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The Cruel Optimism of Anthropocene Technologies: Suspicion and Fascination of Technology in *Okja*, *What Happened to Monday*, and *Geostorm*

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HUMAN HISTORY IS MARKED BY TURNING POINTS THAT HAVE RADICALLY altered humanity's relationship with technology. The detonations of the atomic bomb over Hiroshima and Nagasaki in 1945 constituted one such point, leaving the human species with a new sense of common frailty.[1] Since then, the evolution of technology has initiated many other turning points that have shaped the multiple ways in which humans relate to technology. Yet, very few of these turning points have created the kind of shared sense of frailty that was born with the detonations of the atomic bomb. The escalation of "the Anthropocene" marks a return to such frailty (Crutzen and Stoermer 17).[2] Although the threats of accelerating anthropogenic global warming and collapsing ecosystems differ from the threat of nuclear war, the Anthropocene exposes the power of humanity to utterly destroy its own living conditions.

It is therefore not surprising that the Anthropocene may be understood as an event poised to once again reshape humanity's relationship with technology. In fact, from political and corporate discourses to popular culture, the Anthropocene is imagined setting the stage

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for a number of "Anthropocene technologies." By Anthropocene technologies, we mean technologies capable of dealing with one or more of the multiple geophysical problems caused by humans' destructive impact on the Earth System. Indeed, since these geophysical problems are multiple and highly complex, the technologies imagined to be capable of dealing with them are multifarious and highly complex themselves.

With this in mind, this article turns to three films in which different Anthropocene technologies are imagined working on different scales and objects. More specifically, the article focuses on how three different technical solutions to the Anthropocene are presented and problematized in the films *Okja, What Happened to Monday*, and *Geostorm*—all from 2017. *Okja* involves the use of biotechnology through which a corporation engineers a new organism to revolutionize sustainable meat production. *What Happened to Monday* accentuates the use of various technologies of population control in the face of overpopulation and resource scarcity. Lastly, *Geostorm* depicts geoengineering as an answer to anthropogenic global warming.

These three films will have our attention because they embed an inherent discrepancy between a suspicion towards "techno-fixes" and a tendency to create blatant techno-fetishistic depictions. We thus see them as contributing to a larger global discussion about the use of Anthropocene technologies. In this regard, we find it particularly productive to perceive technologies, and their representations in popular culture, as "clusters of promises" (Berlant 23). These promises "may be clear and good to us while others, not so much," but what is particularly important is the ability of technologies to incarnate "desires and affects" (24). It is thus exactly their ability to capture desires and affects that enable technologies to become drivers of what Lauren Berlant calls *cruel optimism*, a term she defines as "the condition of maintaining an attachment to a significantly problematic object" (24).

This ability of technologies to incarnate desires and affects links their depictions in popular culture to the various arenas of present-day decision making, where such affects and desires mix with current ideologies. Contemporary political debates about the use of technologies may of course incorporate specialized technical perspectives, but they are also born out of desires and affects belonging to competing ideological visions of the appropriate way to meet the future. As David Harvey argues, people fetishize technology by "endowing [it]

with self-contained, mysterious, and even magical powers to move and shape the world in distinctive ways" (3). For this reason, Anthropocene technologies are not neutral but from their very inception invested with ideological perspectives, just as popular culture is not innocent in its production of images and narratives but a developer of desires and affects.

Based on this context, *Okja*, *What Happened to Monday*, and *Geostorm* offer different answers to different variants of the question: "What happens if?" They are speculative narratives about how potential future scenarios may involve the utilization of different Anthropocene technologies and how the trust in these technologies risks representing attachments to significantly problematic objects. In this, the three films create storyworlds in which cruel optimism does not just materialize as the disappointment of the desires invested in specific technologies; they also depict how cruel optimism may foster and nourish very literal forms of cruelty.

Biotech for the Masses in *Okja*

Bong Joon-Ho's film *Okja* (2017) follows a girl, Mija, who lives in an idyllic mountain region of South Korea together with her elderly grandfather and their giant "super-pig," Okja. The family was given the task to raise Okja by the agrochemical Mirando Corporation as part of a project to sell the new super-pig species as the solution to world hunger. When the corporation decides to take back Okja for the big unveiling in New York, Mija decides to rescue her friend. She thereby becomes entangled with both corporate marketing plots and animal rights activists. The chase takes Mija from Korea to New York and eventually to the hellish slaughterhouses of the Mirando Corporation. In the end, Mija buys back Okja with her dowry—a golden pig given to her by her grandfather. She rescues Okja and a super-piglet, bringing them back to the idyllic mountainside in Korea.

While on the face of it, the film can be seen as a lighthearted romp, it also at several instances conveys the cruel optimism of the technofix. The film opens with a corporate presentation made by CEO Lucy Mirando, unveiling her company's new core values: Environment and Life. Already, the parody of corporate greenwashing is

evident in values that are so broad and unspecific. In the presentation that follows, the audience is given the core arguments for biotechnology as a solution to the escalation of resource scarcity. "The world is running out of food, and we are not talking about it," Lucy states. The solution is the super-pig, presented here as a new species first "discovered" in Chile and bred on a Mirando farm in Arizona. (In reality, they are the product of bioengineering experiments in a lab in Paramus, New Jersey.) Indeed, Lucy almost tips her hand in exclaiming that "they are like nothing on Earth" because they are not —they are a human creation. The genetic manipulation and manufacturing of a new organism (the super-pig) is thus presented by the film as a solution to a global environmental problem. However, it also implicitly promises to revolutionize an entire industry when scaled up from the genetics lab to the mass production of super-pigs and large-scale slaughterhouses.

The language used to describe the super-pigs not only presents the corporate brand narrative but also implicitly allows us to glean the internalized fascination with the newly created species. Lucy uses positively laden words such as "beautiful," "special," "miraculous," and "precious." Behind her the words "eco-friendly" and "natural" are animated on a screen. Together these words frame the attitudes towards the bioengineered organism both in relation to consumers and to its very creators. Indeed, the super-pig species is clearly presented to the audience as a cluster of promises. In a telling moment later in the film, Lucy announces, "I took nature ... and science, and I synthesized. And everyone loved it!" She thereby confirms that the initial presentation can be seen as more than just a sales pitch. It is indicative of an internalized attitude towards the super-pigs and the larger promises of biotechnology. As a cluster of promises the new species is cast as the solution for what Berlant would call "systemic crisis" (food scarcity and environmental degradation), dispelling the notion that people would be "forced ... to adapt" in the face of trauma brought on by such crises (10).

In many ways, Okja is constantly reduced by both scientific and capitalist logic. While Okja is presented as natural to the public, the film still portrays the fascination and obsession with novelty and technology (which can be extended to biotech organisms) as a key behavioral pattern in capitalist logic. This is seen in several shots of super-pig merchandise as well as the constant impulse in people to

take pictures of or with Okja. Another key way of reduction is through the lens of science. The program that left Okja with Mija and her grandfather is more interested in Okja as a product than as a being. When a Mirando representative comes to visit the family early in the film, he very naturally connects his computer to a black box behind Okja's ear. The audience is briefly shown the graphics, numbers, and graphs that depict the vitals that the corporation is actually interested in. Similarly, Dr. Johnny (the face of Mirando's corporate branding) later exclaims that he has only known her through representation such as numbers, graphs, and pictures. The discourse that Okja is placed within reflects how a scientific gaze may reduce beings into units in ways that are similar to how consumerism reduces them into commodities.

While this points to how the super-pigs are framed as a specific cluster of promises, the film seems uneasy with the reduction of Okja to a mere unit in a corporate-scientific scheme. It therefore goes out of its way to depict Okja as not only an autonomous being but also as intelligent, reflexive, and unselfish. The camera, for instance, repeatedly focuses on Okja's eyes to create a sense of identification. It thereby resists not only the reduction of Okja but also questions her position as an object of desire. This questioning exposes how the optimism presented earlier by Lucy Mirando turns cruel. A scene in which Okja is assaulted by a male super-pig in a Mirando lab is thus clearly presented as a rape scene (rather than insemination, experimentation, or animal husbandry). Because of the intended identification with Okja, it works as a rape scene just as if it had been a human victim. The film thus creates an ambiguity in that audiences see Okja as she "really" is: an autonomous being. However, because she is also a bioengineered organism, this raises a host of ethical dilemmas regarding biotechnology and consumption.

This is made explicit in the final scenes of the film that take place at the Mirando slaughterhouse outside New York. Initially, the setting creates connotations to prisons with its fences and pathways. However, as the scenes inside and outside of the facility play out, these connotations shift to something more sinister. While the plot focuses on Mija's attempt to rescue Okja, the slaughterhouse itself signifies something deeper about both the scheme of the Mirando Corporation and the larger storyworld of the film. The massive pens around the facility are filled with super-pigs who are forced onto a

ramp into the slaughterhouse. Inside, Mija finds Okja in a large mechanical contraption, which turns out to be a machine for restraining a super-pig before it is killed by a man with a bolt gun.

What these different scenes implicitly make clear is that while the designed organisms of the super-pig species are themselves commodities, an entire sub-infrastructure is needed to process them for consumption. This is, of course, analogous to the existing meat industry, but it is worth noticing that the large facility here is made purely for the sake of processing the new organisms. The facility is linked by connotations to actual slaughterhouses but at the same time removed as it is also a necessary infrastructure put in place to achieve the end goal of the super-pigs as biotechnological creations. Furthermore, the originally noble project of ending world hunger has been replaced by a status quo logic of capitalism, exemplified by the fact that the Mirando facility is operated almost exclusively by Hispanic workers without any safety gear.

As previously mentioned, the humanizing shots of Okja makes her a problematic object of desire. It is made clear by the film that the audience should value and identify with Okja as an autonomous being. If this is so, then this ascribed value could naturally be extended to the other super-pigs in the facility. As Mija leaves the facility with Okja, the prison connotations of the pens transform to a clearer visual metaphor, evoking the Holocaust. The efficient infrastructure that is the slaughterhouse has been set up for the single purpose to kill and dismember the many super-pigs—who have been established as having humanly recognizable intellect and emotions. The fantasy of super-pigs as a desirable solution to human problems is cemented as cruel when a male and female super-pig notice Okja and Mija leaving the facility. In an act of parental sacrifice, the two super-pigs charge the electric fence to push out their piglet. As Mija and Okja leave with the piglet hidden in Okja's mouth, we see a last shot of the parents in which the female briefly rests its head on its mate—mirroring a very human gesture of mourning.[3]

The super-pigs are thus a technological creation that were made to alleviate specific problems of hunger and agricultural environmental impacts. In relation to their human-given telos of ending up as jerky and sausages, the film poses the question whether we can truly see the super-pigs as a detached technological product instead of beings in their own right. The answer here is that we cannot, thus dispelling

the promise presented at the beginning of the film. However, inside the storyworld of the film the larger cruel optimism is not so easily overcome. In spite of having saved Okja and the little piglet, Mija and her environmentalist allies are unable to save any of the other super-pigs at the Mirando facility. Indeed, the operation set in motion implies that the many hundreds of super-pigs present in the final scenes will be dead and dismembered before Mija's return to Korea the next day. From the rape of Okja to referencing the Holocaust, the film illustrates how fast the promises of biotech as an Anthropocene technology can turn cruel. A key point of the film is thus the inherent antithesis of the bond between Okja and Mija and the rest of society's problematic relationship to the super-pig organism based on consumerism and science fetishization.

Monday and the Technologies of Thanatopolical Governance

In Tommy Wirkola's thriller *What Happened to Monday* (2017), we encounter another vision of how the Anthropocene may prompt problematic technological interventions. The film begins with a montage of nonfictive clips displaying dense human crowds, car queues, and calving icebergs voiced over by an unidentified narrator, stating that "in the last fifty years we have doubled our population, tripled the amount of food and water we use, and we have quadrupled the use of fossils fuels." The montage then morphs into a fictitious narrative describing a future in which "extreme droughts and massive dust storms have shut down the Earth's entire agricultural system." In an attempt to combat the food shortage caused by this shutdown, a coalition called the European Federation has sponsored the development of "more resilient, high yield, genetically modified crops." However, these crops result in "a spike in multiple births and genetic defects," causing a return to a situation where the global population lacks food and water. Consequently, the European Federation implements the "Child Allocation Act," which subjects the population of the Federation to a brutally enforced one child policy. Children, who are not born as only children, are taken from their families by the "Child Allocation Bureau." Officially the Bureau puts these children into "bureau-enforced cryosleep," but, in reality, the Bureau burns them to death in high-tech machines hidden from the public eye.

The primary part of the film takes place in 2073, thirty years after the Child Allocation Act was first implemented. The seven siblings, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday, live in hiding, having been taught how to evade the Child Allocation Bureau by their grandfather, Terrence Settman. Each of the siblings can only leave the apartment on the weekday that has their name—that is, until Monday informs the Bureau of her sisters' existence and whereabouts. This enables the Child Allocation Bureau to hunt down and kill most of her sisters leaving only Thursday and Tuesday alive to disclose Monday's betrayal and to revolt against the Bureau and its charismatic leader, Dr. Nicolette Cayman. Cayman is running for Parliament to ensure that the Child Allocation Act continues to decrease the population of the Federation. However, when Thursday and Tuesday manage to publicly display a video of a child being burned to death in one of the Child Allocation Bureau's facilities, this spells the end of Cayman's power. The release of the video leads to large-scale riots and the repeal of the Child Allocation Act.

An interesting point about the film is the initial role played by gene-modification as first the solution and then the amplifier of ecological problems. We could, in fact, rather call them "Anthropocene problems," since they represent an aggregate of negative ecological effects caused by humanity. With this in mind, the film opens by presenting the audience to a situation in which an Anthropocene technology—namely gene modification—has been applied as a consequence of increasingly disastrous Anthropocene problems. Gene-modification is thereby instantly positioned as a carrier of promises by the plot. However, the film only assigns this role for a few seconds before it exposes that the technology cannot live up to its promises. The narrator describes how its use results in "multiple births," effectively amplifying the Anthropocene problems that it was designed to solve. In other words, the promises attached to gene-modification quickly turn out to be cruel optimism.

Nevertheless, the failed utilization of gene modification sets the stage for the introduction of another Anthropocene technology, namely the development of a surveillance apparatus that closely maps and monitors the movements and behavior of all citizens within the Federation. In other words, the film presents surveillance technology as an Anthropocene technology, depicting it as a means to manage the negative ecological effects that have worsened in tandem with the

growth in human population. What is particularly interesting here is how the total failure of gene modification does not shake human faith in technology. Instead, it prompts the usage of yet another Anthropocene technology. Berlant writes that "an optimistic attachment involves a sustaining inclination to return to the scene of fantasy that enables you to expect that this time, nearness to this thing will help you or a world to become different in just the right way" (2). *What Happened to Monday* brings something similar to light, as it depicts a storyworld in which the failure of technology does not strip it of its allure. Despite the disastrous attempt of tackling overpopulation and food scarcity with gene modification, technology maintains its grip on human fascination and fantasy, continuing to generate optimism instead of caution.

The film indirectly provides an explanation for this, as it depicts surveillance technology as both smart and beautiful despite its brutal usage. There is a clearly aesthetic dimension to the depicted technology, when the camera continuously dwells on shiny computers, high-tech weapons, and sleek lab facilities deployed by the Child Allocation Bureau. Put differently, the film links the grip that technology has of human fascination and fantasy to aesthetics and connects technological optimism to the visual pull of sophisticated technology. The technological optimism of the Federation can be treated as cruel optimism, as it becomes clear that the surveillance technology applied by the Federation cannot be separated from the more deadly technology of the Child Allocation Bureau's "cryo-sleep" facilities. Surveillance is not just employed with the aim of monitoring movements and mapping behavior; the technology also becomes a means of what Michel Foucault calls "thanatopolitics," as it enables the Federation to selectively kill some of its inhabitants, while safeguarding the best possible living conditions for others ("Political Technologies" 160).

It is relevant here to introduce Foucault's terminology, because he provides a grid for understanding the dynamic between killing and safeguarding that defines the Federation's governance in the film. According to Foucault, the opposite of thanatopolitics is "biopolitics," which "endeavors to administer, optimize, and multiply life, subjecting it to precise controls and comprehensive regulations" (*History of Sexuality* 137). Indeed, since biopolitics aims "to ensure, sustain, and multiply life," its true objective becomes "to achieve overall

states of equilibration" (*History of Sexuality* 138; "Society Must" 246). Simply put, biopolitics strives to regulate and create a balance that optimizes the conditions for life within a population. However, Foucault also makes it clear that biopolitics can essentially become an exclusionary mechanism. Biopolitics will not optimize the lives of all members of a population, as there will always be humans, who in the eyes of the administrators, put the balance at risk. Consequently, biopolitics will go to its dark twin, thanatopolitics, which either indirectly or directly prompts the death of those who would stand in the way of the biopolitical objectives.

We see this in *What Happened to Monday*, as it is exactly a notion of ecological equilibrium that allows the biopolitics of the Federation to mutate into thanatopolitics. This is apparent in several scenes in the film. For example, when Cayman meets Tuesday for the first time, she expresses her moral disgust by saying: "Do you have any idea of how much food and water was taken out of others' mouths so you could be here today. If everyone was as cruel and selfish as Terence Settman the world would end tomorrow." While this remark only implicitly reveals the notion of ecological equilibrium driving Cayman and the Child Allocation Bureau's actions, this notion resurfaces more explicitly later in the film, when Cayman delivers a speech, announcing her candidature for Parliament. Here Cayman presents her political program in the following manner:

> For three decades the Child Allocation Bureau has combated the most serious crisis the world has ever faced: Catastrophic overpopulation . . . . In a perfect world every child has the right to live. That is why I am running for office. So, I can reform the law. Anyone who wants to bring a child into this world must be able to prove financial stability and be able to guarantee the emotional and physical well-being of that child. There may even be room for siblings, if the data measures up.

Cayman's reference to "the data," which must "measure up" for the Federation to allow the birth of siblings, is particularly revealing. It explicates how she and the Child Allocation Bureau equate governance with keeping the right balance between the size of the population and the resources available for their consumption. In other words, Cayman equates the management of the population within the Federation with the keeping of a budget, which must perpetually

strike a balance between the number of consumers and the resources consumed. Imbalance in this budget would in Cayman's view be disastrous for the living conditions of everyone. It would, to use Foucault's term, basically ruin the basis for biopolitics, as it would make it impossible to ensure, sustain, and multiply life within the Federation. Firstly, this shows how biopolitics tends to turn to thanatopolitics, whenever the general living conditions of a population are believed to be threatened. Secondly, it points to how this tendency lurks within technological optimism, as it activates fantasies of "the good life" that may ultimately give way to cruel policies, when the realization of these fantasies meets persistent obstacles (Berlant 2).

The cruelties depicted in the film are first and foremost a consequence of the Federation's decision to pursue its idea of ecological equilibrium by way of thanatopolitical governance. But it should also be clear by now that this decision cannot be isolated from the optimism, which the Federation invests in its high-tech apparatus of population control. In the end, it is therefore also evident that the cruelties committed by the Federation expose the true face of its technological optimism. Following the failed attempt with gene-manipulation, the many killings carried out by the Child Allocation Bureau represents another terrible disappointment. Indeed, the Federation's burning of children signifies a regression in civility that far overshadows the civilizational progress it has made in technological sophistication.

Geostorm and the Allure of Shiny Technology

Dean Devlin's *Geostorm* (2017) portrays perhaps the most ubiquitous type of Anthropocene technology: geoengineering. Opening with images of natural disasters, the film narrates a near future, in which extreme weather events (with fatalities in the millions) force the nations of Earth to come together. The solution is an internationally constructed and operated grid of satellites that can interfere with and control regional weather patterns across the globe. The plot begins as the United States prepares to cede authority of Dutch Boy, as the system is called, to the United Nations. During this process, chief engineer and director, Jack Lawson, is fired from his position. Three years later freak weather events in Afghanistan and Hong Kong prompt the US government to rehire a reluctant Jack to go into space and

assess malfunctions in Dutch Boy's systems. It quickly becomes clear that someone is using the system as a weapon to trigger a large-scale geostorm. The culprit turns out to be the sharp but affable secretary of state, Leonard Dekkom, who seeks to reestablish American geopolitical dominance. The plot against Earth is foiled but not in time to save the international space station above Dutch Boy from self-destructing. The film closes with yet another narration about how the Earth once more unites to rebuild the satellite system, making it both "safer" and "stronger."

Geostorm is in many ways standard fare for Hollywood disaster flicks. However, the film spends a fair amount of time in trying to establish a storyworld with large scale problems that require not only large-scale human mobilization but also massive feats of engineering and technological development. As the opening narration plays it is accompanied by images of huge waves, heat shimmers, falling ice sheets, floods, and large cyclones. As these images intensify, the narrator declares that "in that moment, facing our own extinction, it became clear that no single nation could solve this problem alone. The world came together as one. And we fought back."

The occurrences related to a climactic shift is thus portrayed not only as an extinction event, but in terms of warfare. Humanity fights back against the devastation of climate change with the most potent "weapon" available: scientific rationalism. In the turn to geoengineering as a large-scale technological solution, humanity relies on environmental design by technological means rather than having to adapt societies to planetary boundaries. The film thus continues a long line of popular representations of what Brent Yergensen has called "scientific piety" (153). Framing the disaster scenario by deploying a language of war directly calls for mobilization. The connotation here is the World War II mobilization of industry and technological development into the war effort. The worldbuilding narration in *Geostorm* establishes the same pattern. The scientific piety is expressed by the internal logic that the natural step is to encase the planet in a high-tech grid of satellites. As Yergensen explains, scientific rationality has become so dominant as to throw "a shadow of distrust on other schools of thought" (154). Tietge similarly points out that "we often overlook just how a scientifically oriented society uses science and technology as the basis for a system of values that frames our experiences in pseudo-rationalistic terms" (34). This points to how Dutch

Boy is inherently imbued with a particular kind of optimism: Salvation in the face of crisis is available through technology, brought to us by scientists and engineers.

Moreover, Dutch Boy is not just a solution to a specific problem but rather a larger system of control, set to "neutralize the storms" and "designed to impact the basic elements of weather." In short, Dutch Boy not only brings salvation but also ushers in an age wherein planetary mastery is a new given. The narrative drive of *Geostorm* is to take the Anthropocene notion of humans as a planetary force to its full potential.[4] The character of Jack Lawson is a human embodiment of such attitudes toward technology as a cluster of promises. He takes on not only the classic rugged masculine traits of the action hero but also the role of the scientist protagonist portrayed as both a promethean savior (designing and overseeing construction of Dutch Boy) and as the arrogant and possessive father (Jack criticizes the current crew for not taking proper care of his "girl"). The last role cements a personal affective attachment to the Dutch Boy system, even as the optimism invested in it turns not only cruel but deadly.

The larger perspective of Anthropocene technology—here the Dutch Boy system—as both a means for mobilization and a cluster of promises, is also accompanied by the different visual representations of technology throughout the film. The flight and landing sequence, as Jack is sent back up to the space station, goes on for over a minute, presenting both stunning images of the satellite grid and the minute details of the landing mechanics of the station. Similarly, other scenes present viewers with several panoramic views of the satellite grid, an automated space factory for satellites, a massive launch site for space shuttles in Florida, as well as different mission control rooms. This is accompanied by shots of server farms, hologram screens, and a myriad of handheld devices. Almost every single environment that the main characters inhabit or act within are either wholly technological or at least connected to technology through some sort of data-processing on screens. While the overall plot contains a certain amount of uneasiness about the technological solution, as it is hijacked and weaponized, the visual representations are thoroughly technofetishistic, bordering on technoporn. The vistas of the Dutch Boy system encasing Earth are prime examples of a technological sublime. The fetishistic representations in *Geostorm* thereby highlight an important point about the optimistic imaginary of Anthropocene technologies.

There is, however, a cruel optimism built into the film's sleek fetishistic vision of technoscientific salvation—namely, that the same technology that may save mankind can all too easily be abused. The film does not delve deeper into the social structures that a world, in which weather is controlled by humans, would entail. However, the film does portray the abuse of Dutch Boy as based upon misguided and antiquated geopolitics. This is seen at the beginning of the film, when a committee of US lawmakers question the cessation of control over Dutch Boy to the United Nations, even though several nations were part of funding, developing and constructing the new technology. Likewise, when Leonard Dekkom is defeated after wreaking havoc across the globe and trying to assassinate the president of the United States, his justification is that he was "turning the clock back to 1945, when America was the shining city on a hill, not just a bank disguised as a country." Geopolitical advantage—or rather, American advantage—becomes justification for overriding and weaponizing a shared human technology. This runs counter to the emphasis of human unity found in both the opening and closing narration, somewhat fraying the fantasy presented here. However, it perfectly illustrates the flaw in the film's technofetishistic belief that grand technologies in themselves can function as sublime and unifying goals rather than tools to be used for good or bad. This is further seen in how the film does not really address the loss of human life entailed. Despite fatalities being in the millions, casualties of Dekkom's plot are rather implied through a few spectacular scenes of classic disaster flick ilk. While representatives of the old geopolitics are clearly presented as villains, the sleek and appealing representations of technology and the lack of emphasis on human lives mean that the film's portrayal of Anthropocene technologies is ambiguous at best.

Discussion

At first glance the three films may seem an odd trio—presenting different genres, moods, and themes. However, it is indeed their differences in addition to their similarities that allow for a comprehensive interrogation into various Anthropocene problems as well as Anthropocene technologies as a fix. The three films depict problems such as world hunger, the environmental impact of meat production, resource

scarcity, overpopulation, and disasters induced by global warming. Moreover, it is striking how all three films share one key similarity by presenting the same solution to various Anthropocene problems. Indeed, all the films immediately present different scales of technological fixes as the only seemingly viable solution to their specific problems. Anthropocene technologies become a catch-all solution that humanity can readily employ in the face of any problem in the Anthropocene.

The difference between the Anthropocene technologies in the films is not only one of kind but also of scale. The biotechnological solution in *Okja* focuses on the small scale of the individual organism that is technologically altered or created to serve a specific function. In *What Happened to Monday*, the main technological solution is scaled to a societal level as a means for enacting bio- and thanatopolitical governance of a population. The scale thus widens to encompass problems not of individuals but of larger groups. *Geostorm*, on the other hand, revels in its presentation of both disaster and technology on a massive scale. Indeed, the jump here is from the national or regional to a global scale. In combination the films reveal how Anthropocene technologies need not necessarily have a global scale (such as geoengineering) but can be implemented on a range of levels that are much more intimate and seemingly manageable. This notion that techno-fixes have a scalar relation to specific challenges in the Anthropocene opens the door to different kinds of implementations, making technology a ubiquitous answer to any ecological problem. The availability of techno-fixes at different scales simultaneously increases the risk that technological solutions may be implemented without any real regard for potential catastrophic side-effects—turning desire, hope, and trust in technology into cruel optimism. While the films all show a fascination with their various technologies, their narratives also express this very suspicion.

Taken together this suspicion manifests in two different overall representations of cruel optimism in the films. Firstly, there is the risk that Anthropocene technologies may fail, create new unforeseen problems, or exacerbate already existing ecological problems. In this regard, the cruel optimism of such technologies lies in how their implementation obscures or dismisses inherent risks of failure. The cluster of promises provided by Anthropocene technologies thus overshadows possible pitfalls and diminishes the perceived viability of

other solutions at the societal or cultural level (such as changes in production, consumption, and other social behaviors). When technological optimism turns cruel by masking risks of failure, it implicitly advances the argument that humans can eradicate their common frailty. The failure of technology in the films provides a glimpse of what happens, when this common frailty asserts itself at the moment when technological optimism turns out to be unwarranted.

Secondly, Anthropocene technologies may prove effective only to then be coopted or exploited by specific parties for their own agendas —to the detriment of others. In these cases, the cruel optimism of Anthropocene technologies does not manifest itself as technological inadequacy. Rather, it specifically manifests as cruelty towards other living beings. In *What Happened to Monday*, burning of children is made possible by the Federation's sophisticated surveillance technologies and draconian "cryo-sleep" facilities. The logic of the Federation reduces individuals to mere numbers in a population count, allowing for a technological solution designed to manage population size by taking the lives of some on account of others. In *Okja*, cruel optimism is expressed by the unintended consequence of creating a new organism. The super-pigs turn out to be intelligent, self-aware, and autonomous beings that are capable of making emotional attachments. This poses an ethical dilemma, as they are bred, killed, and processed without any regard for these traits. Instead, the sole logic governing the creation, management and, ultimately, death of the super-pigs is a capitalistic imperative of profit maximization. Finally, in *Geostorm* the geoengineering technology of Dutch Boy is presented as a shared human endeavor. However, this fantasy is dispelled as it is used for geopolitical purposes, resulting in the mass murder of populaces around the world. Dekkom's motive for turning this Anthropocene technology against other humans is rooted in an ideological allegiance to US imperialism, securing unilateral power and expanding an American way of life. This project of sustaining American empire is revealed by the film to be thanatopolitical at its core. The cruel optimism is thus represented by a technology that becomes a weapon against the very humans it was meant to save.

To a certain extent, all three films expose a latent barbarism that comes to light through the overly optimistic use of Anthropocene technologies. Behind the technofetishism driving the utilization of these technologies the viewers of the films are exposed to a much

more sinister reality: a reality in which the true tenet of new technologies resides in the opportunities they provide for exercising thanatopolitical power over both nonhuman beings and human populations. Brought together the films reveal an affinity between different types of technological innovations and brute force. "From terraforming to species making," they illustrate that no matter what scales and objects Anthropocene technologies are deployed on their utilization is likely to be inextricably entangled with eliminations of certain forms of life (Grove 46).[5]

While cruelty in the three films is perhaps partly associated with a banal popular conception of evil, the real problem with the cruelty inherent in the representations of technological optimism is that it obscures both the fallibility of technology and the culpability of those who wield it. As an object of cruel optimism, the novelty and visual appeal of technology provide a distraction, which prevents the public from noticing the technological telos or the power structures that both enable it and are enabled by it. The idea of technology as not only a prime solution to larger problems but also as fascinating or sublime in itself feeds an attitude towards it that may shield the elites, who implement it, from criticism. In relation to this, Harvey writes that a "fetishistic belief in technological fixes supports the naturalistic view that technological progress is both inevitable and good, and that there is no way we can or even should try to collectively control, redirect, or limit it" (12). He goes on to note that no amount of technological dominance will reshape human relationships with nature, as that would require exactly the changes in social and mental behavior that technological fixes seek to shelter humans from (14).

From the perspective of larger public debates about technological solutions to the climate crisis and other Anthropocene problems, it becomes important to interrogate cultural narratives of technological optimism—and especially how this optimism may turn cruel. Popular culture may serve as one sphere in which people are exposed to narratives and visual representations of technological solutions. While films like those analyzed here may be seen as trivial or purely entertainment, they become one way of circulating certain ideas about the role of technology in relation to environmental degradation. The films all provide visual representations and implicit arguments that may influence how audiences perceive and value Anthropocene technologies in other contexts. As Harvey notes, we "are, of course,

surrounded with all manner of cultural signs of such fantasy constructs, with Hollywood in the vanguard of not only articulating them but of erecting them into cultural icons (usually both futuristic and militaristic) to which the whole population is encouraged to subscribe" (12).

With this in mind, the films analyzed here pose a speculative experiment through their fictional world-building, asking the question, *What if technological fixes to Anthropocene problems were widely implemented?* Such speculation is always already bound to underlying problems, questions, or perhaps anxieties of a broader society or culture.[6] The three films, however, remain ambiguous in their treatment of the question. On one hand, they very clearly revel in technofetishistic imagery and aesthetics. On the other hand, their plots may serve as warnings to audiences not to let the espoused promises of Anthropocene technologies blind them to potential detrimental and cruel implications. Conflicted though they are in their representations, the films point to how popular culture may, indeed, provide audiences with certain attitudes toward pressing societal issues, such as ecological and human devastation in the Anthropocene.

Notes

1. Reflecting on the work of Günther Anders, Alliez and Lazzarato note: "Up to the advent of the atomic bomb, only individuals were mortal, while the species was immortal. With total wars, the venerable expression 'All men are mortal' lost all meaning, since the atomic bomb brought with it the possibility that humanity as a whole could be killed and not only all men" (354).
2. The Anthropocene was first conceptualized by atmospheric chemist Paul Crutzen and limnologist Eugene Stoermer. Combining human (anthropos) and epoch (cene), the Anthropocene captures the argument that human interference with the Earth system has become so drastic as to represent a geophysical force. As global emissions of greenhouse gasses continue to rise, and ecosystems all over the planet show signs of severe stress, human societies face major transformations either by "design or disaster" in the coming decades (Spash 712).
3. In *The Information Bomb*, French philosopher Paul Virillo asked his reader to "contemplate in the near future the industrial breeding and all-out commercialization of human clones, destined, like animals, for a *living death* behind the barbed-wire fences of some experimental farm in the depth of some prohibited area because at least there we wouldn't be able to see these fellows of ours and hear their cries" (32–33). *Okja* in many ways poses a similar question. Especially the last scenes of the film show the living death of the super-pig species, despite them showing high degrees of sentience and self-awareness.
4. This is linked to what French philosopher Frédéric Neyrat has recently called "geo-constructivism" (9). In his critique of geo-constructivism, Neyrat describes "the Anthropocene as a

grand narrative seeking legimization for the installation of a global, pilotable, management machine" (9).

5. As noted by the late Bernard Stiegler, the escalation of the Anthropocene can in this regard be taken as a sign that the process of modern technological development that Schumpeter dubbed "creative destruction" (23) is really accelerating a process of "destructive destruction" (Stiegler 82).
6. With a nod to Fredric Jameson, the films' "imaginative leaps" into the future represent "little more than the projections of our own social moment and historical or subjective situation" (211). Yet, we nonetheless find it important to acknowledge that speculative fiction has its own unique way (with its own generic traditions and thematic potentials) of operationalizing such projections.

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