# Ecocinema and Ecological Threats: Documentary Ethics in the Anthropocene

## Robert Sinnerbrink

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How can documentary cinema contribute to raising awareness, changing attitudes, and fostering action in relation to environmental threats? In what follows I explore how documentaries approach environmental threats, ecological and social justice, and moral-political persuasion through imaginative cinematic means. I consider three representative approaches: the *evidentiary-argumentative* approach, the *poetico-aestheticist* approach, and a hybrid approach—which I call *poetico-discursive*—that combines these two in ways that are both aesthetically engaging and argumentatively persuasive. The celebrated advocacy documentary *An Inconvenient Truth* (Guggenheim 2006) is a paradigmatic example of the first approach, with its reliance on factual presentation, evidence-based claims, informational graphics, and anchoring narration courtesy of a respected authority figure (Al Gore). The so-called 'Qatsi' trilogy (*Koyaanisqatsi* (Reggio 1982), *Powaqqatsi* (Reggio 1988), and *Naqoyqaatsi* (Reggio 2002)) offer well-known instances of the second approach, dispensing with factual presentation, voiceover narration, or narrative structuring in favour of symphonic composition combining imagery and music, visual and aural patterning, symbolic metaphorization, and poetic implication. Finally, the ecocritical documentary *Anthropocene: The Human Epoch* (Baichwal, Burtynsky, and de Pencier 2018), combines elements of both approaches to represent and articulate the complexity of the Anthropocene (the claim that our planet has entered a new geological epoch defined by the impact of anthropogenic activity on the earth and its climatic and environmental systems).[2] I argue that this third hybrid approach avoids the pitfalls of the other two approaches (didacticism and lack of aesthetic engagement versus subjectivism, aestheticisation or romanticisation), while harnessing their strengths (conceptual framing and discursive argumentation coupled with affective and aesthetic engagement). The hybrid approach of documentaries like *Anthropocene*, I suggest, is more likely to capture audience attention and alter attitudes or opinions, and thereby foster social change, particularly in a social and historical context in

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2    A term that has been recently rejected by the International Union of Geological Sciences (IUGS, 2025) as marking a recognised geological epoch following the Holocene. I discuss in conclusion how this recent development affects the reception and significance of a documentary like Anthropocene.

which scepticism towards scientific evidence, rational argumentation, and varieties of social activism renders the problem of how documentary can persuade and influence relevant audiences particularly pressing.

## Nature Documentary, Environmental Documentary, and Ecological Awareness

One of the more prominent strands in the history of non-fiction film is the nature or wildlife documentary, a genre that is traditionally associated with television (Sperb 2016). Combining natural scientific inquiry with dramatic narrative, the nature documentary has traditionally served multiple ends, from pedagogical instruction and family entertainment to moral edification and political activism. The nature documentary—typically focusing on animal species within their habitats, their struggles for survival, coping with predators, caring for their young, but also with natural environments and the threats they face—continues to be a mainstay of documentary filmmaking, both in cinematic and televisual formats, and has enjoyed a recent resurgence thanks to growing environmental concerns.

Linked to this is the rise of the more explicitly ethico-political environmental and ecocritical documentary, which aims to foreground particular issues, thematise problems, or expose phenomena pertinent to more pervasive political and environmental concerns (about threatened species, habitat destruction, the impact of human/economic/technological activities, e.g. factory production, industrial agriculture, mining, the effects of colonisation, etc.) (Duvall 2017). Most nature documentaries with an explicitly environmental or ecological agenda adopt a conventional expository style. This includes using an anchoring authoritative narrator, inclusion of framing text and intertitles presenting factual information, reliance on scientific evidence, represented in graphic form, often accompanied by found footage relating to the presented facts and explained by authoritative experts (talking heads) (Rust and Monani 2016). They are also typically composed according to a three-part

"narrative" structure: 1) identification of the problem underlining its importance in terms of scale, threat, or impact; 2) elaboration of the problem in factual and contextual terms, and presentation of relevant scientific evidence pointing to detrimental effects and consequences of the problem; 3) a conclusion or resolution suggesting possible solutions or strategies to ameliorate or resolve the threat or crises flowing from the problem, with gestures towards forms of collective action and/or social transformation necessary to deal with the problem.

At the same time, some environmental or ecological documentaries have taken up the tradition of modernist, experimental cinema, using avant-garde techniques that have always been part of the history of documentary (Nichols 2016, 13–33; MacDonald 2012). Non-narrative, poetic, and expressivist styles, which eschew expository documentary formats and narrative structuring in favour of poetic, reflexive, and experimental techniques aim to elicit affective and aesthetic engagement. This kind of aesthetic persuasion is linked to the idea of cinema as a *transformative medium*, bringing phenomena to our attention that would otherwise escape notice or re-sensitising viewers to appreciate and care for natural environments, threatened animal species, or dwindling biodiversity. Instead of an expository presentation of scientifically grounded evidence we have an *aesthetic presentation* of the natural world, animal life, or biodiversity—or their catastrophic destruction by human social, economic, and technological practices and processes—presented in poetic, experimental, non-narrative terms (as in Reggio's 'Qatsi' trilogy).

In our context, the urgency of the ecological crisis—especially given anthropogenic climate change—has led to a resurgence of environmental and ecocritical documentaries aiming not only to educate and inform the public, but to foster social action (*An Inconvenient Truth, Everything's Cool* (Gold and Hefland, 2007), *Gasland* (Fox, 2010), *Years of Living Dangerously* (Bach and Gelber 2014), *An Inconvenient Sequel: Truth to Power* (Cohen and Shenk 2017), and INFINITY *minus Infinity* (Otolith Group, 2019)). In what follows, I consider *An Inconvenient Truth* and

the *Qatsi* trilogy (focusing on *Koyaanisqatsi*) and compare these with *Anthropocene: The Human Epoch*, which combines elements of both evidentiary-argumentative and poetico-aestheticist approaches in a manner that aims to educate, engage, and transform shared horizons of meaning in ways that might foster greater environmental awareness and a desire for social change.

### An Inconvenient Truth

Davis Guggenheim's *An Inconvenient Truth*, focusing on former American Presidential candidate Al Gore's lecture tours to raise awareness about global warming, was enormously successful. Written by Gore, it focused attention on the threat posed by anthropogenic climate change and the need for urgent action to mitigate or reverse its potentially disastrous effects. As reported in the journal *Science*, there was much that scientists could learn from the film, which was accompanied by a best-selling book (760,000 copies in print) and sold over 1.5 million DVDs. Students were shown the film at schools, and municipalities scheduled public viewings (Holt 2007). It contributed an important voice and perspective persuading the broader population that climate change was not only a real environmental phenomenon but one requiring urgent economic, technological, social and political change.

For our purposes, it offers a paradigmatic example of an evidentiary-argumentative approach. It mounts an argument, drawing on scientific evidence, designed to persuade audiences that this globally pervasive environmental problem is real, with potentially disastrous consequences for the planet as well as for human societies. *An Inconvenient Truth* anchors this argument in the personal authority and "conversion" narrative of former Vice-President Al Gore, an authoritative and charismatic figure (for his intended audience) who has been campaigning on climate change since the early 2000s. The documentary combines Gore's engaging live presentations with more reflective voiceovers in which he ruminates about his

personal experiences (his family and the moral choice they faced realizing that they had made their fortune selling tobacco) and the present threat to the future of the planet (the moral choice we face once we realise that it is our Western, industrialised way of life that is mostly responsible for anthropogenic climate change). In doing so, he narrates his embrace of environmental activism while also presenting accessible yet disturbing facts, graphs, and projections articulating the scientific consensus that climate change is real and therefore demands urgent political action.[3]

The story of Gore's gradual transformation from Presidential hopeful into committed climate change activist, touring the world delivering his famous global warming "slideshow", provides the framing narrative for the film. Indeed, the documentary is also a partial biopic, focusing on Gore's life and personality, his motivation for becoming an environmental activist committed to educating the public about climate change. Nonetheless, the film centres on Gore's absorbing slideshow presentation, bringing his rhetorical and political skills to the task of educating audiences about the need for action on climate change (in *An Inconvenient Sequel*, the focus shifts to Gore hosting Climate Leaders camps, educating members of the public across the globe to become local leaders in climate change activism). We return to the more personal narrative conclusion at the end of the film, surveying the welter of disturbing data pointing to a rapid escalation in greenhouse gas emissions coupled with rising sea and global temperatures over the past three decades. At the same time, the film focuses on Gore's quest to educate the public and lobby for change, as we see him reflecting thoughtfully on what we can do now and in the future. In these respects, *An Inconvenient Truth* sits squarely in the tradition of advocacy documentary, presented in an expository and personalised style, combining an authoritative anchor and sober presentational style with a more personal narrative

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3    This was the theme of *An Inconvenient Sequel: Truth to Power* (Cohen and Shenk 2017), which focuses on the behind-the-scenes negotiations at the United Nations' COP 2015 meeting in Paris where the Paris Agreement or Climate Accord was signed.

framing of the otherwise abstract yet compelling facts, designed to prompt involvement and social action.

As remarked, the overall public response to *An Inconvenient Truth* was strongly positive (it garnered an Academy Award along with widespread popular and critical success), and the film was credited for changing public perceptions of the climate change crisis. At the same time, it appears to be a case where popular success does not necessarily translate into lasting attitudinal change or political action. As is often noted concerning advocacy documentaries (for example, Michael Moore's *Fahrenheit 9/11*), there is always a risk of "preaching to the choir": the people most likely to watch and be persuaded by the film are those already sympathetic to its cause or point of view (Sachleben 2014, 25).[4] Much the same might be said of Gore's *An Inconvenient Truth*, which clearly appealed to those concerned with the problem of anthropogenic climate change, deepening and confirming their already established views.[5]

The documentary's sober, factual, and personality-centred approach has also been criticised as failing to engage those less aware of, or sceptical about, the problem of climate change. The sober presentation of factual evidence and statistical data, even if dramatized through the skilful use of computer graphics, is informative and pedagogical; but it may not be as emotionally engaging or rhetorically persuasive as other means of presentation (despite the framing of these slideshows by Gore's more personal history and conversion story). Is sober evidentiary argument enough to affectively engage audiences at a deeper, motivationally relevant level? Evidence suggests that, while argumentative-discursive documentaries such as *An Inconvenient Truth* can have an immediate or short-term effect on spectators' attitudes and behaviours, such changes are usually short-lived and do not tend to result in a longer-

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4    See Ingram's (2012) cognitivist discussion of the aesthetic assumptions brought to the study of ecocritical films, which frequently depend on the audience's prior disposition and training.

5    See Hughes (2014). There is evidence that *An Inconvenient Truth* may have generated a cognitive 'backfire effect', galvanising Democrat voters on the topic of climate change but hardening climate change scepticism on the part of conservative Republican voters; it may therefore have contributed to 'the polarisation American public opinion concerning climate change' (Stecula and Merkley 2017).

term transformation of attitudes or translate into political action or social activism (Janpol and Dilts 2015). The evidentiary-argumentative documentary can consolidate pre-existing views or standing beliefs but is less effective in prompting more substantial social change or ethical self-transformation. At the same time, it is important to acknowledge the role of popular documentary films such as *An Inconvenient Truth* in popularising and shifting environmental discourse by "translating the science of global warming into a cinematic vernacular" (Rust 2012, 7). Given these mixed results, what other strategies have filmmakers adopted not only to draw our attention to environmental devastation but also the need to take global as well as individual action?

### Koyaanisqatsi and The Qatsi Trilogy

A quite different tradition of documentary filmmaking, going back to the early days of revolutionary Soviet and modernist avant-garde traditions, utilises the aesthetic resources of the medium and adapts stylistic and cinematic techniques associated with cinematic modernism (Nichols 2016). Such works, often political in nature or motivated by social and ethical as well as aesthetic concerns, present a more aesthetically challenging mode of cinematic engagement than more traditional expository forms of documentary. To this tradition of "revolutionary" modernist documentary we should add the influence of American experimental and independent filmmaking from the 1960s and '70s, as well as the influence of music videos, typically associated with popular music but also boasting a more "experimental" cinematic lineage associated with counterculture movements (MacDonald 2012). These background traditions and influences are relevant for my second case study, *Koyaanisqatsi* as representative of the 'Qatsi' trilogy (*Koyaanisqatsi*, *Powaqqatsi*, and *Naqoyqatsi*) and a clear example of the poetico-aestheticist approach. Directed by Godfrey Reggio, with cinematography by Ron Fricke and musical scoring by Philip Glass, the Qatsi trilogy all but established a contemporary subgenre of symphonic

tone poem documentary. These films are characterised by their choreographing of striking landscapes, urbanscapes, and human 'portraiture' imagery with carefully sequenced and composed musical accompaniment to create a cinematic tone poem that indirectly evokes environmental, ecological, and spiritualist-religious themes in the service of an implicit critique of Western technological modernity (the most famous other examples of which are *Baraka* (1992), and *Samsara* (2011), both directed by *Koyaanisqatsi* cinematographer, Ron Fricke). Released in 1982, *Koyaanisqatsi* became a cult hit, watched by generations of students in small independent cinemas or college campuses. It soon earned the reputation of a being a unique, even psychedelic "trip movie," albeit one also criticised for its aestheticism, romanticism, orientalism, and sentimentalism (Canby 1982; Ebert 1983).

The film's title, *Koyaanisqatsi* (a Hopi word meaning "life out of balance," "life in turmoil" or "life in chaos"), provides a framing reference for the images to follow. The opening title sequence commences with a shot of Native American cave wall paintings featuring mysterious humanoid figures. This is followed by slow-motion images of erupting fire, the thrusting flames of the Saturn V rocket engines during take-off, accompanied by the deep droning vocal chant ('Koyaanisqatsi') and Glass's melancholy circular organ arpeggio. A long slow series of aerial desert landscape shots then follows (ravines, desert ranges, buttes), creating an austere, sombre, but sublime sense of the landscape independent of human habitation. This arresting "inhuman" landscape sequence is interrupted by shots of mining operations, explosions, culminating in the first of a recurring series of images of atomic bomb tests in the Nevada desert. The defining contrast between inhuman natural landscapes and human technological intervention and social transformation is established in a series of distinct variations as the film unfolds (and anticipates similar footage in *Anthropocene*).

We could divide *Koyaanisqatsi* into a series of visual thematic movements (in the musical sense) following this opening sequence. The second movement thematises technology and its transformation of the world along with its destructive power, from modern factories and buildings to jet aeroplanes, cars and freeways, tanks and military formations, jet fighters, culminating with a shot of the atomic bomb blast and military aerial bomb attacks. The next movement turns to architecture and modes of dwelling, emphasising the urban landscape of the city. It focuses initially on poorer and disadvantaged neighbourhoods, derelict buildings and abandoned housing projects, as well as the destruction of buildings, cranes, and bridges. Shots of cityscapes return at the end of this sequence, walls of glass calmly reflecting scudding clouds, the skyscrapers reintroducing a sense of austere grandeur.

The film shifts focus then to the human dimension of this technological urbanised world. It shows commuters in vast throngs entering and leaving subway and railway stations, the stock market frenzy during trading, and contrasts this frenetic pace of life with slow-motion images of urban crowds, some of whom stop and gaze silently at the camera or feature in almost portrait-like poses (a fighter pilot, women working in a casino). Shots of skyscrapers and city traffic at night are contrasted with the rising moon. This is followed by the much-imitated time-lapse fast-motion shots of traffic at night, a mesmerising patterning of pulsing lines of lights. These sequences are set to a different musical movement in the Philip Glass soundtrack, with accelerated tempo and repetitive fast arpeggio sequences that synchronise perfectly with the rhythm of the images.

A shot of Grand Central Station reiterates the transport and technology motif. We see urban train commuters rushing in peak hour from platform to platform, across open spaces, up and down escalators, traversing electronic checkpoints, suggesting that they are themselves integral components of the urban technological system of mobility. Mechanistic processes of automated production are interspersed with shots of urban commuter flows; the parallels between working commuters and sausages

packed for consumption on a conveyer belt are suggested through audio-visual patterning. These fast-motion sequences of highways, traffic queues, and urban flows, juxtaposed with images of the mass production of consumer goods, and shoppers queueing at supermarket checkouts, are artfully set to Glass's insistent repetitive musical score. They suggest not only a vast, technologically organised impersonal system integrating human beings with technical devices, but also a throbbing, pulsating, vibrating organism with an inhuman, artificial life of its own.

These shots of technologically mediated circuits of movement, integrating commuters as components of a vast urban transport network, recall what Heidegger described as a defining of modernity, namely technological "enframing" or *das Gestell*; the systematic ordering of natural resources, social structures, and human beings made available as resources to be integrated into automated, self-reproducing technological systems (see Sinnerbrink 2014). Although *Koyaanisqatsi* has been defined as a "new age" ecological documentary, its primary focus throughout (like *Powaqqatsi* and *Naqoyqatsi*) is on the role of *technology* in the modern world: its essential role in the transformation and possible destruction of both natural and human worlds, a nexus that has forever altered their interdependencies and fundamentally transformed our human ways of being-in-the-world.

*Koyaanisqatsi* offers viewers a cinematic aesthetic experience using image and musical sequencing, audio-visual patterns and rhythms, and the evocation of symbolic and abstract meanings. The film features sequences that foreground concrete urban and industrial locations as well as transport networks rendered strangely impersonal or generic, images of individuals, groups, and collectives, on the one hand, as impersonal bodies moving in abstract flows, and on the other, individuals as representatives of diverse social and cultural backgrounds and ethnicities. As an example of the poetico-aestheticist approach, it shows how documentary form need not be constrained by discursive framing or argumentative content. It shows how an

aesthetic use of the medium to create a sensuous, aesthetic, non-narrative poetic experience of affective engagement can also be a powerful means of suggesting ecological meaning, an aesthetic exhortation to experience our relationship to nature and the human world differently.

At the same time, this openness, ambiguity, and indeterminacy—the tendency of a poetico-aestheticist mode of documentary presentation towards indeterminate symbolic meanings—is also potentially a weakness. The overall "environmental" or "ecological" ethical meaning of the film is evident in a general sense but also rather vague or ambiguous. Are we to take the film as a critique of Western technological imperialism, or a generalised "humanistic" meditation on the role and impact of modern technology on human cultural forms of life across the globe? Does it present non-Western individuals and social communities as romanticised or exoticised "Others," precisely to stress the corruption, decadence, and alienation of Western technologized ways of being? Does it urge a deep ecological shift in worldview, inspired by the prophetic wisdom of the Hopi Indians, whose metaphysical worldviews unite the trilogy? Or are the latter used instrumentally, in an ethically dubious manner, to motivate a technologically sophisticated but performatively contradictory critique of the dehumanising effects of Western technology?

We can pose these critical questions precisely because of the Qatsi films' poetico-aesthetic mode of presentation: its refusal of more traditional expository documentary framing and argumentation in favour of a cinematically experimental, aesthetic critique that prompts affective engagement and moral reflection but at the expense of critical discourse or discursive argumentation. We might be powerfully moved by *Koyaanisqatsi* as an aesthetic experience, while remaining morally or politically uncommitted in our responses thanks to its ambiguous poetico-aestheticist vision of technological modernity.[6] This leaves us with a question: how can the

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6    See Ingram (2012) for a similar critical account of the limitations of experimental documentary relying on aesthetic means of persuasion.

affective power of an experimental approach be synthesised with a more concrete and directed argumentative-discursive approach?

## Anthropocene – The Human Epoch

The award-winning documentary *Anthropocene: The Human Epoch*, by Jennifer Baichwal, Edward Burtynsky, and Nicholas de Pencier is the third in a trilogy including *Manufactured Landscapes* (2006), and *Watermark* (2013). They are part of an ambitious multimedia project – *The Anthropocene Project* - including 'a touring multi-media art exhibition encompassing several dozen large-scale photographs, several videos, a set of augmented reality (AR) installations, and interactive, educational tableaux; a feature-length documentary film; two books; and an extensive web site' (Ivakhiv 2020, 498). All three films deal with anthropogenic transformations of landscape and social dependencies on these transformed environments, the inhuman scale of modern technology, transformations of work and modes of dwelling, and the impact of anthropogenic activity on climate systems, diverse populations, and biodiversity. The film draws on the work of the Anthropocene Working Group, an international group of scientists who have been arguing that humanity has recently entered a new epoch in the Earth's 4.5-billion-year geological history—the Anthropocene or human age—since the Holocene began with the end of the last ice age approximately 11700 years ago. Although still contested, the idea that the accumulated effects of human activity now impact upon the Earth in ways that have begun to register in the geological record as well as affecting complex biospheric systems (such as greenhouse gas concentrations, ocean temperatures, and global climate systems) has become more widely accepted in the scientific community and has gained currency in social, ecological and political domains (although the term itself, if not the phenomenon, remains hotly contested).[7]

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7    As remarked above, the claim that we have recently (since the early 1950s) entered a new geological epoch - the 'Anthropocene' - was rejected by the IUGS but they noted that the term remains important and continues to have currency as a way of designating the vast impact human beings continue to have on our planet and its biosphere.

The challenge the film sets itself is how to depict the complexity, magnitude, and abstract character of the Anthropocene in ways that are arresting, intelligible, and ethically meaningful. Indeed, the notion of the Anthropocene, much like 'climate change', recalls Timothy Morton's (2010) concept of "hyper-objects": objects or phenomena so massively distributed in time and space that they confound conventional forms of representation.[8] The challenge is how to articulate the notion of the Anthropocene in audio-visual form while providing enough conceptual framing and factual detail to make what we see intelligible and ethico-politically meaningful. Given the grounding of the documentary in the work of the Anthropocene Working Group, and the foregrounding of both direct environmental threats (species extinction) and societal impacts (pollution, technological transformation, and social dislocation), the film also clearly aims to motivate action in response to the environmental threats and societal impacts of anthropogenic processes associated with the Anthropocene.

The film opens with a mesmerising image of fire, a chaotic conflagration, followed by calming images of rock formations, regular yet jagged channels cut by water, shot from above. A female narrator (Alicia Vikander) intones: "The Earth is 4.5 billion years old, and its history is recorded in the rocks." Since 2009, she recounts, a group of scientists have been investigating whether we have left the 12000-year-old Holocene and now entered the Anthropocene: an epoch in which human activity now affects the planet and its systems more than all other natural processes combined. The challenge of representing this idea, confounding in its magnitude, is met by bringing together massive scale and singular instances, a 'dialectic of scale and details', as Jennifer Baichwal remarks. The film evokes the vast global processes associated with the Anthropocene but does so via individual audio-visual "case studies" exemplifying key processes and their impact on diverse social communities that

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8    Morton's "hyperobject" also recalls the idea of the sublime in aesthetics, namely phenomena or ideas that similarly defy the limits of imagination and sensuous representation.

present a more comprehensive and aesthetically charged "cognitive mapping" of what living in the Anthropocene means across different parts of the globe.

The abstract images of fire are revealed to be part of an event marking the Kenyan government's banning of ivory poaching and black-market international ivory exports. Amidst shocking images of tonnes of elephant tusks being assembled for a symbolic bonfire in the Nairobi National Park, we see a Kenyan activist, composed yet enraged, who remarks: "I may not have been able to stop this elephant being killed, but I can certainly stop it from being further desecrated." This prologue sequence featuring fire, rock, water, and elephant tusks, with anonymous individuals representing the opposing forces of exploitation and conservation, serves as a metaphor for the film itself—its combination of poetico-aestheticist and evidentiary-argumentative perspectives constituting a "hybrid" presentation of the Anthropocene's overwhelming and destructive effects. It also situates or frames the discourse of the Anthropocene in relation to (colonialist) exploitation, species extinction, the need for activist intervention and political responses, not to mention the role of global capitalist consumption, in this case of (luxury) goods designed for tourism and conspicuous display.

### Extraction

The film is organised via a series of concepts or categories taken from the Anthropocene Working Group, paired with audio-visual "case study" explorations of distinct locations and processes of technological intervention in the geological and biospheric environment. The images carry the depiction of each location and process, accompanied by brief reflections on the significance of each category. The first concept, *extraction*, refers to the vast technological and industrialised processes dedicated to extracting materials from the Earth and transforming them into energy sources, processed materials, and manufactured goods for global export. The

presentation of this category, however, not only focuses on the overwhelming scale and impact of these processes of extraction, but also shows the people, communities, and social disruption, bound up with these Anthropocenic processes, which provide the foundation for industrialised forms of life that cut across national borders, economic and ideological boundaries.

Three examples illustrate the Anthropocenic processes of extraction: the first is the town of Norilsk, in Siberia, Russia, which features the largest heavy metal smelting complex in the world as well as having the dubious distinction of being the most polluted city in Russia. The shots of sunbathers by a polluted river, vast production processes with lava-like flows of molten metal, children riding their bicycles amidst abandoned slagheaps, the townsfolk celebrating company day with festivals of music and displays of giant mining trucks, conjure up the vast scale of mining and smelting operations occurring in this town. At the same time, they show its inhabitants, the township and the natural surrounds, as though these were all synthetic projections or appendages of these processes of extraction and production.

Another case study example, presenting almost sublime images of glowing marble being hewn from a mountainside, is located in Carrara, Italy, where one miner links the current industrial-scale extraction of marble to what the Romans did millennia ago. The image of a giant mining truck struggling like an ant attempting to move an outsize marble monolith offers a powerful image of the human-technological effort to force nature to yield its material resources for human use and economic consumption. The subsequent sequence of an army of focused artisans at work in a sterile atelier carving and polishing facsimile statues of Michelangelo's David reiterates this mythological–ideological narrative through images that are concrete and ironic at once.

Striking abstract images of richly coloured lakes and reservoirs incongruously located in orderly arrays in the Atacama Desert, Chile, introduce the next segment on lithium production. The images are serene, almost surreal in their vibrant beauty, yet

disturbing and incongruous for one of the driest places on the planet. A proud engineer explains the process, and the active contribution his company is making to supplying lithium, a mineral in demand globally for producing electric vehicle batteries. The gently lapping, luridly green water is both calming and alarming, as technicians in a rowboat quietly take depth measurements. This relaxing interlude gives way to frenetic images from the GM Lithium Battery Assembly Plant, in Michigan, where Chilean Lithium is used for the large-scale American manufacture of batteries. The link between desert, water, minerals, and global factory production is deftly made in ways that link the 'toxic sublimity' of the Atacama Desert pools to the production of lithium batteries powering so many contemporary global technological devices.

## Terraforming

A good example of the way in which *Anthropocene* uses arresting audio-visual imagery in conjunction with succinct voiceover is the segment on "Terraforming": the act of altering the Earth's surface for human needs. Humans, we are told, now dominate over 75% of ice-free land because of mining, agriculture, industrialisation, and urban growth—a statistic that is difficult to represent or to conceptualise. To that end, the film focuses on the village of Immerath, Germany, adjacent to one of the largest pit mines in Europe (Tagebau Garzweiler), where the largest earth-mining machine in the world is being used to draw vast amounts of material from the mine, utterly transforming the local landscape in doing so. Sublime images of a mist-shrouded valley, broken by the upper elements of a vast mechanical device, rise like man-made mountain peaks. This remarkable image—recalling a perverse German romantic landscape painting—introduces us to the mine site, a devastated landscape that has not only reshaped the local geography but required three villages to be moved to alternative locations. The vastness of the quarry site and monstrous character of the

excavating technology recall Heidegger's account of the 'gigantism' of modern technics, the simultaneous vastness and smallness of technological processes of world-disclosure that defy the limits of representation (1977, 135). The vast size of the machinery and of the mining processes stand in stark contrast to the frustrated residents in adjoining villages. The latter are being slowly forced from their homes as all the surrounding buildings are razed to the ground. The locals' helplessness as both natural and social environments are destroyed, dislocated, and transformed offers a powerful image of how acts of terraforming not only reshape the landscape but dislocate people and disrupt ways of life.

A subsequent vignette, showing rapid urbanisation in Lagos, Nigeria, which has grown from a population of 200,000 to 20 million in two generations, underlines how environmental destruction, especially in poorer countries, is driven by industrialisation, globalisation, and population growth. As the narrator remarks, the world's population could reach 10 billion by 2050 (we reached 8 billion in November 2022), with most people migrating to, or living within, large urban centres—a remarkable fact accompanied by a rapid montage sequence of *Koyaanisqatsi*-like satellite images of massive urban centres from across the globe, suggesting that, despite obvious differences in wealth, power, and industrialisation, intensive urbanisation is itself a major factor in terraforming as a process that cuts across national, economic, and ideological divides. The pointed contrasts between abstract imagery and concrete detail, massive scale and local cases, individual social impact and massive geological and environmental change, vividly demonstrate the overwhelming dimensions of the Anthropocene while framing it via scientific concepts, environmental contexts, and social parameters. The result is both to arrest and instruct, overwhelm and guide the viewer: the film thus attempts to steer a course between the abstract lyricism and indeterminate meanings of the aesthetic-poetic approach, and the sober pedagogy and factually based didacticism of the discursive-argumentative approach.

## Technofossils

Another powerful example of this "hybrid" approach is the segment on "Technofossils": human created objects (such as plastics, concrete, and aluminium) that persist in the biosphere and eventually end up in the rock layers of the earth. In perhaps the most shocking but memorable sequence of the film—the Dandora Landfill site in Nairobi, the biggest dumpsite in Kenya—we see images of an eerie "manufactured landscape" composed of hills of rubbish and multi-coloured landfill, populated by avid fossickers and desultory vultures, foraging among the undulating quagmire of putrefying rubbish and toxic debris. As the voiceover explains, a quarter of a million people live in or around the Dandora landfill site, while 6000 people mine and work its grounds every day. The extraordinary images of this appalling "ecology" of human beings, animals, technology, and waste products frame the narrated fact that the "Technosphere" (the entire aggregate of human created or altered material on the planet) is estimated at a staggering 30 trillion tonnes. The sheer magnitude of this figure, almost impossible to visualise or represent in concrete terms, gains awful specificity and tangibility with the distressing images of people living and working in the altered "trashscape" of Dandora—a mountainous reservoir of contemporary waste products that will be preserved as the technofossils of the future.

## Anthroturbation and Climate Change

From technological marvels like Gotthard Base Tunnel, in the Swiss Alps, which at 57 km is the longest railway tunnel in the world, to a converted London air raid shelter now being used as a controlled plant cultivation facility, *Anthropocene* also includes intriguing examples of human interventions in the environment ("Anthroturbation" as the disturbance of the Earth's soil and/or crust by human activity) that are not as destructive or unsustainable in the ways that habitat destruction and environmental

degradation plainly are. At the same time, the "anthroturbacious" effects of global industrialised agriculture, for example, result in practices that have pushed the natural environment to its limits ("Boundary Limits"). A featured example is the mining for nitrogen, phosphate and potash, which are all used in the production of fertilisers. Delicately patterned, multi-coloured layers of dazzling minerals—images taken from within the Berezniki Potash Mine in the Ural Mountains but also aerial shots of vast plains of salt mineral land surfaces marking Phosphate mines in Florida—provide an arresting backdrop for the disturbing fact that Nitrogen and Phosphorus levels in soils across the globe have doubled in the last century.

The film moves on to show a vast network of Oil Refineries in Houston, Texas, a potent symbol of the petrochemical industry and our continued reliance on fossil fuels, as a way of transitioning to the segment on Climate Change. We are told that $CO_2$ levels in the atmosphere are higher than at any other time in the past 66 million years, a condition that has put our climate system into an unprecedented state of instability and uncertainty. The now familiar patterns and impacts associated with climate change—unstable global temperatures, extreme weather events, sea level rise, and ocean acidification—are illustrated via three disparate examples: the Gudong Seawall, China, built to protect oil production over the past two decades and requiring increasing fortification as sea levels continue to rise; recurring flooding in Venice, Italy, with extraordinary images of tourists walking the flooded squares, chefs and workers in flooded restaurants; and coral reef bleaching on Batu Bolong Reef, in Penang, Indonesia, where the effects of ocean warming and acidification which cause widespread coral bleaching could eliminate coral reefs by the end of the twenty-first century.

### Extinction

The film's final section, "Extinction," focuses on this summative category as a way of summarizing and concluding its critical itinerary exploring the multidimensional

parameters of the Anthropocene. We see slow-motion images of Sumatran tigers pacing in their enclosure within London Zoo, accompanied by a musical score, here and throughout, that is melancholy and unobtrusive (unlike *Koyaanisqatsi*, the musical accompaniment never structures or dominates the montage of images). The abbreviated list of endangered species preserved in the Zoo is shocking: the Sumatran tiger, Northern white-headed Gibbon, Okapi, Pere David's Deer, Scimitar-horned Oryx, Egyptian Tortoise, Mountain Chicken Frog, Axolotl, and Northern White Rhino. The discursive logic and narrative arc of the film—from extraction, terraforming, anthroturbation, technofossils, boundary limits, and climate change, to extinction—tell a dire story but in ways that are not only aesthetically powerful but also intellectually cogent and ethically confronting.

The film returns to Kenya, the Ol Pejeta Conservancy, where armed guards patrol a protected area, guarding rhinos and elephants against poachers. "We are protecting wildlife," one of them explains, "but at the same time we also feel like we are the enemies because humans are the poachers." This brief vignette encapsulates the ambivalent position of the film itself: an audio-visual and technological mode of intervention that itself expresses and contributes to the Anthropocene, while at the same time offering a means to both document and, perhaps, help ameliorate or reverse its effects. The idea of extinction—the logical end point of the narrative of the Anthropocene—is presented as the culmination of all the other segments and case studies we have witnessed. The Earth has had five major extinctions, the narrator explains, and we are now in the middle of the sixth, this time because of human impact. The Anthropocenic character of the sixth extinction is evident in the extraordinary rate at which it is occurring (over 10,000 times higher than natural rates) and the causes behind this catastrophic event (habitat loss, poaching, pollution, climate change and over-hunting). The very technology that made human beings such

a dominant force now appears to be the source not only of our own undoing but an existential threat to life on the planet itself.

The link between extracted materials, animal products and human artistry is painful and ironic. As with the earlier images of artisans carving statues from Carrara marble, we see ivory carvings, sought after by collectors frequenting the "Prestige Crafts" showroom in Hong Kong, that are now being made with Mammoth tusk, stored in glaciers and permafrost, since the banning of the ivory trade. The prehistoric link to Siberian mammoth tusks returns us to contemporary Kenya and the ivory tusk bonfire, organised by the "Hands Off our Elephants" activist group and the Kenyan Government. Destroying this ivory, as one activist puts it, is an act of preserving our natural heritage, but Kenya's decision must be backed by global support. "Let's kill this trade; the opposite is unimaginable," she says, as we see images of an appalling bonfire of the vanities consuming tonnes of elephant tusks.

The voiceover narration reiterates the film's starting point: "The Earth is 4.5 billion years old and its history can be read in the rocks," as we return to the opening stratigraphic rock striation images, opening out to a peaceful beachside scene. "Modern human civilisation has developed within just 10,000 years," she explains, "yet our success as a species has tipped the planet outside of its natural limits." *Anthropocene*'s final comment is confronting yet hopeful:

> We are all implicated; some far more profoundly than others. But the tenacity and ingenuity that helped us thrive can also help up us to pull these systems back to a safe place for all life on Earth. Recognising and reimagining our dominant signal is the beginning of change.

This voiceover concludes with images of fire, burning tusks, and the night sky. The human "dominant signal" has become a violent and destructive reshaping of the Earth in our own image, now distorted beyond all recognition, damaging the Earth's surface, material and natural resources, wildlife, habitat, and ecosystems in ways that threaten to become irreversibly catastrophic. *Anthropocene* therefore ends with a powerful yet

poignant reminder of the need to recognise what the world is facing—hence the Anthropocene Working Group's bid to have the Anthropocene epoch formally recognised in the Geological Time Scale (GTS) —and to confront and reverse the Anthropocenic processes threatening life itself on the planet.

Having articulated both the massive scale of the Anthropocene and the localised effects of its unfolding across the globe, the film returns to the human scale, the social reality of our shared world, with an ethical reorientation towards what can be done. Throughout *Anthropocene*, visually arresting and powerful images are put in the service of the argument, while the contextual framing of these images allows their aesthetic force to both illustrate and persuade; the role of music is to set and supplement the mood, to create aesthetic conditions conducive to reception and understanding via emotional and imaginative orientation; the voiceover narration and contextual framing remain succinct and poignant, factual but rhetorically powerful in their moral and political implications. The individuals appearing in the film are allowed to narrate their own perspective, without thereby overdetermining the meaning of these images or leaving indeterminate their ecological and ethico-political significance. At the same time, the ambiguous sublimity and imaginative power of the images the film encourage an aesthetic and ethical mode of attentiveness that, as some critics argue, could contribute to cultivating "a *disposition* to appreciate nature" (Hjort 2014, 204) necessary for motivating ecological intervention and social change. At the same time, the disturbing character of these images also aims to solicit a critical response, to provoke critical reflection on the interconnected dimensions of the Anthropocene – natural, technological, social, economic, and political – that we need to recognise in order to respond to these challenges that are at once global and local in scale.

It may be, as some critics maintain, that the film errs in emphasising the 'toxic sublimity' of these images of vast anthropogenic impact upon the earth's ecosystems

at the expense of concrete geopolitical contextualisation; or that it is not didactic enough in identifying the specific causal agents or the social, historical, and economic processes (Western colonialism, industrialised capitalism, neoliberal globalisation, etc.) responsible for these ecological catastrophes. Although these are valid points, I would suggest, rather, that *Anthropocene* strives to strike a balance between aesthetic-poetic imagery framed by discursive-argumentative narration in order to represent and communicate the vast interlocking processes characterising the Anthropocene in ways that are both intelligible and disturbing, that treat the ambiguity of technology as an opportunity for ethical intervention and social change. As an exemplary instance of poetico-discursive ecocinema, it invites us to dwell with the overwhelming scale of inhuman technological and natural forces we are confronting (the 'gigantism' of modern technology) but also enables us to get their scientific and conceptual measure so that we can ethically address the social, technological, and ecological challenges they now present.

After the Anthropocene?

The documentary *Anthropocene* aimed to contribute to the Anthropocene Working Group's (AWG's) campaign to have the term officially recognised by the International Union of Geological Sciences (IUGS) as designating a geological epoch (a new stratigraphic unit). The AWG comprised not only geoscientists but other researchers from many disciplines (geography, ecology, archaeology, and the humanities). Baichwal, Burtynsky, and de Pencier's documentary therefore adopted what I am calling a hybrid poetico-discursive approach to capture the complexity of the Anthropocene – as a condition or event and as a concept – via images and voiceover that combined aesthetic presentation with conceptual framing and discursive explication. The aim of the film was to articulate the case for recognising the Anthropocene in ways that would both captivate and engage, motivate and persuade

its intended audiences- and thereby provide a valuable contribution to the official recognition of the Anthropocene as a legitimate scientific category.

After fifteen years of deliberation and debate, however, the term Anthropocene was finally rejected by the IUGS as designating a new geological epoch defined by the impact of human activity on the geological record and associated meteorological effects of global climate change (Carrington 2024). The report submitted by the AWG proposed that the Anthropocene should be recognised as a new chronostratigraphic unit or 'series/epoch status' beginning in the 20th century (more specifically, in the 1950s, when the evidence of atomic nuclear tests first appears in the geological record) (IUGS 2024). This period was selected (rather than the Industrial Revolution commencing in the 18th century) because it displayed a greater range and density of proxy indicators marking a significant increase in human impact on the planet (the 'Great Acceleration'); that these changes should be underpinned by a 'Global Stratotype Section and Point (GSSP)', a geological marker in the rock strata indicating the commencement of this geological unit.

Although the term enjoys wide currency, it has also attracted a good deal of criticism. For one thing, anthropogenic effects on the Earth's environmental and climate systems predates the proposed mid-century date by centuries (from the rise of early agriculture, the industrial revolution in Western Europe, colonisation of the Americas, and so on), which would suggest that the Anthropocene would have deeper geological roots than the last seventy-five years. Some geoscientists were uncomfortable with accepting a new stratigraphic unit that ends the Holocene but extends to barely the length of a human lifespan; the Anthropocene remains sharply at odds with most other units within the Geological Time Scale (GTS) which span thousands or even millions of years. Moreover, the asynchronous, spatially and temporally variable character of the Anthropocene (which shows different impacts across different times within different locations) means that it is difficult to specify a

single temporal marker indicating an 'isochronous horizon' marking the onset of the epoch. For these reasons, one suggestion was that the Anthropocene should be regarded not as an epoch but as *an event*, 'similar to the great transformative events in Earth history such as the Great Oxygenation (2.4-2.1 billion years ago), the Cambrian Explosion, or the Great Ordovician Biodiversification events' (IUGS). Since these major transformative events are not represented as chronostratigraphic units, it was deemed that there was no reason to formally ratify the Anthropocene as marking a new geological epoch, but that it could nonetheless be considered 'as an informal, non-stratigraphic term'. The final vote by the Subcommittee on Quaternary Stratigraphy (SQS) concluded that the Anthropocene proposal should be rejected but it did recognise that the Anthropocene Working Group had made an important contribution by documenting a wide body of data on the human impacts on global systems. They pointed to the importance of the Anthropocene as 'an invaluable descriptor in human-environment interactions' that will 'continue to be widely used not only by Earth and environmental scientists, but also by social scientists, politicians, and economists, as well as by the public at large' (IUGS) and that it could play a useful role in 'future discussions of the anthropogenic impacts on Earth's climatic and environmental systems' (IUGS).

This decision, however, was clearly a blow for the environmental and political movement that wanted to argue for the scientific recognition of the concept of Anthropocene in the hope that this would prove effective in mobilising political and social change. The more our negative impact on the planet is recognised via a legitimate scientific concept, so the argument went, the more likely governments internationally might be persuaded to act on a global scale. The failure of the Anthropocene proposal could thus be seen as casting a shadow on the documentary *Anthropocene* as well, which argues persuasively – using poetico-aesthetic and conceptual-discursive means – that we have entered a disturbing condition which

demands not only a fundamental reorientation of our relationship with our environment and natural resources but with the planetary biosphere more generally.

I would argue, however, that the failure of the Anthropocene proposal only makes it all the more urgent to find poetico-discursive means to persuade and motivate the general public, governments, and industry as to the necessity of responding to the dire environmental effects of excessive anthropogenic activity. A documentary that relied entirely on the scientific evidence or empirically grounded claims concerning the Anthropocene would be left in abeyance by the scientific rejection of the term (although it remains, as the IUGS noted, an important concept that will be continued to be used informally). If, on the other hand, *Anthropocene* were a more purely poetico-aesthetic type of documentary, it would lack the resources to represent or articulate the scale and complexity of the Anthropocene in ways that would persuasively promote the concept as a scientifically recognised way of intervening in ecological, social, and political debates. Indeed, the rejection of the Anthropocene proposal, at least on narrow scientific grounds - that the concept remains too difficult to define chronologically, that its brevity as spanning 'less than a human lifetime' makes it incongruous with other geological epochs, that it leaves open the precise nature of the anthropogenic activity and industrial processes responsible for both geological and biospheric impacts – presents us with a challenge: to find ways of representing and communicating the Anthropocene via cinematic means despite its complexity, ambiguity, and difficulty. Indeed, we need to emphasise, via imaginative, poetic, and conceptual-discursive means, the scale and complexity of what we are experiencing across the globe today in ways that do not alienate or overwhelm but rather educate and motivate the public. For these reasons, the 'failure' of the Anthropocene proposal makes the complex aesthetic, cinematic, and ethical work of documentarians like Baichwal, Burtynsky, and de Pencier more urgent than ever.

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