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#### Settler colonialism is the permeating structure of the nation-state which requires the elimination of indigenous life and land via the occupation of settlers. The appropriation of land turns Natives into ghosts and chattel slaves into excess labor.

Tuck and Yang 12, (Eve Tuck, Unangax, State University of New York at New Paltz K. Wayne Yang University of California, San Diego, Decolonization is not a metaphor, Decolonization: Indigeneity, Education & Society Vol. 1, No. 1, 2012, pp. 1-40, JKS)

Our intention in this descriptive exercise is not be exhaustive, or even inarguable; instead, we wish to emphasize that (a) decolonization will take a different shape in each of these contexts - though they can overlap - and that (b) neither external nor internal colonialism adequately describe the form of colonialism which operates in the United States or other nation-states in which the colonizer comes to stay. Settler colonialism operates through internal/external colonial modes simultaneously because there is no spatial separation between metropole and colony. For example, in the United States, many Indigenous peoples have been forcibly removed from their homelands onto reservations, indentured, and abducted into state custody, signaling the form of colonization as simultaneously internal (via boarding schools and other biopolitical modes of control) and external (via uranium mining on Indigenous land in the US Southwest and oil extraction on Indigenous land in Alaska) with a frontier (the US military still nicknames all enemy territory “Indian Country”). The horizons of the settler colonial nation-state are total and require a mode of total appropriation of Indigenous life and land, rather than the selective expropriation of profit-producing fragments. Settler colonialism is different from other forms of colonialism in that settlers come with the intention of making a new home on the land, a homemaking that insists on settler sovereignty over all things in their new domain. Thus, relying solely on postcolonial literatures or theories of coloniality that ignore settler colonialism will not help to envision the shape that decolonization must take in settler colonial contexts. Within settler colonialism, the most important concern is land/water/air/subterranean earth (land, for shorthand, in this article.) Land is what is most valuable, contested, required. This is both because the settlers make Indigenous land their new home and source of capital, and also because the disruption of Indigenous relationships to land represents a profound epistemic, ontological, cosmological violence. This violence is not temporally contained in the arrival of the settler but is reasserted each day of occupation. This is why Patrick Wolfe (1999) emphasizes that settler colonialism is a structure and not an event. In the process of settler colonialism, land is remade into property and human relationships to land are restricted to the relationship of the owner to his property. Epistemological, ontological, and cosmological relationships to land are interred, indeed made pre-modern and backward. Made savage. In order for the settlers to make a place their home, they must destroy and disappear the Indigenous peoples that live there. Indigenous peoples are those who have creation stories, not colonization stories, about how we/they came to be in a particular place - indeed how we/they came to be a place. Our/their relationships to land comprise our/their epistemologies, ontologies, and cosmologies. For the settlers, Indigenous peoples are in the way and, in the destruction of Indigenous peoples, Indigenous communities, and over time and through law and policy, Indigenous peoples’ claims to land under settler regimes, land is recast as property and as a resource. Indigenous peoples must be erased, must be made into ghosts (Tuck and Ree, forthcoming). At the same time, settler colonialism involves the subjugation and forced labor of chattel slaves, whose bodies and lives become the property, and who are kept landless. Slavery in settler colonial contexts is distinct from other forms of indenture whereby excess labor is extracted from persons. First, chattels are commodities of labor and therefore it is the slave’s person that is the excess. Second, unlike workers who may aspire to own land, the slave’s very presence on the land is already an excess that must be dis-located. Thus, the slave is a desirable commodity but the person underneath is imprisonable, punishable, and murderable. The violence of keeping/killing the chattel slave makes them deathlike monsters in the settler imagination; they are reconfigured/disfigured as the threat, the razor’s edge of safety and terror. The settler, if known by his actions and how he justifies them, sees himself as holding dominion over the earth and its flora and fauna, as the anthropocentric normal, and as more developed, more human, more deserving than other groups or species. The settler is making a new "home" and that home is rooted in a homesteading worldview where the wild land and wild people were made for his benefit. He can only make his identity as a settler by making the land produce, and produce excessively, because "civilization" is defined as production in excess of the "natural" world (i.e. in excess of the sustainable production already present in the Indigenous world). In order for excess production, he needs excess labor, which he cannot provide himself. The chattel slave serves as that excess labor, labor that can never be paid because payment would have to be in the form of property (land). The settler's wealth is land, or a fungible version of it, and so payment for labor is impossible.6 The settler positions himself as both superior and normal; the settler is natural, whereas the Indigenous inhabitant and the chattel slave are unnatural, even supernatural. Settlers are not immigrants. Immigrants are beholden to the Indigenous laws and epistemologies of the lands they migrate to. Settlers become the law, supplanting Indigenous laws and epistemologies. Therefore, settler nations are not immigrant nations (See also A.J. Barker, 2009). Not unique, the United States, as a settler colonial nation-state, also operates as an empire - utilizing external forms and internal forms of colonization simultaneous to the settler colonial project. This means, and this is perplexing to some, that dispossessed people are brought onto seized Indigenous land through other colonial projects. Other colonial projects include enslavement, as discussed, but also military recruitment, low-wage and high-wage labor recruitment (such as agricultural workers and overseas-trained engineers), and displacement/migration (such as the coerced immigration from nations torn by U.S. wars or devastated by U.S. economic policy). In this set of settler colonial relations, colonial subjects who are displaced by external colonialism, as well as racialized and minoritized by internal colonialism, still occupy and settle stolen Indigenous land. Settlers are diverse, not just of white European descent, and include people of color, even from other colonial contexts. This tightly wound set of conditions and racialized, globalized relations exponentially complicates what is meant by decolonization, and by solidarity, against settler colonial forces. Decolonization in exploitative colonial situations could involve the seizing of imperial wealth by the postcolonial subject. In settler colonial situations, seizing imperial wealth is inextricably tied to settlement and re-invasion. Likewise, the promise of integration and civil rights is predicated on securing a share of a settler-appropriated wealth (as well as expropriated ‘third-world’ wealth). Decolonization in a settler context is fraught because empire, settlement, and internal colony have no spatial separation. Each of these features of settler colonialism in the US context - empire, settlement, and internal colony - make it a site of contradictory decolonial desires7. Decolonization as metaphor allows people to equivocate these contradictory decolonial desires because it turns decolonization into an empty signifier to be filled by any track towards liberation. In reality, the tracks walk all over land/people in settler contexts. Though the details are not fixed or agreed upon, in our view, decolonization in the settler colonial context must involve the repatriation of land simultaneous to the recognition of how land and relations to land have always already been differently understood and enacted; that is, all of the land, and not just symbolically. This is precisely why decolonization is necessarily unsettling, especially across lines of solidarity. “Decolonization never takes place unnoticed” (Fanon, 1963, p. 36). Settler colonialism and its decolonization implicates and unsettles everyone.

#### The 1ac’s representations and discourses surrounding space as a site for “critical for science research” (1ac ostp 18) perpetuates colonial violence through Western settler myths of terra nullius and prioritization of science over Indigenous epistemologies

Smiles 20, Deondre Smiles, 10-26-2020, "The Settler Logics of (Outer) Space," Society + Space, <https://www.societyandspace.org/articles/the-settler-logics-of-outer-space> [Dondre Smiles is an Indigenous geographer whose research interests lie at the intersection of several fields, including critical Indigenous geographies, human-environment interactions, political ecology, tribal cultural resource preservation, and science and technology studies. Their current academic position is as an Assistant Professor in the Department of Geography at the University of Victoria, in B.C., Canada.] //tanya

To most scholars, and certainly to the virtual majority of Indigenous peoples on Turtle Island, it is no secret that the country we call the United States of America was built upon the brutal subjugation of Indigenous people and Indigenous lands. Fueled by the American settler myths of terra nullius (no man’s land) and Manifest Destiny, the American settler state proceeded upon a project of cultural and physical genocide, with lasting effects that endure to the present day. The ‘settler myth’ permeates American culture. Words such as ‘pioneer’, the ‘West’, ‘Manifest Destiny’ grab the imagination as connected to the growth of the country in its early history. America sprang forth from a vast open ‘wilderness’. Of course, for Indigenous people, we know differently—these lands had complex cultural frameworks and political entities long before colonization. Words like ‘pioneer’ and ‘Manifest Destiny’, have deep meanings for us too, as they are indicative of the very real damage dealt against our cultures and nations, damage that we have had to work very hard to undo. Trump’s address raises key insights into the continuing logics of settler colonialism, as well as questions of its future trajectories. Trump’s invocation of ideas such as the ‘frontier’ and ‘taming the wilderness’ draws attention to the brutal violence that accompanied the building of the American state. Scholars such as Greg Grandin (2019) make the case that the frontier is part of what America is—whether it is the ‘Wild West’, or the U.S.-Mexican border, America is always contending with a frontier that must be defined.  Language surrounding ‘frontier’ is troubling because it perpetuates the rationale of why the American settler state even exists—it could make better use of the land than Native people would, after all, they lived in wilderness. This myth tells us that what we know as the modern world was built through the hard work of European settlers; Indigenous people had nothing to offer or contribute. For someone like Mr. Trump, whose misgivings and hostility towards Native people have been historically documented, this myth fits well with his narrative as President—he is building a ‘new’ America, one that will return to its place of power and influence. The fact that similar language is being used around the potential of American power being extended to space could reasonably be expected, given the economic and military potential that comes from such a move. Space represents yet another ‘unknown’ to be conquered and bent to America’s will. However, such interplanetary conquest does not exist solely in outer space. I wish to situate the very real colonial legacies and violence associated with the desire to explore space, tracing the ways that they are perpetuated and reified through their destructive engagements with Indigenous peoples. I argue that a scientific venture such as space exploration does not exist in a vacuum, but instead draws from settler colonialism and feeds back into it through the prioritization of ‘science’ over Indigenous epistemologies. I begin by exploring the ways that space exploration by the American settler state is situated within questions of hegemony, imperialism, and terra nullius, including a brief synopsis of the controversy surrounding the planned construction of the Thirty Meter Telescope on Mauna Kea. I conclude by exploring Indigenous engagement with ‘space’ in both its Earthbound and beyond-earth forms as it relates to outer space, and what implications this might have for the ways we think about our engagement with space as the American settler state begins to turn its gaze skyward once again. I position this essay alongside a growing body of academic work, as well as journalistic endeavors (Haskins, 2020; Koren, 2020) that demands that the American settler colonial state exercise self-reflexivity as to why it engages with outer space, and who is advantaged and disadvantaged here on Earth as a result of this engagement. Settler colonialism is commonly understood to be a form of colonialism that is based upon the permanent presence of colonists upon land. This is a distinction from forms of colonialism based upon resource extraction (Wolfe, 2006; Veracini, 2013). What this means is that the settler colony is intimately tied with the space within which it exists—it cannot exist or sustain itself without settler control over land and space. This permanent presence upon land by ‘settlers’ is usually at the expense of the Indigenous, or original people, in a given space or territory. To reiterate: control over space is paramount. As Wolfe states, “Land is life—or at least, land is necessary for life. Thus, contests for land can be—indeed, often are—contests for life” (2006: 387).  Without land, the settler state ‘dies’; conversely, deprivation of land from the indigenous population means that in settler logic, indigeneity dies (Povinelli, 2002; Wolfe, 2006.) Because of this overarching goal of space, there is an inherent anxiety in settler colonies about space, and how it can be occupied and subsequently rewritten to remove Indigenous presence. In Anglo settler colonies, this often takes place within a lens of conservation. Scholars such as Banivanua Mar (2010), Lannoy (2012), Wright (2014) and Tristan Ahtone (2019) have written extensively on the ways that settler reinscription of space can be extremely damaging to Indigenous people from a lens of ‘conservation’. However, dispossession of Indigenous space in favor of settler uses can also be tied to some of the most destructive forces of our time. For example, Aboriginal land in the Australian Outback was viewed as ‘empty’ land that was turned into weapons ranges where the British military tested nuclear weapons in the 1950s, which directly led to negative health effects upon Aboriginal communities downwind from the testing sites (Vincent, 2010). Indigenous nations in the United States have struggled with environmental damage related to military-industrial exploitation as well. But, what does this all look like in regard to outer space? In order to really understand the potential (settler) colonial logics of space exploration, we must go back and explore the ways in which space exploration became inextricably tied with questions of state hegemony and geopolitics during the Cold War. US and Soviet space programs were born partially out of military utility, and propaganda value—the ability to send a nuclear warhead across a great distance to strike the enemy via a ICBM and the accompanying geopolitical respect that came with such a capability was something that greatly appealed to the superpowers, and when the Soviets took an early lead in the ‘Space Race’ with Sputnik and their Luna probes, the United States poured money and resources into making up ground (Werth, 2004). The fear of not only falling behind the Soviets militarily as well as a perceived loss of prestige in the court of world opinion spurred the US onto a course of space exploration that led to the Apollo moon landings in the late 1960s and the early 70s (Werth, 2004; Cornish, 2019). I argue that this fits neatly into the American settler creation myth referenced by Trump—after ‘conquering’ a continent and bringing it under American dominion, why would the United States stop solely at ‘space’ on Earth? To return to Grandin (2019), space represented yet another frontier to be conquered and known by the settler colonial state; if not explicitly for the possibility of further settlement, then for the preservation of its existing spatial extent on Earth. However, scholars such as Alan Marshall (1995) have cautioned that newer logics of space exploration such as potential resource extraction tie in with existing military logics in a way that creates a new way of thinking about the ‘openness’ of outer space to the logics of empire, in what Marshall calls res nullius (1995: 51)[i]. But we cannot forget the concept of terra nullius and how our exploration of the stars has real effects on Indigenous landscapes here on Earth. We also cannot forget about forms of space exploration that may not be explicitly tied to military means. Doing so deprives us of another lens through which to view the tensions between settler and Indigenous views of space and to which end is useful. Indeed, even reinscribing of Indigenous space towards ‘peaceful’ settler space exploration have very real consequences for Indigenous sovereignty and Indigenous spaces. Perhaps the most prominent example of the fractures between settler space exploration and Indigenous peoples is the on-going controversy surrounding the construction of the Thirty Meter Telescope on Mauna Kea, on the island of Hawaii. While an extremely detailed description of the processes of construction on the TMT and the opposition presented to it by Native Hawai’ians and their allies is beyond the scope of this essay, and in fact is already expertly done by a number of scholars[ii], the controversy surrounding TMT is a prime example of the logics presented towards ‘space’ in both Earth-bound and beyond-Earth contexts by the settler colonial state as well as the violence that these logics place upon Indigenous spaces, such as Mauna Kea, which in particular already plays host to a number of telescopes and observatories (Witze, 2020). In particular, astronomers such as Chanda Prescod-Weinstein, Lucianne Walkowicz, and others have taken decisive action to push back against the idea that settler scientific advancement via space exploration should take precedence over Indigenous sovereignty in Earth-space. Prescod-Weinstein and Walkowicz, alongside Sarah Tuttle, Brian Nord and Hilding Neilson (2020) make clear that settler scientific pursuits such as building the TMT are simply new footnotes in a long history of colonial disrespect of Indigenous people and Indigenous spaces in the name of science, and that astronomy is not innocent of this disrespect. In fact, Native Hawai’ian scholars such as Iokepa Casumbal-Salazar strike at the heart of the professed neutrality of sciences like astronomy:  One scientist told me that astronomy is [as] a “benign science” because it is based on observation, and that it is universally beneficial because it offers “basic human knowledge” that everyone should know “like human anatomy.” Such a statement underscores the cultural bias within conventional notions of what constitutes the “human” and “knowledge.” In the absence of a critical self-reflection on this inherent ethnocentrism, the tacit claim to universal truth reproduces the cultural supremacy of Western science as self-evident. Here, the needs of astronomers for tall peaks in remote locations supplant the needs of Indigenous communities on whose ancestral territories these observatories are built (2017: 8). As Casumbal-Salazar and other scholars who have written about the TMT and the violence that has been done to Native Hawai’ians (such as police actions designed to dislodge blockades that prevented construction) as well as the potential violence to come such as the construction of the telescope have skillfully said, when it comes to the infringement upon Indigenous space by settler scientific endeavors tied to space exploration, there is no neutrality to be had—dispossession and violence are dispossession and violence, no matter the potential ‘good for humanity’ that might come about through these things. Such contestations over outer space and ethical engagement with previously unknown spaces will continue to happen. Outer space is not the first ‘final frontier’ (apologies to Gene Roddenberry) that has been discussed in settler logics and academic spaces. In terms of settler colonialism, scholars have written about how Antarctica was initially thought of as the ‘perfect’ settler colony—land that could be had without the messy business of pushing Indigenous people off of it (see Howkins 2010). Of course, we know now that engagement with Antarctica should be constrained by ecological concern—who is to say that these concerns will be heeded in ‘unpopulated’ space? What can be done to push back against these settler logics? I want to now turn our attention towards the possibilities that exist regarding Indigenous engagement with outer space.  After all, the timing could not be more urgent to do so—we are now at a point where after generations and generations of building the myth that America was built out of nothing, we are now ready to resume the project of extending the reach of American military and economic might in space. To be fair, there are plenty of advances that can be made scientifically with a renewed focus on space exploration. However, history shows us that space exploration has been historically tied to military hegemony, and there is nothing in Mr. Trump’s temperament or attitude towards a re-engagement with space that suggest that his push toward the stars will be anything different. A sustained conversation needs to be had—will this exploration be ethical and beneficial to all Americans?

#### **1AC hertzfeld and pace 13’s descriptions of space as a**

Any nation with assets on the lunar surface will endeavor to protect those assets. This creates a situation where those nations have a timely, current, and common interest incorporating important implications for peaceful uses of outer space; scientific research and the advancement of knowledge; and cultural and heritage value, either presently or in the foreseeable future.

#### **replicate the settler gaze that fetishizes the extraction of outer space and extends the subject-object relationship now and into the future**

Sammler and Lynch 19, Katherine G Sammler, Casey R Lynch, California State University Maritime, University Of Nevada, USA, 9-2-2021, "Apparatuses of observation and occupation: Settler colonialism and space science in Hawai'i," SAGE Journals, <https://journals.sagepub.com/doi/full/10.1177/02637758211042374> //tanya

While other imaginaries are possible (Sammler and Lynch, 2019), this paper demonstrates how Western space science projects are inextricably entangled in the imaginaries and practices of settler colonialism (Prescod-Weinstein, 2020; Smiles, 2020). We refer to offworld colonies not to reproduce this imaginary but to recognize that this is the project being carried out by both traditional public space agencies like NASA and emerging private space industries. The paper examines HI-SEAS and TMT to consider the complex imbrications between historical, ongoing, and projected future settler colonialism and ideologies 946 EPD: Society and Space 39(5) and practices of Western space science. HI-SEAS and TMT seemingly represent very different projects. While TMT defenders describe the telescope as a passive and innocuous piece of infrastructure used to produce “universal” knowledge, HI-SEAS presents a more active form of exploration towards offworld colonization. Yet, examining the two projects in relation, we show how both rely on logics of colonial totality (Matson and Nunn, 2017), the existing material relations of the colony, and the erasure of lived Native peoples and places (Hobart, 2019), while enacting distinct yet co-dependent subject positions key to the projection of settler colonialism across space and time. TMT and HI-SEAS, respectively, enact the disembodied god’s-eye-view of Enlightenment science and the idealized Enlightenment subject-body of the colonizer. While we are not the first to recognize the co-constitution of observation and occupation, by highlighting this relationship in TMT and HI-SEAS, we set up a critical dialog between Indigenous and anti-colonial critiques and interdisciplinary literature on social studies of outer space (SSOS). SSOS literature explores how socio-technical projects of visualization produce astronomical knowledge (Vertesi, 2015); how space agencies simulate Moon and Mars with earthly analogs (Olson, 2018) superimposing spaces onto one another (Messeri, 2016); and how offplanet activities reshape geopolitics, environmental politics, and resource economies (Dunnett et al., 2019; Klinger, 2021). Others examine space science infrastructures as projects of state-building, displacement, and development in colonial contexts (Mitchell, 2018;Redfield, 2002). While many of these authors recognize that offworld activities are within colonial imaginaries and practices, anti-colonial critiques are not often made explicit, focusing instead on the perspectives and actions of scientists and engineers (Messeri, 2016). In contrast, Indigenous and allied critical scholars offer analyses of spatial and temporal logics of settler colonialism as manifested through space science infrastructures and their related imaginaries (Maile, 2015; Matson and Nunn, 2017; Smiles, 2020). For TMT, scholars examine the multiple practices, logics, and institutions of Western space science that have worked to lay claim to Native Hawai’ian lands. Hobart (2019: 42), for instance, examines how TMT has been justified through narratives that reframe Maunakea within imaginaries of scientific progress in which the site “transcend[s] international politics in the name of the greater good of humanity” as part of a longer historical trajectory of discursively emptying or “deanimating” landscapes. Goodyear-Ka‘opua argues that settler tem- porality reserves modernity and futurity for colonial projects and relegates Indigeneity to a premodern past, but that TMT activists “enact Indigenous futurities and open space to transform present settler colonial conditions” (2017: 185). Casumbal-Salazar makes clear that TMT controversies cannot be understood without explicitly questioning settler colonialism, writing: How are we to understand the controversy over Mauna a Wakea and the TMT if we fail to identify or accept the context in which this battle is being waged; if we fail to critically analyze settler-colonization under U.S. occupation? (2017: 24) Unseating the purported universality and objectivity of space science projects requires categorical anti-colonial analyses. We argue that Barad’s (2007) theorization of the apparatus is useful for bridging SSOS and anti-colonial scholarship because it traces techno-scientific production as part of broader apparatuses extending spatially and temporally from what is traditionally understood as the sites and moments of scientific practice. Through the apparatus, we show how projects of scientific observation and colonial occupation are co-constituted through the Sammler and Lynch 947 production and maintenance of space science infrastructures on colonized lands. In turn, we consider how these infrastructures reproduce the subject–object relations key to settler colonial projects – the view-from-nowhere (or Archimedean point) and embodied colonizer subjectivities. Observation is never a passive enterprise; rather, observation-occupation is active and employs apparatuses to iteratively enact differences between subject and object, colonizer and colonized. Since Cook’s expeditions, the West has subjected the constellation of Pacific Islands to a multitude of science experiments (DeLoughrey, 2012; Farbotko, 2010). Salmond (2003: ix) explains how “[a]s the edges of the known world were pushed out, wild nature – including the ‘savages’ and ‘barbarians’ at the margins of humanity - was brought under the calm, controlling gaze of Enlightenment science, long before colonial domination was attempted.” 948 EPD: Society and Space 39(5) There is a long history of the liveliness of islands being abstracted by colonial powers and scientists alike, from seemingly innocuous use of the Gala´pagos as discrete microcosms for theorizing evolution (Matsuda, 2006); to the United States’ devastating testing of nuclear weapons on the Marshall Islands; to botany’s role in the colonization of Hawai’i and its extension into contemporary experiments with genetically-modified organisms replacing native plant species (Goldberg-Hiller and Silva, 2015). As with other landscapes, specific imaginaries of place play a unique role in colonial practices on islands. Continental views of islands align with Enlightenment scientific desire for blank slates, perfect laboratories (Greenhough, 2006; Matsuda, 2007). Mobilizing imaginaries of frontier and isolation, representations of islands within a continental and colonial gaze are, as Matsuda explains, “distant, isolated, uninhabited, and abstract spaces” (2007: 230). The purported distance of the island colony enacts a separation between colonizer and colonized landscape that allows for specific relations and forms of observation. Islands become simplified models of a complex world, acting as “quintessential sites for experimentation” (Baldacchino, 2007: 165) based on fetishized assumptions about island spatiality. Scientists use islands to isolate variables and substitute space for time to construct linear timestreams. Islandness functions as stand-in for a computational time-step within an experimental design. These purported blank slates endow the initial time-step essential to modelling. Islands and their peoples have been employed to examine theories of geological, biological, human, and socio-cultural evolution. DeLoughrey describes how island spatiality is considered bound by “the theme of isolation, a model that had been deployed in the 19th century to propose the theory of evolution, and which re-energized the longstanding colonial understanding of the island as a laboratory” (2012: 168). The expansion of U.S. empire specifically enrolled island colonies from Puerto Rico to the Philippines as sites for grisly experimentations, from weapons to biomedical research on non-white bodies who were seen as relics of earlier stages of evolution (Immerwahr, 2019). Just as islands and their peoples have been used to model past evolutions, they are also established as models for specific futures. Baldacchino describes islands as sites of novelty; they tend toward clairvoyance; they are disposed to act as advance indicators or extreme reproductions of what is present or future elsewhere ... with fallacious simplicity, [they] can be conceived as a convenient platform for any whim or fancy. (2007: 165) Islands have emplaced visions of future climate dystopias (Farbotko, 2010) and imagined libertarian capitalist utopias (Lynch, 2017). The continuation of these projects of empire and white supremacy are shaping plans for human colonization of Moon and Mars. Such projects re-articulate debates around questions of race, ability, eugenics, reproduction, and human psychology in journals like Futures – including a 2019 special issue on ethics in offworld colonization. Through these projects, islands and peoples are erased and overwritten by the totality of the model world they represent. As DeLoughrey explains, “Western colonizers had long configured tropical islands into the contained spaces of a laboratory, which is to say a suppression of island history and Indigenous presence” (2012: 172). An affective landscape of history, more-than-human relationality (Watts, 2013), and lived social place gets transformed into independent, sterile variables instrumentalized in the projection of specific futures. Such discourses intersect with space science imaginaries of exploration, exoticism, and otherworldliness. Allen examines how U.S. empire depends upon three notions of time: a romanticized historical time recounting myth of the nation’s founding, the geological time of natural history, and the mechanized time of the clock and apparatuses of measurement. The organization and control over these three temporalities constitutes a colonial totality (Matson and Nunn, 2017) that works to settle time as much as space in the projection of settler futures. In dominant discourses, Indigenous time is linked to the past, with the present constituted on assimilation and the future on complete erasure (Rifkin, 2017). The existence of contemporary Indigenous peoples poses a challenge to ongoing settler colonial hegemony. Goodyear-Ka‘opua explains how “settler state officials cast the kia ʻi [land protectors, caretakers] as impediments on the road to ‘progress’ (aka settler futurity) ... (mis)representing us as fixed in place, pinned in a remote time” (2017: 191–192). Enlightenment notions of universality erase difference and thus Indigenous claims to prior rights or sovereignty. While these conceptions of time have long been critiqued, they continue to shape the central logics of contemporary Western science, including space science. While notions of linear, progressive time are used to justify settler colonial projects, the relative and contingent relationships among space, time, and matter complicate claims to universality. Time, like space, is subject to practices of organization and control that produce subject–object relations key to the Western colonial project. For instance, geologic time, or what Allen refers to as “vertical time,” is the spatial-temporal imaginary of geologic strata. He describes that, while “history often depicted time advancing horizontally across space, the geological revolution made it possible to imagine time extending perpendicularly into the territory beneath the nation” (Allen, 2008: 165). The deep time of geology historicizes Western civilization as the top layer, the apex of natural history, and thus stands to justify colonialism and its civilizational projects. The exploration of cosmological time in the space sciences extends the colonial project further into the far expanses of the future and the totality of the universe. In Barad’s deconstructive reading of Enlightenment science, linear time and evacuated space are both the product of active material processes through which a purportedly universal “Man” continually enacts a separation between himself and the universe. It is this supposed separation from the rest of existence that constitutes “Man” as the subject of a masculinist science and the remainder of the universe as the object of his will. Practices of scientific observation and colonial occupation work in tandem to re-enact and reinforce this fundamental subject–object relationship. Critical scholars of science have long argued against the purported passivity of observation, from critiques of the Archimedean point (Yaqoob, 2014) to feminist theories of the embodied and situated nature of knowledge production (Haraway, 1988). Yet, beyond simply noting the ontological impossibility of Man’s separation from the universe, Barad theorizes an emergent and contingent form of separability – what she calls agential separability – that is (re)produced through the material practices of apparatuses. Barad explains that “apparatuses enact agential cuts that produce determinate boundaries and properties of entities within phenomena” (2007: 148). Apparatuses determine what comes to matter and how, thus producing differences between Sammler and Lynch 951 subject and object, which are not stable positions but rather enacted and contingent forms of relationality. We employ the apparatus to explore how subject–object relations of Western colonial science are not universal and absolute, but rather enacted through material practices that selectively produce the privileged subject positions on which settler colonialism and space science both depend. Ontologically, apparatuses produce spatial, temporal, and material relations that constitute projects of Western colonial science. This approach helps elaborate arguments like those of Matson and Nunn that “even the most futuristic space telescopes have embedded within them a lineage of Euro-western cultural supremacy” (2017: n.p.). This is not to simply claim that telescopes are in some way symbolic of settler colonial relations, but to recognize how space science apparatuses actively orient relations of observation and materialize settler colonial relations. Both TMT and HI-SEAS constitute apparatuses that extend spatially well beyond the infrastructural footprint on these mountains, to the island and surrounding ocean, into the atmosphere, to Moon, Mars, and cosmos. As part of these apparatuses, mountain environments of Hawaii become both a gateway to the cosmos and simulation of an alien landscape. Temporally, the apparatus stretches beyond contemporary scientific practices, drawing on longstanding histories of European imperialism, Western law, and settler colonial logics, and projecting these ideologies into offworld futures. Materially, these projects enroll technological, logistical, and physical systems, including roads, mirrors and lenses, sensors and surveillance devices, electromagnetic waves and domes, the geology of the Hawaiian landscape, and bodies of observer and observed.

#### The elevation of Western science detaches history and science from location which essentializes the uniqueness of place- this creates a void for settlers to fill the meaning

Johnson 10

(Jay Truman, August, Ph.D., University of Hawaii at Manoa, 2003¶ Chair, Indigenous Peoples Knowledges and Rights Commission of the International Geographical Union: Indigenous Peoples Knowledges and Rights Commission¶   Adjunct Senior Fellow, Department of Geography, University of Canterbury, Christchurch, New Zealand, Place-based learning and knowing: critical pedagogies grounded in Indigeneity, GeoJournal, 77, pgs 829-836, JKS)

(1ac Ostp 18)

‘‘Each one of use is a product of a lifetime of environmental and cultural education that includes our embodied experience of places’’ (Gruenewald 2008, 147). ¶ While teaching at the University of Canterbury in Christchurch, New Zealand, I was asked to assist with ¶ a new course entitled, Ma ̄ori and Indigenous science. One task I took on early in the course was to discuss the comparability of various knowledge systems, including Western science. As David Turnbull has described, ‘‘though knowledge systems may differ in their epistemologies, methodologies, logics, cogni- tive structures or in their socio-economic contexts, a characteristic that they all share is their localness’’ (Turnbull 2000, 19). No matter how adamantly one argues that Western science is a universal and therefore placeless science, even our physicists and biologists have begun to admit that experiments always vary to some degree from location to location. The act of observation alters how even the smallest particles will behave in the laboratory. ¶ By detaching our histories, our stories and our science from place, Western science has developed an arrogance which seeks to elevate it above other knowledge systems, particularly those knowledge systems which have remained more attached to place. As David Turnbull has helped us to understand, all knowledge systems, Western science included, are local, placed knowledges. The experiences of dwell- ing and of the taskscapes our dwelling create impact our knowledge production. To paraphrase Ingold (2000, 186), it is only because we dwell therein that we can think the thoughts we do. The knowledge we create is inevitably affected by the landscape sur- rounding us, and is a creation of our combined, communal taskscapes. Perhaps more importantly, the landscape we carry within us, continually remem- bered and retold; the landscape which has played a part in our education, alters how we see the world around us and how we engage in the social production of knowledge. How do we store our common history? How do we convey important information, passing it onto future generations? Why do we erase the stories of our places in favor of the stories in our texts? ¶ One afternoon while working on our dissertations at the University of Hawai’i, my colleague Renee Louis and I began discussing the divide we perceive between two groups we decided to call ‘people of place’ and ‘people of text’ (Louis 2004). People of place construct and maintain narratives attached to places. Frequently the place name descriptors serve as mnemonic devices, standing for narratives which describe and inform a ‘right’ relationship between the individual, the community and the non-human land- scape. N. Scott Momaday (1976; see also Cajete, ¶ 2000, 67–72) has described this ‘right’ relationship as ‘‘reciprocal appropriation;’’ the gathering of suste- nance and meaning from the landscape while incor- porating and maintaining an identity based upon the landscape. People of text have removed their histories and narratives from places, instead storing them within texts. As Giselle Byrnes (2001, 40) has described, ‘‘[b]y erasing distance, the written word allows the writer actually to be in two places at once—his body in one and his thoughts in another.’’ As the writer writes, she is not only erasing distance but also the storied landscape. ¶ Byrnes has also noted that, ‘‘[s]pace becomes place simply by being named: in other words, place is space to which meaning is ascribed (Byrnes 2001, 9).’’ If this statement is true, then its corollary must also be true, and the erasure or removal of meaning from places allows for the creation of an abstract space, void of meaning. For places in the landscape, places with significant ‘longer histories’, with roles to play in the preservation of these histories, for these places to change into spaces and take on a resource role in the colonial and capitalist endeavor, then the ‘longer history’ must be erased. Once void of its previous history and culture, these newly emptied spaces are ready to be filled with settlers, crops, cattle and industry. The ‘longer histories’, created and maintained by Indigenous historians, were systemat- ically erased by European colonialism, creating a tabula rasa, a blank landscape upon which a new story and history could be written (see Byrnes 2001). For those of us in the Western United States, this new story is lined by the Public Land Survey and Thomas Jefferson’s vision of an army of yeoman farmers who would bring Western civilization (and perhaps more importantly, order) to a landscape littered with half- buried Indigenous histories. ¶

#### Fear of extinction is a settler paradox where settler colonialism continues to imagine its end in order to sustain itself and live on the edge of death- this symbolically redeems the settler and preserves their value at the expense of indigenous genocide.

Dalley, 18—Assistant Professor of English at Daemen College (Hamish, “The deaths of settler colonialism: extinction as a metaphor of decolonization in contemporary settler literature,” Settler Colonial Studies, 8:1, 30-46, dml)

In this way, these settler-colonial narratives of extinction begin as a contemplation of endings and end as a way for settlers to persist. As in the classical solution to the settler-colonial paradox of origins, the native must be invoked and disavowed, and ultimately absorbed into the settler-colonial body as a means of accessing true belonging and the possibility of an authentic future in place. Veracini’s description of the settler-colonial historical imagination thus applies, in modified but no less appropriate form, to visions of futurity haunted by the possibility of death: Settler colonial themes include the perception of an impending catastrophe that prompts permanent displacement, the tension between tradition and adaptation and between sedentarism and nomadism, the transformative permanent shift to a new locale, the prospect of a safe ‘new land’, and the familial reproductive unit that moves as one and finally settles an arcadia that is conveniently empty.67 And yet that parallel means that it is not entirely true to say that settlers cannot contemplate a future without themselves, or that they lack the metaphorical resources to imagine their own demise. It is in fact characteristic of settler consciousness to continually imagine the end. But it does so through a paradox that echoes the ambivalence of Freud’s death drive: it is a fantasy of extinction that tips over into its opposite and becomes a method of symbolic preservation, a technique for delaying the end, for living on in the contemplation of death.68 The settler desire for death conceals that wish – the hope that, between the thought of the end and the act, someone will intervene, something will happen to show that it is not really necessary, that the settlers can stay, that they have value and can go on living. In this way, they make their own redemption, an extinction that is an act of self-preservation, deferring the hard reckoning we know we lack the courage to face, and avoid making the real changes – material, political, constitutional, practical – that might alter our condition of being and set us on the path to a real home in the world. We dream instead of ends, imagining worlds without us, thinking of what it would be like not to be. But at every moment we know that that the dream is nothing but a dream; we know we will awake and still be here, unchanged, unchanging, living on, forever. Thus settlers persist even beyond the moment of extinction they thought they wanted to arrive.

#### The alternative is to refuse the research project of the affirmative – this is a generative event that creates space for alternative modalities of knowing around outer space and insists upon the interrogation of the epistemological underpinnings of the 1ac.

Tuck and Yang 14 – associate professor of critical race and indigenous studies at the Ontario Institute for Studies in Education at the University of Toronto and director of ethnic studies at UC San Diego Eve Tuck and Wayne C Yang, “R-Words: Refusing Research,” Humanizing research: Decolonizing qualitative inquiry with youth and communities, vol 223 pp 239 – 243 [https://townsendgroups.berkeley.edu/sites/default/files/tuckandyangrwords\_refusingresearch.pdf //](https://townsendgroups.berkeley.edu/sites/default/files/tuckandyangrwords_refusingresearch.pdf%20//) sam

For the purposes of our discussion, the most important insight to draw from Simpson’s article is her emphasis that refusals are not subtractive, but are theoretically generative (p. 78), expansive. Refusal is not just a “no,” but a redirection to ideas otherwise unacknowledged or unquestioned. Unlike a settler colonial configuration of knowledge that is petulantly exasperated and resentful of limits, a methodology of refusal regards limits on knowledge as productive, as indeed a good thing. To explore how refusal and the installation of limits on settler colonial knowledge might be productive, we make a brief detour to the Erased Lynching series (2002–2011) by Los Angeles–based artist Ken Gonzales-Day (see Figure 12.1). Gonzales-Day researched lynching in California and the Southwest and found that the majority of lynch victims were Latinos, American Indians, and Asians. Like lynchings in the South, lynchings in California were events of public spectacle, often attended by hundreds, sometimes thousands of festive onlookers. At the lynchings, professional photographers took hours to set up portable studios similar to those used at carnivals; they sold their images frequently as postcards, mementos of public torture and execution to be circulated by U.S. post through- out the nation and the world. Lynching, we must be reminded, was extralegal, yet nearly always required the complicity of law enforcement—either by marshals or sheriffs in the act itself, or by judges and courts in not bothering to prosecute the lynch mob afterward. The photographs immortalize the murder beyond the time and place of the lynching, and in their proliferation, expand a single murder to the general murderability of the non-White body. In this respect, the image of the hanged, mutilated body itself serves a critical function in the maintenance of White supremacy and the spread of racial terror beyond the lynching. The spectacle of the lynching is the medium of terror. Gonzales-Day’s Erased Lynching series reintroduces the photographs of lynching to a contemporary audience, with one critical intervention: The ropes and the lynch victim have been removed from the images. Per Gonzales-Day’s website (n.d.), the series enacted a conceptual gesture intended to direct the viewer’s attention, not upon the lifeless body of the lynch victim, but upon the mechanisms of lynching themselves: the crowd, the spectacle, the photographer, and even consider the impact of flash photography upon this dismal past. The perpetrators, if present, remain fully visible, jeering, laughing, or pulling at the air in a deadly pantomime. As such, this series strives to make the invisible visible. The Erased Lynching series yields another context in which we might consider what a social scientist’s refusal stance might comprise. Though indeed centering on the erasure of the former object, refusal need not be thought of as a subtractive methodology. Refusal prompts analysis of the festive spectators regularly backgrounded in favor of wounded bodies, strange fruit, interesting scars. Refusal shifts the gaze from the violated body to the violating instruments—in this case, the lynch mob, which does not disappear when the lynching is over, but continues to live, accumulating land and wealth through the extermination and subordination of the Other. Thus, refusal helps move us from thinking of violence as an event and toward an analysis of it as a structure. Gonzales-Day might have decided to reproduce and redistribute the images as postcards, which, by way of showing up in mundane spaces, might have effectively inspired reflection on the spectacle of violence and media of terror. However, in removing the body and the ropes, he installed limits on what the audience can access, and redirected our gaze to the bodies of those who were there to see a murder take place, and to the empty space beneath the branches. Gonzales-Day introduced a new representational territory, one that refuses to play by the rules of the settler colonial gaze, and one that refuses to satisfy the morbid curiosity derived from settler colonialism’s preoccupation with pain. Refusals are needed for narratives and images arising in social science research that rehumiliate when circulated, but also when, in Simpson’s words, “the representation would bite all of us and compromise the representational territory that we have gained for ourselves in the past 100 years” (p. 78). As researcher-narrator, Simpson tells us, “I reached my own limit when the data would not contribute to our sovereignty or complicate the deeply simplified, atrophied representations of Iroquois and other Indigenous peoples that they have been mired within anthropologically” (p. 78). Here Simpson makes clear the ways in which research is not the intervention that is needed—that is, the interventions of furthering sovereignty or countering misrepresentations of Native people as anthropological objects. Considering Erased Lynchings dialogically with On Ethnographic Refusal, we can see how refusal is not a prohibition but a generative form. First, refusal turns the gaze back upon power, specifically the colonial modalities of knowing persons as bodies to be differentially counted, violated, saved, and put to work. It makes transparent the metanarrative of knowledge production—its spectatorship for pain and its preoccupation for documenting and ruling over racial difference. Thus, refusal to be made meaningful first and foremost is grounded in a critique of settler colonialism, its construction of Whiteness, and its regimes of representation. Second, refusal generates, expands, champions representational territories that colonial knowledge endeavors to settle, enclose, domesticate. Simpson complicates the portrayals of Iroquois, without resorting to portrayals of anthropo- logical Indians. Gonzales-Day portrays the violations without reportraying the victimizations. Third, refusal is a critical intervention into research and its circular self-defining ethics. The ethical justification for research is defensive and self-encircling—its apparent self-criticism serves to expand its own rights to know, and to defend its violations in the name of “good science.” Refusal challenges the individualizing discourse of IRB consent and “good science” by high- lighting the problems of collective harm, of representational harm, and of knowledge colonization. Fourth, refusal itself could be developed into both method and theory. Simpson presents refusal on the part of the researcher as a type of calculus ethnography. Gonzales-Day deploys refusal as a mode of representation. Simpson theorizes refusal by the Kahnawake Nation as anticolonial, and rooted in the desire for possibilities outside of colonial logics, not as a reactive stance. This final point about refusal connects our conversation back to desire as a counterlogic to settler colonial knowledge.

#### The role of the ballot is to center indigenous scholarship and resistance-- Any ethical commitment requires that the aff place themselves in the center of Native scholarship and demands.

Carlson 16 (Elizabeth Carlson, PhD, is an Aamitigoozhi, Wemistigosi, and Wasicu (settler Canadian and American), whose Swedish, Saami, German, Scots-Irish, and English ancestors have settled on lands of the Anishinaabe and Omaha Nations which were unethically obtained by the US government. Elizabeth lives on Treaty 1 territory, the traditional lands of the Anishinaabe, Nehiyawak, Dakota, Nakota, and Red River Metis peoples currently occupied by the city of Winnipeg, the province of Manitoba, (2016): Anti-colonial methodologies and practices for settler colonial studies, Settler Colonial Studies, DOI: 10.1080/2201473X.2016.1241213, JKS(rcut AHS ZA)

Arlo Kempf says that ‘where anticolonialism is a tool used to invoke resistance for the colonized, it is a tool used to invoke accountability for the colonizer’.42 Relational accountability should be a cornerstone of settler colonial studies. I believe settler colonial studies and scholars should ethically and overtly place themselves in relationship to the centuries of Indigenous oral, and later academic scholarship that conceptualizes and resists settler colonialism without necessarily using the term: SCT may be revelatory to many settler scholars, but Indigenous people have been speaking for a long time about colonial continuities based on their lived experiences. Some SCTs have sought to connect with these discussions and to foreground Indigenous resistance, survival and agency. Others, however, seem to use SCT as a pathway to explain the colonial encounter without engaging with Indigenous people and experiences – either on the grounds that this structural analysis already conceptually explains Indigenous experience, or because Indigenous resistance is rendered invisible.43 Ethical settler colonial theory (SCT) would recognize the foundational role Indigenous scholarship has in critiques of settler colonialism. It would acknowledge the limitations of settler scholars in articulating settler colonialism without dialogue with Indigenous peoples, and take as its norm making this dialogue evident. In my view, it is critical that we not view settler colonial studies as a new or unique field being established, which would enact a discovery narrative and contribute to Indigenous erasure, but rather take a longer and broader view. Indigenous oral and academic scholars are indeed the originators of this work. This space is not empty. Of course, powerful forces of socialization and discipline impact scholars in the academy. There is much pressure to claim unique space, to establish a name for ourselves, and to make academic discoveries. I am suggesting that settler colonial studies and anti-colonial scholars resist these hegemonic pressures and maintain a higher anti-colonial ethic. As has been argued, ‘the theory itself places ethical demands on us as settlers, including the demand that we actively refuse its potential to re-empower our own academic voices and to marginalize Indigenous resistance’.44 As settler scholars, we can reposition our work relationally and contextually with humi- lity and accountability. We can centre Indigenous resistance, knowledges, and scholarship in our work, and contextualize our work in Indigenous sovereignty. We can view oral Indigenous scholarship as legitimate scholarly sources. We can acknowledge explicitly and often the Indigenous traditions of resistance and scholarship that have taught us and pro- vided the foundations for our work. If our work has no foundation of Indigenous scholarship and mentorship, I believe our contributions to settler colonial studies are even more deeply problematic.

# case

### fw

#### Reject util –

#### 1] Pain and pleasure can’t be objectively calculated, two implications

#### 2] Weighing is impossible – you can’t determine whether a migraine is worse than 6 individual headaches

#### a] Systemic biases override –there’s no objective metric for evaluation, settler colonialism hijacks and means indigenous people are never valued under util

#### 3] It justifies atrocities – utilitarian calculus renders indigenous people always at the margins – they become an expendable population, and land theft is justified because its “for the greater good” – they’ll say this isn’t our util, but force them to defend the consistent and repeated historical application of util against indigenous people to win – if the sun rises in the east every day, you should assume it will tomorrow

#### 4] Extinction first is a hoax that’s dalley – extinction threats are constructed by settlers to justify the settler society and allow the settler a move to innocence under a mask of white vulnerability at the expense of enacting decolonization

#### 5] You should prioritize indigenous epistemology – that’s Carlson – that means rejecting western systems of thought that view people only through the lens of utility

#### 6] Understanding space only through utility is bad – that’s the Smiles evidence.

### adv

#### Their author concludes moon dust doesn’t mess with moon-based observation.

Hamill 16, Patrick. "Atmospheric observations from the moon: A lunar earth-observatory." 2016 Ieee International Geoscience and Remote Sensing Symposium (Igarss). IEEE, 2016. (Department of Physics and Astronomy at San Jose State University) SM

The lunar surface is covered in electrostatically charged fine dust particles of diameter 70 µm. This dust has sharp edges (not having been exposed to weathering) and is expected to cling to surfaces to which it is exposed. It is believed that the dust is disturbed by the changing electric field at the terminator and rises to heights of several meters [9]. This effect may have been observed by the Apollo astronauts. The dust may damage unshielded equipment [10]. Some investigators have even suggested that the presence of dust would make telescopic observations impossible, but the evidence from Chang’e 3 shows that this is not the case. (It might be mentioned that the Chang’e 3 instrumentation is protected during sunrise and sunset.) Furthermore, the retroreflectors placed on the lunar surface by NASA Astronauts and Soviet robotic rovers over forty years ago still reflect laser beams, indicating that even over long periods of time optical surfaces are not completely degraded by the lunar dust [11].

#### But dust definitely still stops moon basing.

Niiler 21 Eric Niiler “The Next Big Challenge for Lunar Astronauts? Moon Dust” 08.19.2021 <https://www.wired.com/story/the-next-big-challenge-for-lunar-astronauts-moon-dust/> SM

AS NASA AND private space companies prepare to send equipment—and eventually astronauts—back to the moon, they are facing a nearly invisible threat to any future lunar outpost: tiny particles of dust. Ground-up lunar rock, known as regolith, clogs drills and other delicate instruments, and it's so sharp that it scratches space suits. Because the dust absorbs sunlight, it can also overheat sensitive electronics. Dust particles also pose a health risk. Even though Apollo-era astronauts only went outside during a few days on each mission, some reported burning eyes and stuffy nasal passages when they returned from moon walks and took off their dust-covered space suits inside the capsule. Images from the Apollo 17 mission, which focused on geology and featured seven-hour trips in the lunar rover, show astronaut Gene Cernan’s face covered in dust, like some outer space coal miner. During a technical briefing when he returned to Earth, Cernan told NASA officials that lunar dust was nothing to sneeze at. "I think dust is probably one of our greatest inhibitors to a nominal operation on the moon,” Cernan said. “I think we can overcome other physiological or physical or mechanical problems, except dust." The grit clogged the radiators that removed heat and carbon dioxide from space suits and wore a hole in the knee of Cernan’s outer space suit, according to Phil Abel, who researches moon dust as manager of the Tribology and Mechanical Components Branch at NASA’s Glenn Research Center. (Tribology is the study of wear and friction.) The Apollo 17 astronauts brought dust into the capsule, where it smelled like gunpowder and caused lunar module pilot Harrison Schmitt to have hay fever symptoms, according to a report from a NASA workshop on lunar dust in 2020. Here’s how one Apollo 12 astronaut described what happened when he returned to the lunar module after a walk on the moon: “The [module] was filthy dirty and had so much dust that when I took my helmet off, I was almost blinded. Junk immediately got into my eyes.” (The quote appears in a 2009 NASA report entitled “The Risk of Adverse Health Effects From Lunar Dust Exposure.”) Researchers at Stony Brook University exposed human lung and brain cells to lunar dust and found that it killed 90 percent of the cells, according to a study published in the journal GeoHealth in 2018. In fact, respiratory health is a top concern if and when humans return to the moon, according to Abel. “These particles get lodged down deep in your lungs, and that’s a long-term health risk,” Abel says. “There was some concern at the time that if we had needed to do more on the moon’s surface, some of the space suits would have started to leak at too high a rate. It’s something we have been working on to improve.”

#### Not reverse causal – even if we’re aware extreme weather and warming are happening there’s no way to stop it – they haven’t read ev that we can stop super-volcanoes even if we know they’re erupting soon.

#### Hamill says that lunar observation lets us know when volcanic fumes are high enough to threaten aircraft, not predict when natural disasters occur – this ev is one line and does not grant a more generalized warrant about natural disasters

#### We’ll also indict this – destructive settlerism via deforestation is what caused warming – means that a) only setcol explains the root cause of this scenario b) anything else results in serial policy failure and just forestalls the inevitable

#### Ding 17 – no reason why lunar basing is key, sats research solves

#### Neutrino research link is horrible – no timeline, it obviously hasn’t stopped prolif – other things npt check which also thumps the ilink on prolif

#### No prolif impact

**Van Der Meer 16** – Expertise: Non-conventional weapons; Weapons of Mass Destruction (nuclear, biological, chemical and radiological weapons); Cyber weapons; Cyber security; Non-proliferation and disarmament; North Korea; Korean peninsula., (Sico Van Der Meer, 8-1-2016, "States' motivations to acquire or forgo nuclear weapons," Journal Of Military And Strategic Studies, Vol. 17 (2016), No. 1, Pp. 209-236, accessed 8-17-2016, https://www.clingendael.nl/publication/states-motivations-acquire-or-forgo-nuclear-weapons)

Introduction Since the invention and first use of nuclear weapons in 1945, predictions on the proliferation of these weapons have traditionally been **overestimating**.1 Despite all gloomy forecasts, only nine states nowadays are considered to possess nuclear weapons: the United States, Russia, China, the United Kingdom, France, Israel, India, Pakistan and North Korea. Although more states have operated nuclear weapons programmes at some point in the past 65 years – some experts argue that in total 39 states once engaged in nuclear weapons activities2 – most of them sooner or later **gave up** their **ambition** to acquire these weapons. Especially since the second half of the 1980s the number of states with nuclear weapons-related activities has become relatively low.3 Taking into account the historical trends, it looks like political and academic forecasts even nowadays tend to be **overemphasizing the risks of further proliferation** of nuclear weapons **in the near future**, for example by **predicting nuclear domino effects** if new nuclear weapons powers would arise and cause other states to develop nuclear weapons as well.4 The difficulties in forecasting nuclear weapons proliferation can be explained by one key factor: it is still **unclear among academics and policymakers** why exactly states start nuclear weapons programmes or refrain from them. What makes nuclear weapons **attractive or unattractive** to the leadership of any state? True, many theories exist. The problem with all existing theories on motivations for states to acquire or not to acquire nuclear weapons is that [have] supporting evidence may be found, but opposing evidence as well. When studying nuclear weapons (non-)proliferation, one could consider any state in the world as an individual case, each with its own international and domestic circumstances, and with all the changes herein during history. It is, therefore, not surprising that specific explanations of nuclear behaviour are **repeatedly** considered **inadequate** because they fail to account for all cases – currently more than 190 states. Without understanding what are the motivations of states to aim for or refrain from acquiring nuclear weapons, it is not only complicated to forecast nuclear proliferation dynamics, but even more important: it becomes difficult to develop policies aimed at influencing these dynamics – there is a risk of treating the symptoms while ignoring the disease. This article aims at contributing to answering this key question in the field of nuclear weapons proliferation: why do states wish for nuclear weapons – or not? This will not be achieved by developing a new theory, but by increasing the insights in the large amount of existing theories on nuclear proliferation motivations. For this purpose the many theories developed in the past decades will be grouped into four overarching groups. This analysis could be helpful to future researchers and policy makers who got lost in the current richness in theories and their critics. Grouping existing theories on nuclear (non-)proliferation motivations has, to a limited extent, been done before. Considering the general lack of unanimity in this research field, it is not surprising that these groupings also differ. To give some examples: a rather early study on proliferation motives by George Quester, dating from 1973, counted three groups of them: 1) military motives; 2) political motives; and 3) economic motives.5 Scott Sagan in 1996 also developed a grouping of three ‘models’ explaining why states wish to build nuclear weapons: 1) security; 2) domestic politics; and 3) norms.6 Assembling (non-)proliferation into four groups is also possible, as study from 2010 by William Potter and Gaukhar Mukhatzhanova, shows. Summarized, Potter and Mukhatzhanova group all theories on nuclear weapons (non-)proliferation motivations into these four categories: 1) security; 2) international institutions; 3) international norms; and 4) domestic circumstances.7 Etel Solingen some years earlier (2007) defined the same four groups, but also added a fifth one: democracy versus autocracy.8 And to mention only one more possible classification: Joseph Cirincione in 2007 also defined five motivations for states to pursue or forgo nuclear weapons: 1) security; 2) prestige; 3) domestic politics; 4) technology; and 5) economics.9 These are just some examples to show that not only the amount of theoretical groups differs, but also their content. Nevertheless, some similarities can be noticed; although not every author mentions the same motivational factor theories, some overlap can obviously be noticed. This article groups the existing theories on motivations for nuclear weapons (non- )acquisition in four factors: 1) Capabilities; 2) Security; 3) International Norms & Perceptions; and 4) Domestic Political Context. The article will discuss what they incorporate (including criticism) and why is chosen to group them in this manner. In conclusion some implications and recommendations for further research regarding nuclear (non-)proliferation dynamics will be presented. Capabilities The first group of incentives and disincentives for nuclear weapons (non-) proliferation is summarized here as ‘capabilities’. Under this umbrella are brought together both the technological and economic capabilities of states to develop nuclear weapons. Nuclear weapons are **not easy to develop**, nor are the materials that are required cheap and commonly available. Technologically and scientifically the most challenging and costly is the production of fissile materials (highly enriched uranium or plutonium). Transforming the nuclear materials into **reliable and deliverable weapons** is **another challenge** that requires **highly advanced** technological **expertise**, and the same applies to developing the delivery systems for the weapons – in this regard, nowadays states generally prefer ballistic missiles.10 It is often argued that the technological and financial capabilities required for developing nuclear weapons are an **effective barrier** especially to **less developed countries** without an advanced scientific and technological infrastructure and without the financial strength to afford the investments needed to start a nuclear weapons programme.11 Since Pakistan and North Korea – both relatively poor countries – acquired nuclear weapons in 1998 respectively 2006, this argument has generally faded away from the debate. Actually, the theoretical assumption that capabilities influence the motivation of states to pursue or forgo nuclear weapons, is fading away itself from the academic debate since, approximately, the early 1990s. The capabilities theory is dating back from the first decades of academic research into nuclear motivations and gradually became less popular. In the first decades of nuclear weapons existence, it was generally assumed that any state would like to have nuclear weapons, simply because these weapons were the most advanced and powerful military tools available. Stephen Meyer in 1984 summarized the consequences of this assumption as follows: ‘If one presumes that the incentives to acquire nuclear weapons are ever present – that all countries would like to have nuclear weapons – then the only determining factor becomes technology.’12 One could also describe the capabilities motivation as a ‘why not’ principle. When a state has the means available to build nuclear weapons, why should it refrain? When it is, for example, rather easy to convert civilian nuclear technology programmes into military ones, the costs of nuclear weapons may become relatively low enough that the perceived benefits – obtaining the most powerful weapons that exist – easily outweigh the negative consequences.13 Proponents of the capabilities theory regularly claim that scientists often play a crucial role in this process. Ralph Lapp, for example, in 1970 argued that ‘research and development has become an almost unchallenged force in directing the nation to arms. We may speak of this as technological determinism.’14 Hans Bethe in 1985 also pointed at ‘the technological imperative’ with regard to nuclear weapons development, mentioning the feeling among scientists and government officials ‘that we must use this new technology’.15 In this respect, often an encompassing quotation of Robert Oppenheimer, one of the founders of the nuclear weapons programme of the United States, is presented about developing the hydrogen bomb (an improved kind of nuclear bomb): ‘When I saw how to do it, it was clear to me that one had to at least make the thing. [...] The program in 1951 [to develop the H-bomb] was technically so sweet that you could not argue about that.’16 The main evidence that the capabilities theory is not explaining nuclear weapons (non-)proliferation adequately is the fact that many countries have become technologically and economically able to develop nuclear weapons, but never did so. The technological ‘pull factor’ leading to a wish for nuclear weapons often seems nonexistent, at least not autonomously. These last two words, ‘not autonomously’, are important, because it may be assumed that the capabilities factor is still important in determining motivations to pursue or forgo nuclear weapons, even though it may not be a decisive factor on its own. In certain circumstances, the availability of capabilities to develop nuclear weapons may compel the leadership of a state to start a nuclear weapons programme even if it would not have done so when these capabilities were not available. On the other hand, a lack of technological and / or economical means may force state leaders with a wish for nuclear weapons to **abstain from** starting **a** nuclear weapons **programme** – although this is still a choice with its own motivations, because it could always be a possibility to start acquiring the capabilities needed, even when this requires tough choices on how to spend limited state budgets.17 In this regard, the capabilities to acquire nuclear weapons may perhaps be considered a necessary, but at itself insufficient cause for nuclear weapons proliferation.18 Even today, there is no unanimity among scholars on the influence of capabilities on nuclear (non-)proliferation behaviour by states. A striking example of this lack of unanimity can be found in one and the same recent book: in an edited volume on nuclear forecasting, dating from 2010, two contributions come to opposite conclusions on the capabilities factor. A chapter by Harald Müller and Andreas Schmidt concludes that the hypothesis that nuclear weapons proliferation is capability driven (‘capability may be defined in economic or technological terms’) cannot be validated at all. The authors state: ‘[...] economic factors are almost completely irrelevant for the initiation of nuclear weapons activities. Rather, it is a question of political willingness to devote a considerable share of state’s resources to the military sector instead of, say, strengthening the public welfare program.’ And the same applies to technology, they contend: ‘There is no indication at all of a technological pull.’19 In the same volume, however, Philipp Bleek comes to the complete opposite conclusion: ‘Economic resources and technical capabilities are powerfully correlated with proliferation proclivity at all levels. More highly developed states, with access to commensurately greater resources and technical capabilities, are more likely to explore nuclear weapons options, launch nuclear weapons programs, and acquire nuclear weapons. Given how costly and technically challenging nuclear weapons development is, this is perhaps not a surprising finding; some might even brand it a resounding reinforcement of conventional wisdom. But it provides robust evidence to counter those who argue, often citing relatively undeveloped countries like China and Pakistan that nonetheless proliferated, that countries’ level of development has little to do with their proliferation proclivity. More highly developed countries proliferate more readily; less highly developed countries do so less readily.’20 Security The traditionally dominant theory on motivations for states to pursue nuclear weapons or not has been focussing on security. Since the beginning of research on dynamics of nuclear (non-)proliferation this has been by far the most supported factor explaining why states opt for nuclear weapons. The so-called ‘realist’ school of thinking – in the academic domain of International Relations (IR) in general, but also in the subfield of (non-)proliferation studies – considers the world as an anarchy. In this anarchy, states are in continuous competition and will only be able to survive as an independent state by ‘self-help’, which can be summarized as individualistic behaviour, aiming for its own power and benefits and thus strengthening its position in comparison with other states. Following this theory, nuclear weapons are considered to be the ultimate tool for survival, because these powerful weapons will provide the best security guarantee against any external aggression. Any adversary state will think twice before it will attempt to harm the state in question in any way, because this may ultimately result in the nuclear destruction of this adversary itself. The only condition for having a successful nuclear deterrent is that the nuclear weapons arsenal should be so capacious that it cannot be totally destroyed by a surprise attack.21 When this realist theory is strictly applied, the conclusion should be that actually all states wish for nuclear weapons to be able to ensure their survival within the current international anarchic system. This may, in the end, be the case, but most realist thinkers agree that developing nuclear weapons is not easy, cheap or without risk. This has culminated into a broadly supported nuance of the theory, acknowledging that only states with **actual, pressing** **security problems** will actively pursue nuclear weapons.22 Especially the risk calculation factor is often used to explain why most states so far did not develop nuclear weapons. This explanation is necessary to defend the theory against its critics who state that the realist view cannot explain why **so few states** did actually obtain nuclear weapons, considering that ultimately all states would want to have them and many of the non-acquiring states have been, or still are, facing obvious security problems. Realist thinkers generally refute this critique by arguing that it is not being claimed that acquisition of nuclear weapons is always the best way to improve a state’s security. Sometimes acquiring nuclear weapons may be a **bigger threat** to a state’s security then to forgo them, because a nuclear weapons programme may cause more distrust and tension among (potential) adversaries than would be the case without a nuclear weapons programme. An adversary state may feel so threatened by the nuclear weapons programme that it will launch a military attack to prevent its adversary from acquiring them. Even more, the adversary state may react by developing nuclear weapons itself, thus creating a nuclear arms race and causing even more insecurity and instability in the region. When this may be expected, realists claim, states often refrain from starting a nuclear weapons programme.23 T.V. Paul labels this ‘prudential realism’. In his words, this is a ‘soft realist version’ acknowledging that ‘nations under certain circumstances may prudently forgo military capabilities that other states see as threatening. [...] States are security-conscious entities, but their military policies are driven by ‘most probable threat’ assessments, as opposed to the worst-case assessments offered by hard realism.’24 Moreover, some more nuanced realist approaches also try to explain the small percentage of states actually aiming for nuclear weapons by adding levels of insecurity into the theory. From this point of view, states that are involved in an intense and / or longstanding conflict will aim for nuclear weapons more easily then states within a lowintensity conflict and / or a relatively short period of insecurity.25 On the other hand, many examples can be found of states in intense conflict situations that never started a nuclear weapons programme. This, in turn, may be explained by an important variant of the realist school of thinking, which emphasizes the importance of security alliances. This variant has been one of the most supported theories for explaining nuclear (non-)proliferation during the Cold War – and even up to now many analysts favour the alliance explanation to account for nuclear (non-)proliferation dynamics. Instead of developing nuclear weapons to assure their security, proponents of this theory argue, states may also choose another option: seeking for an alliance with a nuclear weapons state that is willing to promise nuclear retaliation in case the nonnuclear ally will be (nuclear) attacked. This kind of security guarantee, often called a ‘nuclear umbrella’ or ‘positive security assurance’ makes a national nuclear weapons programme less necessary and the costs, difficulties, and risks associated with it can be avoided. The promise of retaliation by the nuclear armed ally functions as extended deterrence towards possible enemies.26 Critics of this alliance theory question the credibility of these extended deterrence guarantees. Extended deterrence may be more or less credible when it functions as deterrence against (overwhelming) conventional military threats, but would any nuclear weapons state risk nuclear warfare because of assisting a non-nuclear ally after an attack by another nuclear weapons state?27 Joseph Cirincione summarizes this credibility problem as follows: ‘National leaders will continue to ask themselves: ‘Would the President of the United States risk Washington to protect my capital city?’’28 Moreover, the reliance on nuclear-armed allies seems to contradict the base realist assumption of self-reliance. Jacques Hymans formulates this contradiction in this way: ‘At the very core of realism lies the notion that friends today may become enemies tomorrow. [...] Thus, the dominant strategy of states is to go for the bomb themselves and thus avoid any pleasant surprises.’29 The so-called Neo-realist theory, developed since the 1970s, combines the importance of security guarantees with the dimension of the international system: whether this system is unipolar, bipolar, or multipolar will influence the value of security guarantees. In a bipolar world like the Cold War era, neo-realists claim, security guarantees by one of the two superpowers will generally solve any security concern of other states. In a multipolar world, which arose after the end of the Cold War, the stabilizing role of security guarantees by superpowers is loosened because these superpowers themselves have become relatively less powerful.30 In a multipolar world states tend to start their own nuclear weapons programme more easily. Neo-realists nowadays have to admit, however, that the number of newly started nuclear programmes after the end of the Cold War has not been that impressive. Another rather modern realist way to defend the security motivation as principal factor explaining nuclear (non-)proliferation against its critics, has been the ‘opaque proliferation’ discussion.31 Especially since the 1990s the concept of ‘opacity’, ‘latency’, or ‘ambiguity’ has become more popular in nuclear proliferation studies. Especially realist thinkers turn around the argument that many states are able to build nuclear weapons, but never did so. They contend that several of these nuclear weapons capable states did, indeed, never develop nuclear weapons up to their final stage – in the end resulting in testing them – but that they in fact developed nuclear weapons without testing them, or at least developed the means to be able to build nuclear weapons in a very short timeframe. This is also called ‘threshold capacity’ – it takes little time to pass the threshold of nuclear weapons possession. This way, there are more nuclear weapons states in the world then is usually assumed. This assumption can be used to refute the criticism on the realist view on nuclear (non-)proliferation motivations.32 An additional phenomenon regarding the security imperative which is sometimes mentioned by academics is that nuclear weapons may provide deterrence against larger states and / or groups of states, but not necessarily against smaller, non-nuclear enemies. In this regard, much-mentioned examples of non-nuclear parties that waged war against nuclear weapons states are Vietnam against the United States, Chechnya against the Russian Federation, and Argentina against the United Kingdom (during the Falklands War). Apparently, nuclear weapons are not a hundred percent reliable security guarantee against any military attacks.33 One may even argue, as Robert Rothstein did in 1966, that the argument that nuclear weapons offer security is hard to prove at all. Rothstein writes that ‘It is the impact of nuclear weapons which is most ambiguous and uncertain. Presumably they are designed to deter any enemy from aggressive actions. But in the circumstances we can only be sure when they fail, for the relationship between successful deterrence and nuclear weapons is hardly clear. Obviously the enemy might never have intended to attack at all or, conversely, could have intended to attack but been deterred by other factors present in the situation. The security argument is thus entirely hypothetical. It concerns what the defender thinks he has achieved in felt security, not what he actually has achieved.’34 Recent research by Ward Wilson also concludes that there is no evidence in history that nuclear weapons deter enemies to start any conflict: ‘[...] many people take the peace that’s being experienced over the past sixty years as significant proof of the power of nuclear deterrence. But there are some problems. First, proving the something by using the absence of something is tricky. Second, there are other factors that can adequately account for this period of peace [...].’35 Last but not least, it should be mentioned that few researchers completely reject the importance of security considerations as influencing (non-)proliferation dynamics. Many analysts recognize that perceptions of external insecurity among state leaderships are a necessary condition for decisions to start a nuclear weapons programme, but that this condition alone is inadequate for explaining these decisions; other motivational factors have to be combined with the security motive.36 International Norms and Perceptions The third group of motivations for states to acquire or not acquire nuclear weapons is in this article titled ‘International Norms and Perceptions’. This cluster consists of various theories focusing on the role of perceptions among states on the influence that nuclear weapons could have on their position in the international community. On the one hand, these perceptions can be influenced by **internationally shared norms** that make the acquisition of nuclear weapons less attractive – especially those norms institutionalized in international treaties like the Nuclear Non-Proliferation Treaty (NPT). On the other hand, some of these perceptions may make nuclear weapons more favourable, because states may consider these weapons as increasing their status and prestige. Due to the nonproliferation norms, however, **status and prestige** may also be perceived to **increase by foregoing**