of a unique lifeworld and an internal point of view by their ability to relay meaning by moving in time. Kohn's conception of life is strikingly cinematic. Eduardo Kohn, *How Forests Think: Toward an Anthropology Beyond the Human*. Los Angeles: University of California Press, 2013, p. 16.

25 The end of cinema has been repeatedly proclaimed. See for example, André Gaudreault and Philippe Marion, *The End of Cinema? A Medium in Crisis in the Digital Age.* Timothy Barnard, trans. New York: Columbia University Press, 2015, or Paolo Cherchi Usai, *The Death of Cinema: History, Cultural Memory and the Digital Dark Age*. London: BFI, 2019.

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