Planetary Health: Sickness, the Environment, and Air in Film

Tatiana Konrad

This is a peer-reviewed and revised version of the article that has been accepted for publication in Journal of Environmental Media *on November 14, 2023. The final, copyedited version of the article will be published in* Journal of Environmental Media *5, no. 2 (2024).*

Address: University of Vienna, Department of English and American Studies, Spitalgasse 2, Hof 8.3, 1090 Vienna, Austria

Email: tatiana.konrad@univie.ac.at

Bio: Tatiana Konrad is a postdoctoral researcher in the Department of English and American Studies, University of Vienna, Austria, the principal investigator of "Air and Environmental Health in the (Post-)COVID-19 World," and the editor of the "Environment, Health, and Well-being" book series at Michigan State University Press. She is the author of *Docu-Fictions of War: U.S. Interventionism in Film and Literature* (University of Nebraska Press, 2019) and the editor of, among other volumes, *Imagining Air: Cultural Axiology and the Politics of Invisibility* (University of Exeter Press, 2023) and *Plastics, Culture, Environment and the Politics of Waste* (Edinburgh University Press, 2023).

Abstract: The ongoing COVID-19 pandemic reminds us that human and more-than-human health is connected to environmental (un)health. This article explores the linkages between health and the environment in cinema. It draws on such issues as pandemics, pollution, and air to illustrate how films like Wolfgang Petersen's *Outbreak* (1995), Todd Haynes's *Safe* (1995), M. Night Shyamalan's *The Happening* (2008), Steven Soderbergh's *Contagion* (2011), and Colm McCarthy's *The Girl with All the Gifts* (2016), each in their unique ways, address the problem of planetary health. Airborne zoonoses, monstrous plants, toxic fungi, and pollution—the films tackle

all these issues to emphasize invisible danger, toxicity, and sickness that surround humans and more-than-humans alike. Connecting the ideas of health and well-being to the environment, and illustrating how this nexus becomes visible in film, specifically through air, this article calls for justice, consideration, and care of planetary health. Explicating the tight linkages between pandemics, climate change, and environmental degradation at large, as depicted in the selected cinematic examples, this article claims that the recognition of humanity's dependence on and responsibility for more-than-humans is crucial in times of environmental and health crises.

Keywords: health, air, virus, pandemic, animal, film

The ongoing COVID-19 pandemic foregrounds the intricate connection between humans and more-than-humans, and how human and more-than-human health is interlinked with environmental (un)health. Today, films such as Wolfgang Petersen's *Outbreak* (1995) and Steven Soderbergh's *Contagion* (2011) have become relevant again, reconstructing scenarios that are mind-boggling in their realism and closeness to what the world has been witnessing since the beginning of the pandemic in 2020. From the images of contagion, the symptoms and outcomes of the illness, the role of vaccines, to the reactions of governments, conspiracy theories, and panic, these films, in the context of the current health crisis, might appear to have predicted the COVID-19 pandemic. But, in fact, they have carefully documented realistic responses to imagined global health crises by relying on knowledge of historical pandemics and reflecting on the consequences of colonial oppression, inequalities, and polarization on national and international levels, while simultaneously contributing to the promotion of some of these inequalities and ideologies of oppression. Instead of focusing on film as a critical object, this article probes the outbreak narrative itself as the object, and explores how it is mediated through film. It interprets *Outbreak* and *Contagion* vis-à-vis zoonotic disease and air as mediator of disease. Film is not a transparent medium wherein information is transmitted directly to the viewer. Hence, this article zeroes in on the aesthetics and politics of the outbreak narrative on screen, paying attention to how 'the representability and manageability' of a pandemic as a global event and 'of the world *as globe*' becomes problematic in the two films (Bellamy 2013: 122, italics in original). Through the images of disease and contagion, this article explores the depictions of a pandemic in a capitalist world, when the viewer has to 'look to the absences for explanation, rather than what is made entirely, accurately visible' (Bellamy 2013: 123).

This article examines the pandemics in *Outbreak* and *Contagion*, paying particular attention to the animal sources of the viruses as they are transmitted to humans in the two films. The monkeys and bats that are depicted as the sources of infection characterize the diseases in these films as zoonotic, and ideologically charge the pandemic images, foregrounding the interconnectedness of humans and more-than-humans and revealing the pandemics as not only a health but also an environmental issue. Applying perspectives from both health and environmental humanities, the article demonstrates that humanity itself is the cause of zoonotic diseases.

Importantly, in both films, the pandemics are airborne, i.e., transmitted through air. This article examines the role of air as a mediator between humans and more-than-humans, and its dual

meaning as both life-giving to those beings who breathe, and life-taking—by transmitting the virus. How is the materiality of air reenvisioned through its complex functions? How, through air, do the films imagine the relationship between humans and more-than-humans? To further illustrate air's materiality and (in)visibility, and to contextualize the theme of the airborne pathogen, this article draws on three other films: Todd Haynes's *Safe* (1995), M. Night Shyamalan's *The Happening* (2008), and Colm McCarthy's *The Girl with All the Gifts* (2016). While none of these films explores zoonotic diseases, each reveals how human and more-than-human health are connected, focusing on polluted environments and/or toxic more-than-humans. Through these films, the article explores the airborne virus and, generally, the danger that air might pose to humans and more-than-humans, explicating the invisible ways in which the pathogen (and other harmful elements) travels through air, infecting humans and more-than-humans. Through the images of dangerous air, toxic environments, and infected animals, this article investigates the health-environmental nexus of the ongoing climate and health crises, calling for care of the planet's health.

Viral Environments and Human-Animal Relationships

In both *Outbreak* and *Contagion*, the pandemic is airborne, i.e., the lethal viruses are transmitted through air. Additionally, they are both zoonoses, i.e., 'infectious disease[s] of animals that can be transmitted to humans' (2021: n.p.). In this section, I examine the role of animals in the two films and how the interrelationship of humans, animals, the virus, and air illustrates the idea of planetary health and interspecies dependence.

The depictions of the virus, and specifically how it can be transmitted, in *Outbreak* and *Contagion* are realistic. Scholars confirm that the pathogen in *Contagion*, for example, is reminiscent of both the zoonotic Nipah virus, which caused an outbreak through the transmission from a bat to a pig and then to a human, and the SARS coronavirus that caused the epidemic in Hong Kong in 2003 (Loman and Gardy 2015: 23). One can also draw parallels between the viruses depicted in the two films and COVID-19. The origins of the coronavirus pandemic are debated. For example, horseshoe bats are one possible source; in fact, virologists, including Shi Zhengli, proved that there are 'massive coronavirus reservoirs in the bat caves of Guangdong, Guangxi, and Yunnan' (Ghosh 2023: 51). Others argue that pandemics such as the ongoing one are examples of 'radical ecological disturbances' that happen due to 'anthropogenic drivers such as unregulated

wildlife trade across borders, livestock farming, industrial agriculture, deforestation, mineral extraction, and transportation infrastructure' (Ghosh 2023: 51). And yet there are others who indulge in conspiracy theories, such as one that suggests the pandemic happened due to a leak from the Wuhan lab (Ghosh 2023: 51). The linking of the coronavirus to bats adds another layer of meaning to the pandemic since bats have, for a long time, been culturally associated with monsters (de Bruin-Molé and Polak 2021: 2). Thus the pandemic gains a certain foretaste of horror in the collective consciousness through its connection specifically to bats. This relationship, to be sure, is reciprocal, for pandemics themselves have given a lot to the genre of horror, due to the truly fearful events that accompany every pandemic, from bodily transformations and painful suffering, to death and loss (Rub. P 2020: 1584).

The relationship between the virus and the animal, and how it is perceived by humans, reveals peculiar meanings of transmission when it comes to zoonotic diseases. In *Outbreak*, the monkey, captured and illegally brought from the African continent to the United States, is identified as the source of infection. In *Contagion*, the viewer witnesses a sequence of events that result in the outbreak: first, due to deforestation, a group of bats leave their natural habitat, and one of these bats ends up roosting in a pig farm; the bat drops a piece of food, which is quickly consumed by one of the pigs; the pig is later slaughtered and transported to a restaurant; the chef in Hong Kong who is cooking the pig is asked to come to say hello to the American guest, yet he only briefly cleans his hands at his apron, and, while shaking hands with the American, transmits the virus to her. Both the locations (Zaire in *Outbreak* and Hong Kong in *Contagion*) and the presence of the white, Western characters resurrect colonial memories, creating a sense of danger and lack of control. The territories in which the viruses originate also elicit the colonial feeling of exoticism for non-Western locales. In both cases, the initial animal contacts connote the idea of *the other* for the white Americans because their habitats, as depicted in the films, are distant from the U.S. The films thus reveal a racist and colonialist vision of the world that includes territories that are not explored and/or inhabited by white people and are, therefore, dangerous. This narrative was, and perhaps still is, part of the coronavirus pandemic, too. Specifically, the video of an Asian woman eating a bat resulted in the theory that the pandemic originated in Chinese 'wet markets' where people ate bats (de Bruin-Molé and Polak 2021: 2). While this theory was proved wrong, and the video was not even created in China, it generated a racist and dangerous narrative that has become part of the current pandemic: 'Regardless of the facts, fantasies of Asian others with

"exotic" and "uncivilized" eating habits effectively served to demonise and dehumanise them, contributing to a worldwide surge in anti-Asian racism' (de Bruin-Molé and Polak 2021: 2–3).

The animal in these pandemic films is heavily linked to colonialism not only through location, i.e., the animal's natural habitat and its migration due to anthropogenic activities, but also the way it is treated by humans. In *Contagion*, the viewer is supplied with the violent images of pig farming, slaughter, and consumption. In *Outbreak*, the hunting and smuggling of one monkey radically affects the whole nation. The monkey is brought to a pet shop, where images of animals locked in small cages, carelessly placed all over the shop, convey the exploitation of animals by humans. Hungry, scared, and agitated, the caged monkeys are the source of profit for human sellers—but this monkey cannot be sold because it is female. The animal is brought to a local forest and left alone, without any consideration of the consequences both for the animal, which does not know this new environment, and the humans who live nearby. This type of interaction between humans and animals illustrates the abusive and exploitative practices of the former aimed at dominating the latter.

The films also reimagine the human-animal relationship by distinctly linking the diseased animal to the idea of patient zero or the index case. While this concept is applied to humans who are identified as the first carrier of the virus, in the films, the border between the first human carrier and the first animal carrier is blurred and the animal is represented as the index case. This is particularly so in *Outbreak*, where catching the monkey becomes a mission of national importance because only its antibodies can help create the cure. Equating the animal to the human foregrounds the interconnectedness of species and thus forces one to reconsider the meaning of being human. The viral environment reinforces the closeness of the planet's human and more-than-human inhabitants, removing the colonial understandings of a distance that I referred to earlier—a distance that is used as a scale against which to measure exoticism and otherness of a specific country/territory and its inhabitants. The virus, in turn, confirms certain bodily similarities between the human and the animal. Vulnerability to a pathogen that can be observed in both humans and animals reimagines the meaning of a pandemic as not an anthropocentric but rather a planetary event, in which humans and more-than-humans are equally involved.

How pandemic stories are told makes a crucial difference in how pandemics are understood. Humans make pandemics anthropocentric events; the measures taken during a pandemic are to a larger degree aimed at saving the human, and only after, if at all, the more-than-

human. Priscilla Wald (2008) coins the term 'outbreak narrative' to describe a story that 'in its scientific, journalistic, and fictional incarnations follows a formulaic plot that begins with the identification of an emerging infection, includes discussion of the global networks throughout which it travels, and chronicles the epidemiological work that ends with its containment' (2). Ultimately, an 'outbreak narrative' is 'a contradictory but compelling story of the perils of human interdependence and the triumph of human connection and cooperation, scientific authority and the evolutionary advantages of the microbe, ecological balance and impending disaster' (2008: 2). How a pandemic story is told dramatically affects how the agents in this story are understood and treated. Animals, as both *Outbreak* and *Contagion* prove, are agents in every zoonosis. Animals inhabit the viral environments and can become victims of a virus just as humans do. Wald (2008) warns:

> Outbreak narratives [...] have consequences. As they disseminate information, they affect survival rates and contagion routes. They promote or mitigate the stigmatizing of individuals, groups, populations, locales (regional and global), behaviors, and lifestyles, and they change economies. They also influence how both scientists and the lay public understand the nature and consequences of infection, how they imagine the threat, and why they react so fearfully to some disease outbreaks and not others at least as dangerous and pressing. (3)

While Wald is correct in her detailed analysis of the consequences every pandemic story can have, her vision is overtly anthropocentric, for it clearly foregrounds the impact of a pandemic story on people and human activities. Every 'outbreak narrative', however, must include more-than-humans, too. How will a pandemic impact more-than-humans? How can the more-than-human world be protected from disease and times of health crisis? How does paying attention only to humans unbalance the interconnectedness of humans and more-than-humans on this planet? Survival as such becomes a contested term. The coronavirus pandemic and the two fictional pandemics in *Outbreak* and *Contagion* have not only revealed that, in times of crisis, inequality is further reinforced and survival becomes a luxury that is not available to all, but have also clearly outlined survival as an anthropocentric phenomenon. Wald (2008) correctly notes that

> an analysis of how the conventions of the outbreak narrative shape attitudes toward disease emergence and social transformation can lead to more effective, just, and compassionate responses both to a changing world and to the problems of global health and human welfare. (3)

Yet, in trying to preserve humanity and human systems in times of crisis, it is crucial to think about planetary health as well. Humans do not exist in isolation; together with more-than-humans, we form a complex organism. When humans try to treat and preserve the health of only part of that organism, we, in fact, maintain unhealth. Wald (2008) emphasizes the significant role that '[v]isual technologies, from electron microscopes to epidemiological maps and charts' play in an 'outbreak narrative' (37). Maps, which are particularly heavily used in *Outbreak*, can 'evoke both fear and reassurance'; in fact, a map can 'express the ambiguous geography of an interconnected world, as well as disease' (Wald 2008: 37). But an animal, for example, the monkey in this film, can just as effectively communicate world geographies, the interconnectedness of territories and species, the danger of the virus, as well as other elements that define the pandemic and, through this, the relationship between humans and more-than-humans.

While earlier in this section I have described how animal consumption can be used to stigmatize certain cultures, referring to the misinterpreted example of an Asian woman eating a bat, scholars also contend that 'the capture and consumption of so-called "exotic" animals in conjunction with ever-increasing "development" is triggering zoonoses and reverse zoonoses or zooanthroponoses, that is, infectious diseases that spread from human to non-human animals' (Jolly 2020: 818). Breaking this pervasive chain of deadly interconnectedness is possible only via what Rosemary J. Jolly (2020) terms as 'the non-anthropocentric and decolonial human-non-human animal-"environment" nexus' (818). In fact, this approach helps reenvision the very idea of a zoonosis: a disease that is commonly classified as transmitted from an animal to a human. This would be more correctly described as a zooanthroponosis, i.e., a disease transmitted from a human to an animal, because anthropogenic activities have sabotaged the natural balance and instigated, among other things, the emergence of certain diseases (Jolly 2020: 819). Yet all these biomedical terms, while helpful to understand how transmission works, i.e., who gets infected and from whom, are culturally problematic. The term zoonosis (or anthropozoonosis), for example, places the blame on the animal for transmitting illnesses, some of which are caused by

anthropogenic activities, and thus humans. The viral and pandemic discourses reflect the desire to surveil diseases, crises, and the agents involved in them. It is important to critically approach the language and theoretical practices that are applied in environmental and health discourses and to decolonize these practices. Maintaining the health of more-than-humans through maintaining healthy environments is crucial. Both *Outbreak* and *Contagion* communicate this important message to their audiences through the brief yet effective scenes of the virus spreading from animals to humans.

Outbreak opens with the words of Nobel laureate Joshua Lederberg: 'The single biggest threat to man's continued dominance on the planet is the virus' (Peterson 1995). These words revive the colonial attitude toward more-than-humans and the planet at large. They also foreground the special relationship between the human and the virus, describing the two as powerful opponents. Although not including more-than-humans, these words are not anthropocentric but rather, through the virus, they critique anthropocentrism, foregrounding its fragile nature: anthropocentrism can be destroyed by a more-than-human virus. Despite the clear involvement of more-than-humans (viruses, animals, etc.), pandemic stories remain heavily dominated by codes that construct the idea of *human* health. So-called '[n]arrative medicine', as exemplified by these two films, attempts to 'build empathy and understanding of the patient's experiences' (Rose 2019: 2). The human thus remains the protagonist in such stories. Indeed, neither *Outbreak* nor *Contagion* provides solutions to help the diseased animals, but both focus on human patients instead. Many pandemic stories, including these two films, zero in on the diseased human that is coded in a variety of ways. Coughing, for example, is one of them: 'coughing is seen to be central to the sonographic soundscape of the healthcare environment whereby people learn to recognise (and sometimes misrecognise) each other through the "sound" of the cough' (Brown, Nettleton, Buse, Lewis, and Martin 2021: 270). There is no way in which the viewer, however, can recognize the diseased animals in the films as such, except for through the cinematographic choices and specifically the placement of the scenes that create suspense and, in a matter of minutes, allow the viewer to solve the riddle—the virus is traced back to a monkey, a bat, or a pig. Erasing the animal from the viral environments not only promotes anthropocentrism, but also misrepresents the pandemic as such and the role of the human in it.

Aerial Environments and Environmental Inequality

The virus is one lens through which it is possible to perceive the human-animal relationship, within a pandemic and beyond. Yet the virus does not exist in a vacuum. In an airborne pandemic, the virus is transmitted through the air. What role, then, does air play in representations of health and disease? How does air mediate the human-animal relationship? Air is a space in which the virus exists and a medium through which it travels from one breathing being to another. An airborne pandemic thus makes air tangible, foregrounding its material qualities: air is an environment, a substance, matter. For those who need air to breathe, it is an inescapable, vital realm. The quality of air is thus highly important, because it is directly correlated with and impacts the health of those who breathe it. While air is invisible, surrounding and enveloping humans and more-than-humans imperceptibly, an environment without air—a vacuum—becomes an immediately deadly space. What is *in* air also matters dramatically; it is through this realization that air gains materiality as a substance that is both visible and invisible, safe and dangerous, healthy and unhealthy. Pollution is one example through which air's materiality can be realized. Depending on the type of polluting elements and their concentration, air pollution can be visible or invisible. What happens when, in the context of an airborne pandemic, the virus is considered a form of air pollution? The virus invades the air, travels through it, lives in it (albeit for a short period of time). The virus is invisible to the human eye, and it thus adds to the imperceptibility of the air. The relationship between air and the virus that is always invisible to an unequipped human eye reinforces the human-more-than-human hierarchy in which anthropocentrism no longer matters.

Pandemic cinema explores air as an invisible yet potentially harmful environment. A memorable scene takes place in *Outbreak*, when scientists walk through a hospital ward overfilled with sick patients who are coughing, moaning, and suffering in pain. They are shocked about how quickly the virus has spread, yet they explain the high number with the fact that these people were together in a movie theater—a closed space where one infected individual has spread the virus to the other visitors. The situation changes when a patient who suffered injuries from a car accident and was isolated from the infected patients gets sick, too. Dr. Daniels (Dustin Hoffman) looks around, suspecting that the invisibility around him hides more than one can see. The scene is accompanied with gentle yet fast and high-pitched sounds, as if simulating the movements of the small-yet-deadly virus in the air. Dr. Daniels notices a grid on the ceiling above him. Travelling swiftly along with the stream of air through this vent, the camera then zooms in on Dr. Daniels'

face who now looks at the vent from the other end, in the ward filled with sick patients, and confirms: 'It's airborne' (Peterson 1995).

Focusing on post-World War II public health films, Kirsten Ostherr (2005) notes that 'invisible pathogens produce widespread anxieties about global contagion', and adds that there is an impetus 'to visually represent invisible contagions in order to fix the location of the ever-elusive pathogen'—after all, 'if one can see the contaminant, one can avoid infection' (2). Air becomes visible in pandemic films through scenes that emphasize the airborne nature of the virus, i.e., scenes that include breathing, coughing, and being in one air space with an infected individual. Essentially, all these activities are based on aerobic respiration. Robert-Jan Wille (2020) claims that in order to fully tackle the issue of air, one needs to apprehend not only the atmosphere that surrounds the planet but also the act of breathing (189). Breathing is a material process through which the materiality of air also becomes apparent. Physiologically, breathing functions as follows:

> [B]reath [...] catches and brings together all those processes by which beings with lungs take in and release air: the mechanical, the chemical, the affective and the metaphoric. The diaphragm contracts. It drops. A vacuum appears in the chest cavity, which allows the lungs to expand with air. While the lungs are surfeit with air, oxygen passes through thin membranes in the alveoli to bond with haemoglobin, which, in turn, releases its load of carbon dioxide. (Rose 2019: 1)

This attention to air's material components reminds us that only one specific element (oxygen) needs to be consumed by the human body, and only one specific element is released into the air as a waste product (carbon dioxide). Breathing, in the words of Magdalena Górska (2016), is a 'human corpomaterial commonality'; but, at the same time, it 'has specific and pertinent patterns of operation across differences while being forcefully differential in its enactments' (28). Indeed, breathing can include different stages, depending on the cultural understanding of this process, from the simple inhale-exhale action to a more complex process that acknowledges pauses between each inhalation and exhalation (Górska 2016: 29). Breathing is an ideologically complex phenomenon: it is 'an enactment of movement and circulation within and across (human and nonhuman) bodies, spaces, species and cultures' (Górska 2016: 30). Through the material act of

breathing, air materializes, too, making apparent inequalities and injustices that exist within but also beyond aerial spaces. In this complex analysis, air can become divided, revealing that some humans and more-than-humans breathe toxic air whereas others enjoy healthy air. But at the same time, such divisions are irrelevant when both toxic and clean air compose one larger air space.

Jolly (2020) emphasizes the tight connection between the coronavirus pandemic and the anthropogenic impact on environments and ecologies, noting that 'the ecological stress on human and non-human environments is growing as the physical contact zones between species are shrinking' (819). Measures taken to solve the health crisis are effective only when the environmental crisis is addressed, too. *Outbreak* and *Contagion* engage with images of viral environments, focusing on medically inflected images of sick humans who are covered in sweat and skin rashes, cough and experience respiratory problems. These films explore environmental health and airborne zoonoses, and, in so doing, foreground the idea of the co-existence of humans and more-than-humans. This co-existence is bound to, among other things, the air space that humans and more-than-humans share. Films such as M. Night Shyamalan's *The Happening* (2008) and Colm McCarthy's *The Girl with All the Gifts* (2016) similarly address the issues of co-existence and the consequences of humanity's actions on the environment through the medium of air. Yet these films construct quasi-pandemic scenarios, moving away from the animal and toward plant and fungus lives. This turn to other more-than-humans is significant; these films broaden the concept of the more-than-human and effectively address the idea of clean air. Plants clean air by consuming carbon dioxide and releasing oxygen—a process known as photosynthesis. Plants are, therefore, vital more-than-humans that impact the health of all aerobic organisms on the planet. What would happen if, instead of releasing oxygen, plants released toxins? This is the question that *The Happening* and *The Girl with All the Gifts* explore. While fungi are a class of their own, distinct from plants and animals, I examine the depictions of fungus in *The Girl with All the Gifts* here because of its close visual resemblance to plants in certain scenes in the film.

The pandemics depicted in these two films are forms of health-environmental catastrophes. In *The Happening*, plants suddenly start releasing toxins. These toxins affect people in such a way that they commit suicide. Trying to escape death, a group of people searches for a shelter. Walking through meadows, they discover that plants are the source of the toxins. Surrounded by grass, bushes, and trees, and realizing that the toxins can be spread by wind through the air, the people suddenly feel their helplessness. The omnipresent nature of air comes forward through the open

space where the action of this scene takes place. *The Girl with All the Gifts* depicts a world changed by a disease caused by a parasitic fungus. Similarly, in this film, people turn into aggressive zombies, but instead of killing themselves, they attack other, uninfected individuals. The airborne nature of this infection is explored in detail toward the end of the film, and culminates in the scene where the main character, Melanie, sets a large pod structure on fire, which releases the spores. This event depicts death in a variety of ways. On the one hand, the airborne spores will be inhaled by the surviving humans, thus turning them into zombies and causing their extinction. On the other hand, the burning fungus forest reminds the viewer about the fires that happen more and more often, destroying vegetation, and thus transforming ecologies, environments, and ecosystems. Air becomes polluted in this scene both with the spores and the carbon dioxide released from combustion.

Despite the zombie-like apocalyptic scenarios depicted in *The Happening* and *The Girl with All the Gifts*, both films convey very distinct ideas of horror. By connecting air and disease through toxins and spores, the films do not emphasize the gory scenes in which people commit brutal suicides or zombies attack humans, but rather trigger fear through much calmer and, at first sight, harmless scenes. Reading *The Happening* as a distinct example of post-9/11 ecohorror cinema, I have argued elsewhere that the plants can be interpreted as a metaphor for terrorists, paying special attention to the location of the attack, how the events unfold, and the invisibility of the toxic threat spread through air (Konrad 2023). The elusiveness of terror that comes from plants, due to the toxins' invisibility, haunts the screens without clearly identifying the monster. In fact, as Murray Pomerance (2010) notes,

> [W]hat is most alarming about *The Happening* is that virtually none of it takes place in the dark, that it celebrates the lambency of brightly lit, airy, daytime vistas in a kind of full-bodied *plein air* impressionism reminiscent of the painting of Monet and Pissarro. We awake to the danger of the trees in our dream, but we are dreaming while we are awake! (44, italics in original)

A similar idea is communicated in *The Girl with All the Gifts*, when the group of survivors encounters the tower covered in fungus in broad daylight. There are multiple pods lying around and hanging on the tower; one of the characters, a scientist, holds a pod in her hand, explaining

that if the spores are released, an apocalypse will happen, terminating the life of all humans. The safety of holding a closed pod in a hand is thus contrasted to the danger that the spores in this pod can cause once they come in contact with air.

While both films engage with the concepts of air, pollution (literal and figurative), and breathing, they promote an anthropocentric view. After all, if humans are susceptible to the toxins and spores released by plants and the fungus respectively, why does not the same happen to animals and other aerobic organisms who come in contact with these deadly elements? It is a scientifically proven fact that 'our bodies exist as shifting and sharing ecosystems rather than isolated and inviolate objects' (de Bruin-Molé and Polak 2021: 3). Together with other more-than-humans, humans share land, air, and water. The ambiguity of the pollution, that *Outbreak*, *Contagion*, *The Happening*, and *The Girl with All the Gifts* convey through viruses, toxins, and spores, all of which are airborne and thus particularly difficult for breathing humans and more-than-humans to escape, adds a new layer of meaning to pollution as commonly known.

There is an important link between air pollution and airborne viruses. Some studies reveal that the coronavirus can live longer in suitable environments with the help of air pollutants (Martelletti and Martelletti 2020: 384). Others argue that air pollutants can carry the virus, and that, by harming respiratory systems, air pollution directly impacts one's ability to fight the infection, making the process more difficult and the consequences more severe (Veronesi, De Matteis, Calori, Pepe, and Ferrario 2022: 193). Yet other scholars warn to be careful with these, rather quick, conclusions. Lidia Morawska (2020), for example, contends that 'outdoor air pollution particles are extremely unlikely to be virus carriers, because the pollution particles are much smaller than the virus vehicles' (qtd. in Zhao 2020: 4). Yet she confirms that 'in regions where air quality is bad, people are already more susceptible to infection by the virus' (qtd. in Zhao 2020: 4). Junji Cao (2020) points out the studies that demonstrate that 'air quality or air conditions, such as air temperature and humidity, can influence the residence time of the viruses in the air', yet he emphasizes that it is important to study this phenomenon in a greater detail to be fully sure (qtd. in Zhao 2020: 4).

The aerial relationships between the virus, pollution, and breathing reflect inequality between humans but also between humans and more-than-humans at large. These relationships are conditioned by the legacies of colonial practices and policies that created discriminating and abusive realities for some humans (particularly BIPOC communities) in order to maintain the well-

being of others. That is why scholars like Jolly (2020) emphasize that when trying to maintain one's health in the context of an environmental crisis that is caused by, causes, and is continuously sustained by 'colonial capitalist damage', one must speak about 'harm reduction' rather than a 'cure' (814). Jolly (2020) notes that disease is not an exclusive consequence of colonialism, but it is impossible to address disease and health without accounting for colonial and neocolonial practices and outcomes (816). The ongoing coronavirus pandemic has dramatically revealed inequality through the idea of social distancing. COVID-19 is the severe acute respiratory syndrome coronavirus 2, which is an airborne zoonotic virus (Blum and Neumärker 2021: 308). The airborne nature of this virus means that it can be passed from one breathing being to the other via small respiratory droplets suspended in the air, causing symptoms like fever, coughing, breathing difficulties, and so on (Cooper, Dolezal, and Rose 2023: 2). Keeping a minimum distance between individuals and wearing masks are some of the effective measures to prevent the spread of the disease. Yet these very measures have also impacted the meaning of air, suggesting that air as such can be divided and even avoided. To be clear, I by no means argue against these measures, but rather attempt to emphasize that the coronavirus pandemic has forced a certain reimagining of air via, among other things, the measures aimed at protecting ourselves from air that contains droplets with the dangerous virus. Importantly, however, this new reality of keeping distance and wearing masks visualized the virus in a peculiar way. While the human eye cannot see the virus floating in the air, there is a fear that some individuals might be more likely carriers of the virus than others—suspicions based on long-existing racist stereotypes. In that sense, the pandemic has continued to promote the firmly articulated idea of 'the polluted body of some enemy *du jour*'—i.e., members of minority groups— in contagion narratives (Gomel 2021: 220, italics in original). Masks, in particular, have been misused to advance 'preexisting eco-fascist ideas and people's desire to keep their figurative (but not social) distance from others by proposing plastics as the solution to every conceivable problem presented by COVID-19', thus underemphasizing environmental problems and overemphasizing the virus as the arch-enemy (Adkins and Davis 2023: 334). Through air, the ongoing pandemic has therefore further complicated the relationships between humans and animals, humans and more-than-humans, air and the virus, breathing and (in)equality, and health and the environment.

Conclusion: Planetary (Un)Health

Humanity's impact on the planet's health is profound. Temporality is one of the most important perspectives through which the ongoing health and environmental crises can be perceived. To acknowledge the massive effect that anthropogenic activities have had on the planet, Paul Crutzen and other geologists introduced the term 'Anthropocene' to define this new geological epoch (Trexler 2015: 1). In response to this, historian Dipesh Chakrabarty (2021) argues that the Anthropocene 'produces a peculiar sense of historical time'—the phenomenon that he calls 'chronopolitics' (326). The Anthropocene, according to Chakrabarty (2021), engages with temporality by 'fragment[ing] human futures in unprecedented ways' (326). The ongoing crises are the results of this fragmentation that only intensify the precarity of the future. Humanity's exploitation of the more-than-human world has caused environmental problems, zoonotic diseases, and other health and environmental issues that engender the present and the future. The failure to act in a sustainable way is the chief reason why both climate change and the coronavirus pandemic emerged, why it is so difficult to productively address both issues, and why humanity should expect more calamities caused by anthropogenic activities in the future. The Anthropocene therefore is a useful lens through which one can, in words of Eva Horn (2021), 'give an ecological diagnosis of the present' (124). It is impossible to productively address pandemics—airborne, zoonotic, both, or otherwise—without caring for environmental health and well-being. Bruno Latour (2021) laments: 'The whole planetary respiratory system is disrupted and at all levels, whether it's a matter of the masks we're gasping behind, the smoke from fires, police repression or the sweltering temperature imposed on us, all the way up to the Arctic' (110). Planetary health, i.e., the health and well-being of all humans, more-than-humans, and the planet as a whole, has been dramatically damaged, and air is one prism through which this harm can be viewed and recognized.

Alfred W. Crosby's concept of ecological imperialism, which emphasizes that 'the success of European imperialism has a biological, an ecological, component', not only helps understand how colonial conceptualizations of the environment facilitated colonization and redefined certain territories as less valuable, but also reveals the ongoing environmental abuse and exploitation (2004: 7). Pandemics, both the fictional ones that I have analyzed here and the ongoing coronavirus pandemic, are not only health crises but also environmental and ecological catastrophes. For Bishnupriya Ghosh (2023), 'The ecological prognosis is clear: viruses will continue to emerge

from disturbed habitats, hitching a ride into host populations through global supply chains and human traffic' (53). What is needed then to proactively address the problem is '[a] multispecies politics that rearticulates "health" within and between species', and 'situates infectious disease emergence in the biosphere but refuses the occlusion of ongoing colonial dispossession' (Ghosh 2023: 39).

Focusing on pandemics, toxicity, pollution, viruses, and environmental degradation, the films that I have analyzed here are effective examples of ecohorror that foregrounds health—of humans, more-than-humans, and the planet—as the central concern. Both ecocinema and pandemic cinema are forms of criticism: conceptual frameworks through which such issues as health and well-being become apparent. While many of these examples remain anthropocentric, they acknowledge the interconnectedness of species on this planet, illustrating how anthropogenic activities impact planetary health. Whether through an infected monkey, bat, pig, plant, or fungus, these films make it clear that species interact and that it is impossible to isolate the effects of environmental crisis or to keep humanity's health intact. One productive way to explore this is through air, which connects territories and bodies.

Invisibility is a technique that these films employ to both emphasize the interconnectedness of humans and more-than-humans that might at first be imperceptible to the human eye, and reveal the complexity behind the natural processes and interactions that simply cannot be controlled by humans. Consider another example of health/eco-cinema: Todd Haynes's *Safe* (1995), which narrates a story of Carol White (Julianne Moore) whose body suddenly starts to react to the toxins that she comes in contact with through furniture, cleaners, emissions, and so on. Considered mentally ill by her husband and her doctors, Carol is helpless until she leaves her home and joins a community of people with environmental illnesses. *Safe*, just like the other four films examined here, make air visible, illustrating, through Carol's symptoms, that it is filled with toxins. Importantly, however, none of these films reappropriate the more-than-human world in a way that is convenient for humans, i.e., the viewer does not literally see the viruses, toxins, or spores, which are, indeed, invisible to the human eye. Instead, the films recognize the complexity of the more-than-human world and its inaccessibility to humans, working aesthetically to make the viewer aware of the presence of these agents in air, without directly visualizing them. *Safe* also shows that human intervention in environmental and ecological systems leads to planetary unhealth. Recognizing the consequences of environmental problems that impact humans through animals,

plants, fungi, air, and other ways is key to productively address health issues triggered by environmental crisis. In her analysis of *Safe*, Nicole Seymour (2011) uses the term 'envirohealth risks', which aptly describes the tight relationship between health and the environment (43). The acknowledgement of such 'envirohealth risks', however, happens rarely, with one important, nonfictional example of a woman in Canada diagnosed with climate change, because her health was impacted by heat and air pollution caused by wildfires (Labbé 2021: n.p.).

Planetary health is grounded in the understanding of co-existence and co-dependence. Environmental humanities scholars emphasize this through exploration of 'the networks of dependence between all species' and analysis of the anthropogenic climate change through 'the intimate ways we are entangled with the non-human world, and how the patterns of these relationships generate the conditions in which we live' (Ruskin in Kennedy 2017: 509; Verlie 2022: 5). These scholars examine the impact of climate change through such concepts as 'slow violence', i.e., 'a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all' (Nixon 2011: 2). Further, they foreground the idea of 'the ecological thought' that recognizes that 'everything is interconnected'; the understanding that 'the nonhuman powers [are] circulating around and within our bodies'; and the cognizance that there is 'a vast, interpenetrating webwork of perceptions and sensations borne by countless other bodies' that surrounds humans (Morton 2010: 1; Bannett 2010: ix; Abram 1996: 65). As new materialist scholar Stacey Alaimo (2010) observes,

> [T]hinking across bodies may catalyze the recognition that the environment, which is too often imagined as inert, empty space or as a resource for human use, is, in fact, a world of fleshy beings with their own needs, claims, and actions. (2)

Donna J. Haraway (2008) has famously noted, 'To be one is always to *become with* many' (4, italics in original). *Outbreak*, *Contagion*, *The Happening*, *The Girl with All the Gifts*, and *Safe* all in their distinct ways caution the viewer about the detrimental consequences of anti-environmental behaviors and how they impact the health of humans, more-than-humans, and the planet as a whole. They remind the viewer about how vitally important it is to pay close attention to what seems to be invisible or what humans simply refuse to see, like air that we breathe, which, once

polluted with harmful elements, can cause sickness and death. They likewise make visible the more-than-humans whose habitats and populations humans destroy via bushmeat hunting, deforestation, global warming, and other anthropogenic activities. Pollution makes air, water, and land sick, spreading disease and unhealth among BIPOC communities, poor communities, and more-than-humans (Ahuja 2015: 370). But along with harm to the most vulnerable humans and more-than-humans, the exploitation and transformation of the environment lead to a more profound change that will inevitably concern every being. Scholars warn about the dramatic effects that climate change has on pathogens and their transmission (Mora, McKenzie, Gaw, Dean, von Hammerstein, Knudson, Setter, Smith, Webster, Patz, and Franklin 2022: 869). Bruno Latour (2021) argues that the ongoing health crisis and the transformations that it has enforced will only further change the world as we know it, particularly due to the health crisis occurring amidst the climate crisis: '[T]he COVID-19 pandemic merely foreshadows a new situation from which you will never emerge' (47).

Planetary health refers not only to the physical and mental well-being of those who inhabit the planet and of the planet itself, but also to a way of thinking, according to which every life matters (see also Akomolafe 2020). The rights of BIPOC communities and of everyone else who is oppressed or discriminated against ought to be valued, and more-than-humans are recognized as beings that, like humans, deserve to live in a healthy environment. The ongoing subjugations and inequalities, including environmental racism, are 'signs of the need to return to every living thing—human, plant, and animal—the space and conditions required for its breathing' (Fuller, Macnaughton, and Saunders 2021: 10). Zoonoses are one illustrative example of how suffering and ill health first affect animals and then, through animals, humans. This unhealthy symbiosis between humans and more-than-humans shows how unbalanced the health-environment relationship can be, and how strongly health is linked to the environment. The films analyzed here reveal that recognizing and seeing the profound impact of anthropogenic activities on health and the environment is one step to understand the interconnectedness of humans and more-than-humans; the next step is to build equality and foster care for all—a difficult yet crucial mission in this time of crisis.

Acknowledgement and Copyright: This research was funded in whole, or in part, by the Austrian Science Fund (FWF) [P 34790]. For the purpose of open access, the author has applied a CC BY public copyright licence to any Author Accepted Manuscript version arising from this submission.

References

Abram, D. (1996), *The Spell of the Sensuous: Perception and Language in a More-Than-Human World*, New York: Vintage Books.

Adkins, Sasha, and Brittany Y. Davis (2023), 'Eco-fascism and alienation: Plastics in a post-COVID world', in T. Konrad (ed.), *Plastics, Environment, Culture, and the Politics of Waste*, Edinburgh: Edinburgh University Press, pp. 325–37.

Ahuja, Neel (2015) 'Intimate atmospheres: Queer theory in a time of extinctions', *GLQ: A Journal of Lesbian and Gay Studies*, 21: 2–3, pp. 365–85.

Akomolafe, B. (2020) 'I, coronavirus. Mother. Monster. Activist.', 15 May, https://www.bayoakomolafe.net/post/i-coronavirus-mother-monster-activist. Accessed 7 November 2023.

Alaimo, S. (2010), *Bodily Natures: Science, Environment, and the Material Self*, Bloomington: Indiana University Press.

Bellamy, B. (2013) 'Review of *Contagion* (Steven Soderbergh US 2011)', *Science Fiction Film and Television*, 6: 1, pp. 119–23.

Bennett, J. (2010), *Vibrant Matter: A Political Ecology of Things*, Durham and London: Duke University Press.

Blum, Bianca, and Bernhard K. J. Neumärker (2021) 'Lessons from globalization and the COVID-19 pandemic for economic, environmental and social policy', *World*, 2, pp. 308–33.

Brown, Nik, Sarah Nettleton, Chrissy Buse, Alan Lewis, and Daryl Martin (2021) 'The coughing body: Etiquettes, techniques, sonographies and spaces', *Biosocieties*, 16: 2, pp. 270–88.

Chakrabarty, Dipesh (2021) 'The chronopolitics of the Anthropocene: The pandemic and our sense of time', *Contributions to Indian Sociology*, 55: 3, pp. 324–48.

Cooper, F., L. Dolezal, and A. Rose (2023), *COVID-19 and Shame: Political Emotions and Public Health in the UK*, London: Bloomsbury Academic.

Crosby, A. W. (2004), *Ecological Imperialism: The Biological Expansion of Europe, 900–1900*, 2nd ed., Cambridge: Cambridge University Press.

de Bruin-Molé, Megen, and Sara Polak (2021), 'Embodying the fantasies and realities of contagion', in S. Becker, M. de Bruin-Molé, and S. Polak (eds), *Embodying Contagion: The Viropolitics of Horror and Desire in Contemporary Discourse*, Cardiff: University of Wales Press, pp. 1–12.

Fuller, David, Jane Macnaughton, and Corinne Saunders (2021), 'The life of breath: Contexts and approaches', in D. Fuller, C. Saunders, and J. Macnaughton (eds), *The Life of Breath in Literature, Culture and Medicine: Classical to Contemporary*, Cham: Palgrave Macmillan, pp. 1–32.

Ghosh, B. (2023), *The Virus Touch: Theorizing Epidemic Media*, Durham and London: Duke University Press.

Gomel, Elana (2021), 'The epidemic of history: Contagion of the past in the era of the never-ending present', in S. Becker, M. de Bruin-Molé, and S. Polak (eds), *Embodying Contagion: The Viropolitics of Horror and Desire in Contemporary Discourse*, Cardiff: University of Wales Press, pp. 219–34.

Górska, M. (2016), *Breathing Matters: Feminist Intersectional Politics of Vulnerability*, Linköping: Linköping University.

Haraway, D. J. (2008), *When Species Meet*, Minneapolis and London: University of Minnesota Press.

Haynes, Todd (1995), *Safe*, New York: Sony Pictures Classics.

Horn, Eva (2021), 'Tipping points: The Anthropocene and Covid-19', in G. Delanty (ed.), *Pandemics, Politics, and Society: Critical Perspectives on the Covid-19 Crisis*, Berlin/Boston: De Gruyter, pp. 123–37.

Jolly, Rosemary J. (2020) 'Pandemic crises: The Anthropocene as pathogenic cycle', *ISLE: Interdisciplinary Studies in Literature and Environment*, 27: 4, pp. 809–22.

Kennedy, Margaret S. (2017) 'A breath of fresh air: Eco-consciousness in *Mary Barton* and *Jane Eyre*', *Victorian Literature and Culture*, 45, pp. 509–26.

Konrad, Tatiana (2023), 'Eco-horror, terrorism, and inadequate representation of global warming in M. Night Shyamalan's *The Happening*', in R. L. Young (ed.), *Climate Change Education: Reimagining the Future with Alternative Forms of Storytelling*, Lanham: Lexington Books, pp. 137–50.

Labbé, Stefan (2021), 'B.C. doctor clinically diagnoses patient as suffering from "climate Change"', *Times Colonist*, 4 November, https://www.timescolonist.com/bc-news/bc-doctor-clinically-diagnoses-patient-as-suffering-from-climate-change-4723540. Accessed 3 February 2023.

Latour, B. (2021), *After Lockdown: A Metamorphosis* (trans. J. Rose), Cambridge: Polity Press.

Loman, Nick, and Jennifer Gardy (2015) '*Contagion*: A worthy entrant in the outbreak film genre', *Biochem (Lond)*, 37: 6, pp. 22–25.

Martelletti, Luigi, and Paolo Martelletti (2020) 'Air pollution and the novel Covid-19 disease: A putative disease risk factor', *SN Comprehensive Clinical Medicine*, 2, pp. 383–87.

McCarthy, Colm (2016), *The Girl with All the Gifts*, Burbank: Warner Bros Pictures.

Mora, Camilo, Tristan McKenzie, Isabella M. Gaw, Jacqueline M. Dean, Hannah von Hammerstein, Tabatha A. Knudson, Renee O. Setter, Charlotte Z. Smith, Kira M. Webster, Jonathan A. Patz, and Erik C. Franklin (2022) 'Over half of known human pathogenic diseases can be aggravated by climate change', *Nature Climate Change*, 12, pp. 869–77.

Morton, T. (2010), *The Ecological Thought*, Cambridge and London: Harvard University Press.

Nixon, R. (2011), *Slow Violence and the Environmentalism of the Poor*, Cambridge and London: Harvard University Press.

Ostherr, K. (2005), *Cinematic Prophylaxis: Globalization and Contagion in the Discourse of World Health*, Durham and London: Duke University Press.

Petersen, Wolfgang (1995), *Outbreak*, Burbank: Warner Bros.

Pomerance, Murray (2010) 'What ever is *Happening* to M. Night Shyamalan: Meditation on an 'infection' film', *film international*, 8: 1, pp. 34–46.

Rose, Arthur (2019), 'Introduction: Reading breath in literature', in A. Rose, S. Heine, N. Tsentourou, C. Saunders, and P. Garratt (eds), *Reading Breath in Literature*, Cham: Palgrave Macmillan, pp. 1–16.

Rub. P, Suhail Abdul (2020) 'Pandemic literature: Envisioning catastrophe in Soderbergh's *Contagion*', *International Journal of English Literature and Social Sciences*, 5: 5, pp. 1584–87.

Seymour, Nicole (2011) '"It's just not turning up": Cinematic vision and environmental justice in Todd Haynes's "Safe"', *Cinema Journal*, 50: 4, pp. 26–47.

Shyamalan, M. Night (2008), *The Happening*, Los Angeles: 20th Century Fox.

Soderbergh, Steven (2011), *Contagion*, Burbank: Warner Bros. Pictures.

Trexler, A. (2015), *Anthropocene Fictions: The Novel in a Time of Climate Change*, Charlottesville: University of Virginia Press.

Verlie, B. (2022), *Learning to Live with Climate Change: From Anxiety to Transformation*, London: Routledge.

Veronesi, Giovanni, Sara De Matteis, Giuseppe Calori, Nicola Pepe, and Marco M. Ferrario (2022), 'Long-term exposure to air pollution and COVID-19 incidence: A prospective study of residents in the city of Varese, Northern Italy', *Occup Environ Med*, 79, pp. 192–99.

Wald, P. (2008), *Contagious: Cultures, Carriers, and the Outbreak Narrative*, Durham and London: Duke University Press.

Wille, Robert-Jan (2020) 'Keep focusing on the air: COVID-19 and the historical value of an atmospheric sensibility', *Journal for the History of Environment and Society*, 5, pp. 181–93.

Zhao, Weijie (2020) 'Changes of air quality during the pandemic and airborne transmission issues', *Natural Science Review*, 8: nwaa275, pp. 1–5.

'Zoonisis' (2021), in J. Law (ed.), *A Dictionary of Nursing*, 8th ed., Oxford University Press, 2021. Online.