

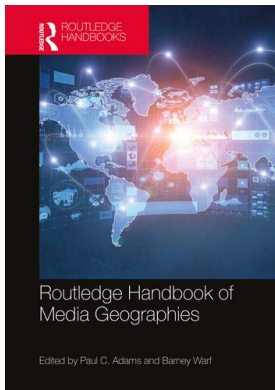
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### **Media, biomes and environmental issues**

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# MEDIA, BIOMES AND ENVIRONMENTAL ISSUES

*Hunter Vaughan*

Though debated due to its flexible and wide usage as a conceptual paradigm, notions of the “social construction of nature” (Castree & Braun 1998; Proctor 1998; Demerit 2002) have become central to cultural studies and social science debates surrounding the environment and constitutive ways in which cultural practices position humanity within the natural world. Understandably because of its wide-reaching influence over cultural values and its multi-layered capacity for ideological messaging, popular screen culture has integrated this constructionist angle into the understanding and analysis of how films, television shows, streaming media and social media shape not only our environmental values and discourses, but the material environment itself. In these pages, and with aims of dismantling the nature/culture binary and pointing towards horizons of our digital media culture, I look at a range of environmental effects of primarily US screen media history and practice, from ways in which media practices impact specific biomes to how film and media industry history and textual tactics coincide with the perception of—and action surrounding—environmental issues.

Early ecocritical scholarship (Brereton 2004; Ingram 2004; Cubitt 2005) in film and media was heavily focused on issues of representation, aesthetics and narrativity. These studies surveyed ways in which popular film and television reaffirmed 20th century anthropocentric cultural values, laying out landscapes through aerial cinematography and piercing ocean depth through digital submersibles as the planet unfolded to the colonizing gaze of the visual consumer. Recent developments in ecocritical media studies and geography, which find overlapping interest in issues of technological infrastructure and social justice, have emerged according to a disciplinary terrain increasingly bridged between environmental humanities and social sciences. That the hierarchical order of empire—according to which Western, white, heteronormative men with capital stand atop a world order driven by exploitation, violence, slavery and biopower—was both reflected in and challenged by 21st century developments in globalization and analysis of transnational flows (Gustafsson & Kaapa 2013) has made clear the larger shared interests between environmental media studies and geography, as has a more material and geopolitical turn in environmental media studies (see Maxwell & Miller 2012; Bozak 2013; Cubitt 2016; Vaughan 2019).

Themes connecting climate change and environmental injustice to histories of global inequality have become not only apparent but central to the works of geographers such as Jennifer Gabrys and Kathryn Yusoff. Gabrys (2013) targets the layers of technological media

waste (or “digital rubbish”) being generated by the era of electrical cultural practices, whereas Yousoff (2019) traces the reframing of geology as an object of study through many centuries of the violent displacement of Black and Brown peoples. Through very different lenses, both geographers ultimately relate back to a material notion of human, ecosystemic and resource rearrangement in ways that greatly benefit the horizon of environmental media studies. In this chapter, I offer a historical perspective on ways in which the social politics and global inequities of late colonialism and early globalization have been linked to the construction of a technological media infrastructure that has snaked the ocean floors with fiber optic cable, decorated landscapes with cell towers, and enshrouded the atmosphere in orbiting satellites. Today’s digital culture results from mining the earth’s organs for precious metals and penetrating its core to keep pace with rising energy dependency, and results in local and global distributions of toxic waste that profit the few while disproportionately endangering the many according to boundary lines based on race, gender and class. The potential global audience of this new and supposedly immaterial format for cultural distribution is not maintained via the beaming of mere signals on the ether or numbers in the cloud, but is carved from the disruption of geological layers and ecosystems, and deepened structures of human inequity.

Nonetheless, our burgeoning digital media apparatus has also provided for new horizons of spatial mapping, climate science and environmental interventions. LiDAR and other forms of remote sensing offer data gathering deep in glaciers, drones self-immolate in the rings of Saturn after beaming back images of a potential habitat for life elsewhere in the solar system, and submersible cameras peruse the ocean abyss. Meanwhile, our immediate surroundings and environments are increasingly controlled through machine-to-machine environmental sensing technologies (Gabrys 2015), and recent announcements by New York Governor Andrew Cuomo indicate that in the wake of the COVID-19 pandemic tech companies like Google will be entrusted to convert city recovery into the building of “smart cities” where data and surveillance allegedly make human existence more efficient. CGI-based data visualization and simulation has merged climate science and communication with animation, as infographics and short-form video replace prose and cinema as the predominant popular forms of communication. Meanwhile, traditional screen industry mechanisms like the star system adapt to shifting environmental values, with screen celebrities emerging as eco-warriors amidst a “post-political” era (Hammond 2017) where politicians emulate movie stars and the public sphere is replaced by the identity constructivism of social media.

In this chapter I map the connections between media practice, environmental issues and the geographical spaces of particular biomes, following a mostly chronological framework so as to situate visual culture and industry practices within the shifting forces of geopolitics and cultural norms and values. In doing so, I introduce a range of factors that shape screen industry practices, and offer a genealogy to the material impact of today’s media apparatus.

### **Early**

Derived in equal parts from entertainment and from science at the end of the 1800s, moving-image technologies were shaped by the industrial modernity of assembly-line consumer capitalism and the worldview of post-Enlightenment imperialism. Extending the 19th century’s proliferation of image culture, through which colonial enterprise and racist social hierarchies had used mechanically reproduced images of advertising and tourism to package the world as something to be consumed through the eyes (Gunning 1989), cinema promised a more complete perceptual version of global tourism. Early ethnographic films such as

Robert Flaherty's *Nanook of the North* (1922) integrated Western cartography into direct filming of exoticized spaces and peoples (in this case the Inuit of Canada), bringing the global Other to the doorstep of urban American audiences. That Flaherty arrived in Canada prospecting for exploitable natural resources on behalf of his father's iron ore venture, and that the Inuit people had ceased to practice many of the cultural rituals he hoped to salvage on film, thereby prompting him to hire an Inuit actor to recreate them, were not part of the film's original narrative. This "narrative documentary," as it came to be the model for, was a noble savage construction placing the cultural Other as an index of a rough and uncivilized wilderness.

This two-pronged dichotomy (white Western filmmaker in control of image meaning, people of color framed through documentary codes of truth in the visual world as part of a wilder and separate nature), became the standard for early nature films such as *Simba* (1928) and the other films made by Martin and Osa Johnson in Africa (see Mitman & Cronon 1999, 5–35). As has been argued by cultural theorists (Said 1978; Hall 1997), image culture has been central to the "spectacle of the Other" (Hall 1997) crafted as a cultural corollary to the raced and gendered inequalities institutionalized through centuries of market capitalism, labor exploitation and military occupation. The connection between local and global social inequalities, founded in philosophical worldviews of the Scientific Revolution and instituted through the fossil fueling of armed expansionism, and the ongoing anthropogenic destruction of ecosystems and exploitation of natural resources, has increasingly been revealed and critiqued through feminist environmental histories (Merchant 1990) and decolonial cultural studies (Ghosh 2016). These connections must further be understood in relation to the geographical formations and industrial infrastructures that both shaped and were further shaped by the early cinema industry, which came into being amidst an urban boom facilitated by population shifts (in particular an influx of Eastern European immigration and the internal Great Migration of freed black southerners to northeastern industrial cities) and was inter-linked infrastructurally and industrially with increased electrification and the rise of automobile culture, all of which depended on the burgeoning flow of fossil fuels.

During the decade of the Nickelodeon (roughly 1905–1915), while cinema technology was monopolized by Thomas Edison's Motion Picture Patent Company, film studios' design and architecture was shaped by the necessity for sunlight, steady electricity and other resource dependencies. Meanwhile, picture houses were mainly the purview of big cities, where screened shorts offered a paradoxical blend of forced spatial assimilation and cultural representation to diverse and otherwise marginalized populations (Musser 1991). As such, early cinema played a crucial cultural role in hand-holding the transition of the US and many other countries from agricultural to industrial nations, a problematic country/city tension covered by centuries of British literature (see Williams 1973) and central to many early feature films such as the overtly racist *Broken Blossoms* (dir. D.W. Griffith 1919) and F.W. Murnau's idyllic 1928 *Sunrise*. This tension would remain prominent through the twentieth and into the 21st century, only growing more focused on anthropogenic disruptions of biomes in recent non-narrative films such as *Baraka* (dir. Ron Fricke 1992) and *Manufactured Landscapes* (dir. Jennifer Baichwal, 2006). The early 1900s were also a time of great westward expansion, and while the move to California was partially fueled by a desire to escape the monopolistic practices of Edison's MPPC and the pervasive anti-Semitism of grounded northeastern institutions, Hollywood histories of late (McKim 2013; Jacobson 2015) have framed the move out west as one largely of environmental incentives. A new portrait emerges of geographical and geological asymmetry, with the skyscraping shadows of east-coast industrialization fading behind those drawn by southern California's allure of open

spaces, long days with lots of sunlight and a diverse topographical concentration of desert, mountains and sea (McKim 2013, 51–52).

Despite a geographical shift, Hollywood built itself as both index and icon for capitalist modernity, perhaps best captured by the conveyor belt satire in Charlie Chaplin's wildly successful *Modern Times* (1936). With an assembly line manufacturing process, market-driven production, a sociopathic caste system promising unprecedented wealth to those at the top based on the exploitation of women and the suppression of people of color and other aspects of social difference, and an anthropocentric irresponsibility towards the raw materials and natural resources on which it depended, Hollywood was the ultimate manifestation of 20th century American capitalism. And, through specific genres such as the Western, mainstream screen culture managed to justify a violent past as a courageous myth of national origin (Bazin 2002 [1952]), to flatten out the problematic contradictions of an ideological system that would come to reign as neoliberalism (Wood 1989), and to foster popular perceptions of a value system (Schatz 1981) that included rampant environmental destruction. Meanwhile, far from the audience's eyes, an entire infrastructure of resource extraction and pollution was being laid across the nation to provide the material base for this culture of light and magic.

### **Classical**

The Classical Hollywood era, extending roughly from 1927 (when sound was introduced) to 1949 (when the anti-trust Paramount Decree signaled the breakup of the studios' vertical integration of production, distribution and exhibition), laid the foundation for the most prominent ways in which contemporary screen culture overlaps with the environment. This includes normativized hierarchies, laid out through narrative content and formal aesthetics, that position humans as superior and meant for mastery of natural resources, biomes and wildlife, extending this to social hierarchies of patriarchy, white supremacy and heteronormativity; production norms and practices based on excessive travel, ecosystem disruption, low efficiency energy use and high waste production; an infrastructural life cycle that promotes environmental degradation at the service of mining and manufacturing, generates toxic wastes and necessitates distribution streams from highways to cable installation to satellite signaling; and the star system as a conveyance mechanism for social influence.

This industry's crystallization introduced new local, national and global pathways that impacted transportation flows, public health and ecosystem stability, and the geopolitics of wartime alliances and postwar spoils. Eastman Kodak, which established its monopoly on the patent technology and practices of film stock production in the early 1920s, was not only the nation's second-largest consumer of pure silver bullion (after the US Mint), but was also a cavernous abyss for water use and pollution. The Kodak Park Plant in Rochester, New York was propped strategically alongside Lake Ontario, from which it drew more than 12 million gallons of water daily for the annual production of 200,000 miles of film stock during the 1920s (Maxwell & Miller 2012, 73). By the end of the 20th century, when it was responsible for 80% of the world's film supply, Kodak Park was using 35 to 53 million gallons of fresh water per day. After being siphoned off of Lake Ontario, the water was run through the plant's elaborate chemical rinsing process and then dumped into the Genesee River, which extends through Rochester and another 157 miles down through New York and into Pennsylvania. Not until the Clean Water Act of 1972 were American factories forced to collect the majority of their wastewater in treatment plants—by that point, Kodak's dumping of post-production chemicals into the groundwater of New York made it the primary source

of carcinogenic pathogens in the state, and Rochester was “ranked number one for overall releases of carcinogenic chemicals” from 1987 to 2000 (Maxwell & Miller 2012, 73).

In a more global geographical scale, the mainstream film industry proved crucial to the Good Neighbor Policy of the wartime era, an economic and cultural extension of banana republic-style imperialism focusing on trade relations with Latin America (which was seen as the US’s hemispheric partner and, conveniently, the only geographical region—and therefore export market—not engulfed in war from the end of the 1930s to the mid-1940s). However, due to decades of negative stereotyping, Hollywood had badly hurt cultural relations with Mexico as well as Central and South American nations, an image problem they sought to rehabilitate through a number of films starring Latinx cast members (often Carmen Miranda) and featuring what were meant to be more positive stereotypes surrounding Latinx contributions to the American way of life: leisure travel, coffee and fruit (in particular bananas).

Consequently, trade and tourism flourished along this route and helped extend Hollywood’s market while bolstering the long-rippling neocolonial economic imperialism of multinational corporations like the United Fruit Company. Across the Atlantic, a similar model was put into effect through the Marshall Plan, essentially trading postwar reconstruction support for opening European markets to American capitalism. This flow, powered by the technological wonders and financial profiteering of the military-industrial complex, saw a rise in output that was ideologically dubbed “prosperity” while being later understood scientifically as the “Great Acceleration” of climate change. Lastly, the expansion of the highway system and the flaring out of the suburbs in the 1950s gave rise to widescale pesticide use (the environmental and health consequences of which were documented and critiqued by Rachel Carson in her seminal 1962 *Silent Spring*) and the multiplex culture of New Hollywood; as “white flight” (or the relocation of higher income urban white populations to the suburbs) built a geography of racial segregation, movies became bigger, louder and costlier, with exhibition gimmicks like 3D and IMAX growing out of the seemingly infinite construction and manufacturing meant to meet (and to inspire) consumer growth.

Meanwhile, in conjunction with the rise of photojournalistic weeklies like *Life Magazine* and the introduction of television, the postwar advertising industry reshaped consumer capitalism, promoting excess and conformity in the name of progress. Despite *Brown v. the Board of Education* desegregating American schools in 1954, and strong antiwar and women’s movements pushing progressive social values, conventions and clichés of social inequality were maintained through advertising codes, which coupled major consumer products like automobiles and fashion with the exoticization of people of color, the objectification of women, the celebration of heteronormativity and—in combination with these—the human domination of landscapes and resources (see Sturgeon 2008). With the expansion of the suburbs, the rise of television as a dominant screen format and the crystallization of hegemonic power through the filters of advertising, the postwar era laid the urban infrastructural groundwork, wired to a central communications industry via televisual media and guided by the ethical void of the free market, that would come to reign over the post-Cold War era of a global digitized neoliberalism.

## New

In 1968, astronaut William Anders took a photograph of a distant and half-darkened earth over the horizon of the lunar surface; dubbed “Earthrise,” this photograph had profound ramifications on popular perceptions of our place in the universe, and lent itself to many philosophical and narrative musings of the emerging environmental movement. The first

Earth Day, in 1970, was tied to an image campaign, spread across *Life Magazine* and other major photo weeklies, largely focused on the symbolism of gas masks in order to render visible the hidden hazards of environmental destruction. Despite rising public concern and increasing visibility of massive biome-impacting industrial disasters like the Santa Barbara oil spill and the Love Canal hazardous waste scandal, it fell to the electronic production and dissemination of images to shape scientific, political and cultural concerns around environmental issues. It wasn't until satellite photographs provided visual evidence of ozone depletion that NASA scientists fully understood the scale of the crisis (Dunaway 2015, 199), but by this point the wheels of neoliberalism were too perfectly oiled: screen media's most concerted effort to express a collective environmentalist stance, the 1990 *Earth Day* television special, reduced environmental action to green consumerist individual choices such as recycling.

Finis Dunaway's 2015 *Seeing Green*, aptly subtitled "The Use and Abuse of American Environmental Images," offers perhaps the most comprehensive and poignant study of visuality in the 20th century environmental movement. However, that it concludes with a discussion of Al Gore and Davis Guggenheim's startling success with *An Inconvenient Truth* (2005) only demonstrates how quickly media technologies and practices change. Moreover, Dunaway's focus on the meaning of images reveals how enshrouded within the folds of media and communication history is the material base of visual culture. The images that revealed the ozone hole were among the earliest signs of what our electronic environmental media industry would become: a network of satellites, fiberoptic cables, signal routers and televisual screens through which the computing industry would place the capacity for complex imaging production and access in the pockets of everyday consumers. Not without its costs, though, and very much in a continued industrial transformation of our planet's geography and atmosphere.

The end of the Cold War brought new master narratives of globalization, accompanied by digital technologies that could condense space, hasten time and collapse borders like never before. A mounting genre of films around the turn of the millennium—experimental ethnographic documentaries like *Baraka*, feature Hollywood films such *Traffic* (dir. Steven Soderberg 2000), *Babel* (dir. Alejandro González Iñárritu 2006) and other Anglo-centric transnational multi-narratives, and direct confrontations with Western imperialism like *In a Better World* (dir. Susanne Bier 2011)—attempted to capture this through transnational flows of cast and crew and a nomadic movement between locales. Though much scholarship of this era tried to keep up with the consolidation and fragmentation of national and regional cinemas during this time, a critical turn also looked at opportunities offered by new media for the emergence of haptic and sensory modes of expression that brought out of the margins the voices of diasporic and Indigenous peoples (Marks 1999). Such non-places and silenced spaces have also become spotlighted in the wake of recent natural and environmental justice disasters, for example the social geographical implications of Hurricane Katrina through such disparate formats as the television documentary series (see Spike Lee's *When the Levees Broke*, 2006) and feature-length narrative magical realism (*Beasts of the Southern Wild* (dir. Benh Zeitlin 2012)).

In addition to this oft-concealed impact of globalization on those at its margins, we must add the burdens and transformations placed on the natural resources in the earth's core, the biomes of its surface and the atmosphere maintaining its life. I argue that the more poignant geographical impacts of media globalization were occurring through the carving of multinational economic agreements, resource mining and tech manufacturing, and the laying of a global infrastructure for digital culture.

### Media, biomes and social justice

Any look at the landscape of the new millennium cannot escape the global grid of mediatized and manufactured technology that links our modes of communication, energy extraction and use, and everyday behavior. From the subterranean mapping systems and video displays of deepwater oil drilling and shale fracking apparatuses, to the in-dash visualization of engine-operation and miles-per-gallon calculation in automobiles, to remote thermostat controls like Nest and other smart home-control systems, digital technology is part and parcel of the current shifts in ecological exploration, extraction, use, conservation, preservation and sustainability. Moreover, we have entered a radically new era of “mining”: digital technologies’ exponential need for precious metals produced a 21st century Gold Rush in the Coltan mines of central Africa, while data mining through these devices has transformed methods of marketing research and consumer (as well as private citizen) surveillance—a dependency on digital interface and trust in the Big Brother of tech firms that has only increased under the COVID-19 pandemic.

As Jussi Parrika (2015, 50) writes, the “materiality of information technology starts from the soil and the underground.” This largely metallic materiality begins in mines of countries like the Democratic Republic of Congo, and thus the material origin of the New Digital World Order of exploitation, imperialism and environmental injustice. In 2001 the UN Security Council issued a statement condemning surrounding nations, including Rwanda, Burundi and Uganda, for using the instability of the Congolese civil war to pilfer Congo’s natural resources, including its Coltan reserves, which they sold to tech manufacturers in order to help fund ongoing military exercises; over a decade later this was still continuing, prompting the Hague Center for Strategic Studies, under the project supervision of Marjolain de Ridder, to publish an 85-page report in May 2013 on “Coltan, Congo, and conflict.” Unregulated mining practices have caused profound environmental distress, while the exploitation of labor and resources in an unstable political atmosphere has positioned smart technology as one of the main culprits in an ongoing civil war in one of the least stable parts of Africa. These raw materials then enter the global shipping routes to labor campuses (or “sweatshops”), outsourced manufacturing hubs that attract mostly female workers from impoverished rural spaces, through which multinational companies can exploit favorable labor regulations and import/export tariffs at the cost of workers’ rights and welfare and the environmental degradation caused by constant shipping and poor waste management.

Precious metals and human labor are not the only resource integral to our digital culture, a set of norms and behaviors increasingly defined by paradigms of immediacy and permanence and guided by an industrial logic of obsolescence. In terms of our information and entertainment content, we expect immediate and limitless access, while at the same time expecting the expanding network of online archiving services such as Dropbox and iCloud to guard our personal data in perpetuity. The apparent invisibility of where our content and data come from (orbital satellites and undersea cables) and where it is stored (data farms) permits us to enjoy a sense of virtuality that is, paradoxically, quite real and overwhelmingly material. Moreover, maintaining our seemingly boundless universe of digital ether requires vast amounts energy from what are still mostly coal-powered grids, cooling chemicals and other peripheral resources, cycling constantly through infrastructures made of plastics, cements and precious metals. These “invisible” places, from Congolese mines to Taiwanese labor campuses to Silicon Valley superfund sites to Icelandic data farms, are the undergirding geographical and environmental justice imprints of today’s global digital media production and practice.



Energy concerns (which are vast, longstanding and urgent and, from the displaced families of flailing coal towns to the splatter-paint proliferation of desert solar farms, have profound geographical consequences) aside, the geographical incisions of this “immaterial” cultural form’s expansive materiality run deep and wide, and include devastating environmental justice repercussions of digital byproduct pollution and waste disposal. The incredible potential for storage and the supposed democratization of production and distribution empowered by our new digital tools not only necessitates the generation of an increasingly constant energy supply, but also plays a key role in the proliferation of packaging and technological waste that is determining the tail end of the digital imperialism chain.

Firstly, the last 25 years have overflowed with social justice violations due to semiconductor and microprocessor manufacturing, a problem well documented in Jan Mazurek’s seminal *Making Microchips* and the edited collection *Challenging the Chip*, a series of essays documenting the proliferation of Super Fund sites that sprang up on the underbelly of Silicon Valley. Secondly, the end of this life cycle, which is a cradle of its own, is in the digital dumping grounds of under-developed nations. Freighters of American e-waste deposit their contents in villages of nations such as Kenya and China, where mostly child and woman workers pick through it, risking exposure to toxic chemicals and gases that increases greatly as they begin to melt the materials down in order to salvage precious metals. In these villages, less than two decades of this practice has led to heightened levels of cancer and other disease, and chemicals have seeped into the soil and polluted water sources so as to contaminate agriculture and drinking water, leading to birth deformities and other health problems. Like the geopolitical and social justice connotations of Coltan mining and electronics contract manufacturing, the waste disposal and recycling of digital media technology reeks of imperialism in the age of globalization, in which wealthy societies can outsource their consumer dirty work to poorer nations, who then are further crippled through the heightened psychological and physical health detriment of unregulated salvage practices.

This is only one facet of the larger infrastructural, geographic and environmental burdens our digital media culture imposes on natural resources, biological welfare and ecosystem stability. Nicole Starosielski (2015; Starosielski & Walker 2016) has documented the diverse ways in which the fiber optic cables through which 80% of the global economy flows have altered our landscapes and seascapes, and shaped our communities. This global industry, which pushes conformed consumer habits and cultural values across the globe, also helps to shape community agricultural practices and forest and mountain landscapes in upstate New York through the expansion of internet service cables (Starosielski & Walker 2016), while trans-Pacific cable networks shape local marine ecosystems and behaviors in Guam, and their landing sites and connection points shape the architectures of highways in O’ahu and towns in the Philippines (Starosielski 2015, 141–169).

Such infrastructural issues are the flipside of the Janus-like coin of access and agency that make digital media seemingly democratizing in its empowerment of environmental science, communication and justice advocacy. Citizen science apps and online sharing platforms are helping to deconstruct the institutionalized hierarchy of technical expertise and epistemology, and can empower modes of grassroots resistance—for example by helping Gulf coast residents to bypass the media wall set up by BP following the Deepwater Horizon catastrophe. Similar strides have been taken through the expanded use of drone cinematography; the problematic infrastructural base of new media technologies has not only forged new mechanisms for climate science (see uses of LiDAR in studying the deep time of Arctic glaciers), but has also enabled wide-ranging potential for the use of mobile cameras to reveal the very

infrastructures and environmental damages, from mining practices to species disruptions, that big tech has tried to keep hidden.

Similarly, social media has proved central to iconic acts of organized environmental justice such as the #NoDAPPL protests at Standing Rock (Johnson 2017), serving to amplify specific environmental issues and to facilitate on-the-ground action planning. The social media phenomenon surrounding Greta Thunberg demonstrated the paradoxes of this, as her online celebrity revealed both social media's potential for the amplification of environmentalist causes as well as ways in which it stands as a battleground to reinforce deeply entrenched values and inequalities (see, for example, the photo-cropping exclusion of Ugandan climate activist Vanessa Nakate, by the Associated Press, of a photo taken of climate youth activists at the World Economic Forum in January 2020, leaving only the inclusion of Thunberg and three other white women from the Global North). In doing so, the imperial supremacy developed through centuries of exploitation and carefully crafted politics of representation is inflected onto the geographical framing of a global activism movement meant to be founded on principles of inclusion and equality.

Thunberg's digital celebrity comes on the coattails of a new version of environmental celebrity embodied by politicians whose environmental stances have brought them attention (Al Gore, Alexandra Ocasio-Cortez), conservation icons easily turned into screen stars and legends (Steve Irwin, Diane Fossey), and Hollywood celebrities using their clout to espouse environmental positions (Meister 2015, 283–285). The latter category exemplifies how mainstays of the classical moving-image industry have become updated for the digital era, where star personas have rebranded themselves (and reinvigorated their relevance and, consequently, their fan base) in different ways. While reality-star-turned-president Donald Trump disbands the EPA and lightens regulations on fossil fuel companies, Leo DiCaprio flies the planet in a private jet to make films about his own concern for climate change; Shailene Woodley brings attention to environmental injustice by Facebook live-streaming her arrest at Standing Rock; Matt Damon has embraced short-form comedic video to support his Water.org project; and Angelina Jolie has converted her screen celebrity into international UN collaborations on human rights and environmental preservation and conservationists; and climate deniers take turns churning the iconography of Thunberg, whose boat-and-train tour of the Global North became a rallying cry for local voices caught in a global problem, through the messaging mills of Instagram and Twitter.

The degree to which these figures in fact generate shifts in cultural values and mobilize change is debatable, as their fame still depends largely upon conventional neoliberal market dynamics and environmentally destructive screen production norms formulated a century ago. Moreover, while their messaging may engage with environmental issues, there is no proof that they—like directors such as James Cameron who have crafted their auteur image around progressive environmental stances, while relying on technofetishistic brands of innovation that have profound environmental footprints—are willing to invite substantial systematic change to the industry and cultural values that buttress their popularity, privilege and profit. While environmental topics and stances may be splashed across big and little screens across the world, this amounts to little but greenwashing, image rebranding and issue trending as long as it remains business as usual on the manufacturing and production side of screen media.

The water wars that made Los Angeles possible and decimated Inyo Valley and the surrounding agricultural ecosystems and communities were only the beginning: Hollywood and other major national industries would colonize rural areas and reshape urban spaces with the building of studios and rerouting of resources. During the postwar expansion of global

markets the studios would give way to a more free flow of independent productions, being sold off to banks and then subsumed by multinational corporations, with television shows and news, feature fiction and documentary films, and streaming series and specials filmed in diverse locales where not only day passes for night but Toronto passes for New York and New Zealand for Middle Earth. During the 1990s, the decade following the end of the Cold War and trumpeting the acceleration of neoliberal global capitalism, tax rebates and other fiscal plans in US states and nations and municipalities around the world lured major productions through financial incentives, prompting migrations of media production communities in some cases and, in many more, the travel and temporary installation of dozens and even hundreds for runaway productions that often badly traumatize local ecosystems.

During the decade that was launched by the *Earth Day* television special, DiCaprio—arguably the celebrity face and voice most affiliated with the climate debate—starred in *Titanic* (dir. James Cameron 1997) and *The Beach* (dir. Danny Boyle 2000). The former, a testament to NAFTA’s model of globalization, set up a “100 Days Studio” on the Pacific coast of the northern Mexican town of Popotla; the production’s chlorine treatment of the water on set led to the pollution of surrounding seawater, decimated the local sea urchin industry, and reduced overall fish levels by a third (Maxwell & Miller 2012, 70). *The Beach*, in order to derive its pristine shots of an untouched exotic paradise, displaced local flora and flattened a natural barrier dune in pursuit of the image of paradise that would subsequently bring so much tourism to Phi Phi Leh beach that in 2019 a two-year tourism moratorium had to be enacted to try to resuscitate the local coral reef system.

These are but two exemplary anecdotes of media production’s ongoing contribution to anthropogenic destruction of the environment, a problem that has not eased with the transition to digital practices. As introduced above, the increased digital dependency of recent media has meant only a different dynamic of strain on natural resources and production of toxic waste and greenhouse gases. *Avatar* (dir. James Cameron 2009), marketed as the first fully digital film, embodies the hypocrisy of this shift: a surface narrative critiquing the destructive pillaging of natural resources and implementing a myth of eternal life on an alternate planet once we have squandered this one, the film that billed itself according to the immateriality of the digital relied heavily on analog materials and production methods, necessitated global travel for large groups of cast and crew, depended on a transnational flow and maintenance of massive amounts of digital data 24 hours a day every day, and gave rise to the construction of alternate exhibition platforms and amusement park experiences.

While film studios and media corporations create sustainability executive positions and stage green initiatives across their websites, the reality is that the 21st century has seen only fragmentary uphill movement, largely on behalf of European governmental funding bodies and independent production consultants, towards the cultural shift that might be enacted were media industries to think radically about environmentally conscientious practice. In the meantime, we are merely distracted by the glamor of celebrity, misdirected by corporate greenwashing and seduced by the catharsis of textual therapy offered by our screen spectacles.

There is no myth that more convincingly allows us to take a rain check on accountability than the myth of eternal life—which in *Avatar*, in 2009, we can see as a gift to the anxious viewers of the era of accelerated climate change, a virtual escape from the consequences of the present. In a moment of severe environmental discord and rising anxiety, our willing merger with the digital belies an inherently languorous assumption built into our use of the term “Anthropocene”: that we have squandered the planet we inherited, and that any salvation lies in a technosolutionist embrace of the virtual lives offered via digital media. We may indulge in fantasies of space colonization and white male salvation in the face of

Indigenous oppression, and may send drones to seek life on other planets as we shift our social interactions to the digital ether, but we only get one Earth. We are living out our only role, many millennia into this film that we will not get to see the end of. We do not get to stand up and walk out, having cathartically exercised our anxieties and fears without consequence; there is no sequel. While the social politics and geographical effects of digital culture must certainly be reckoned with, it is time we also turn our eyes to the hidden media infrastructures that have radically altered the compositions and livelihoods of our planet.

## References

- Bazin, A. 2002 [1952]. *Qu'est-ce que le cinéma?* Paris: Les Editions du Cerf.
- Bozak, N. 2013. *The cinematic footprint*. New Brunswick, NJ: Rutgers University Press.
- Brereton, P. 2004. *Hollywood utopia: Ecology in contemporary American cinema*. Bristol: Intellect Books.
- Castree, N., and Braun, B. 1998. The construction of nature and the nature of construction: Analytical and political tools for building survivable futures. In B. Braun and N. Castree (eds.) *Remaking reality: Nature at the millennium*, pp. 3–42. New York: Routledge.
- Cubitt, S. 2005. *EcoMedia*. Amsterdam: Rodopi.
- Cubitt, S. 2016. *Finite media*. Durham, NC: Duke University Press.
- De Ridder, M., Usanov, A., Auping, W., Lingemann, S., Espinoza, L. T., Ericsson, M., Farooki, M. 2013. Coltan, congo, and conflict. *The Hague Center for Strategic Studies*, 20 (3). <https://doi.org/10.13140/RG.2.2.35662.05441>.
- Demerit, D. 2002. What is the “social construction of nature”? A typology and sympathetic critique. *Progress in Human Geography*, 26 (6), 766–789. <https://doi.org/10.1191/0309132502ph402oa>.
- Dunaway, F. 2015. *Seeing green: The use and abuse of American environmental images*. Chicago, IL: University of Chicago Press.
- Gabrys, J. 2013. *Digital rubbish*. Ann Arbor, MI: University of Michigan Press.
- Gabrys, J. 2015. *Program earth*. Minneapolis, MN: University of Minnesota Press.
- Ghosh, A. 2016. *The great derangement: Climate change and the unthinkable*. Chicago, IL: University of Chicago Press.
- Gunning, T. 1989. An aesthetic of astonishment: Early film and the (in)credulous spectator. *Art and Text*, 34 (Spring), 31–45.
- Gustafsson, T., and Kääpä, P. (eds.) 2013. *Transnational ecocinema: Film culture in an era of ecological transformation*. Bristol: Intellect Books.
- Hall, S. (ed.) 1997. *Representation: Cultural representations and signifying practices*. London: Sage Publications and Open University.
- Hammond, P. 2017. *Climate change and post-political communication*. London: Routledge.
- Ingram, D. 2004. *Green screen: Environmentalism and Hollywood cinema*. Exeter: University of Exeter Press.
- Jacobson, B. 2015. *Studios before the system*. New York: Columbia University Press.
- Johnson, H. 2017. #NoDAPL: Social media, empowerment, and civic participation at Standing Rock. *Library Trends*, 66 (2), 155–175.
- Maxwell, R., and Miller, T. 2012. *Greening the media*. Oxford: Oxford University Press.
- Mazurek, J. 1998. *Making microchips: Policy, globalization, and economic restructuring in the semiconductor industry*. Cambridge, MA: MIT Press.
- McKim, K. 2013. *Cinema as weather*. London: Routledge.
- Meister, M. 2015. Celebrity culture and environment. In A. Hansen and R. Cox (eds.) *Routledge handbook of environment and communication*, pp. 281–289. New York: Routledge.
- Merchant, C. 1990. *The death of nature*. San Francisco, CA: Harper.
- Mitman, G., and Cronon, W. 2009. *Reel nature: America's romance with wildlife on film*. Seattle, WA: University of Washington Press.
- Musser, C. 1991. Ethnicity, role-playing, and American film comedy: From *Chinese Laundry Scene* to *Whoopee* (1894–1930). In L. Friedman (ed.) *Unspeakable images: Ethnicity and the American cinema*, pp. 39–81. Urbana, IL and Chicago, IL: University of Illinois Press.
- Parrika, J. 2015. *A geology of media*. Minneapolis, MN: University of Minnesota Press.
- Proctor, J. D. 1998. The social construction of nature: Relativist accusations, pragmatist and critical realist responses. *Annals of the Association of American Geographers*, 88, 352–376. <https://doi.org/10.1111/0004-5608.00105>.

- Said, E. 1978. *Orientalism*. New York: Pantheon Books.
- Schatz, T. 1981. *Hollywood genres*. New York: McGraw-Hill.
- Smith, T., Sonnefeld, D. A., Pellow, D. N., and Hightower, J. (eds.) 2006. *Challenging the chip: Labor rights and environmental justice in the global electronics industry*. Philadelphia, PA: Temple University Press.
- Starosielski, N. 2015. *The undersea network*. Durham, NC: Duke University Press.
- Starosielski, N., and Walker, J. (eds.) 2016. *Sustainable media*. New York: Routledge.
- Sturgeon, N. 2008. *Environmentalism in popular culture: Gender, race, sexuality, and the politics of the natural*. Phoenix, AZ: University of Arizona Press.
- UN Security Council. 2001. *Report of the Panel of Experts on the Illegal Exploitation of Natural Resources and Other Forms of Wealth of the Democratic Republic of the Congo*. <https://reliefweb.int/report/democratic-republic-congo/report-panel-experts-illegal-exploitation-natural-resources-and>.
- Vaughan, H. 2019. *Hollywood's dirtiest secret: The hidden environmental costs of the movies*. New York: Columbia University Press.
- Williams, R. 1973. *The country and the city*. New York: Oxford University Press.
- Wood, R. 1989. Ideology, genre, auteur: Shadow of a doubt. In R. Wood (ed.) *Hitchcock's films revisited*, pp. 288–302. New York: Columbia University Press.
- Yusoff, K. 2019. *A billion Black Anthropocenes or none*. Minneapolis, MN: University of Minnesota Press.