

INSIGHTS

BOOKS *et al.*

FILM

Science at Sundance 2020

A counterculture commune seeking a more sustainable lifestyle moves inside an airtight dome. Parents yearning to connect with their autistic children find hope in a teenager's profound testimony. The climate crisis hits home as a tight-knit California community attempts to move forward after a devastating wildfire. From a meandering love letter to an imperiled African ecosystem, to a warning about the motives that underlie social media, the science and technology stories told at this year's Sundance Film Festival were urgent, insightful, and well suited for the event's 2020 theme of "imagined futures." Read on to see what our reviewers thought of six of the festival's featured films. —Valerie Thompson

The Reason I Jump

Reviewed by Robert S. Krauss¹

It is difficult to know the mind of another person; it is harder still when that person has autism. Yet, understandably, a fervent desire of parents of autistic people is to know the minds of their children. In 2007, Naoki Higashida, an autistic 13-year-old boy in Japan, published *The Reason I Jump*, a de-

scription of what was in his mind and why he behaved as he did. The book was translated into English by K. A. Yoshida and David Mitchell (author of *Cloud Atlas* and other celebrated novels), who together have an autistic son. Although some therapists expressed skepticism over Higashida's authorship of the book, it became a bestseller in the United States and the United Kingdom.

The Reason I Jump, a documentary from veteran director Jerry Rothwell, is based on

the book, but Higashida does not appear in the film, nor is it his story. Rather, Higashida's words serve as a framing device for a portrait of the lives of five young people with autism and their families. The result is intimate and informative.

Voice-over readings from Higashida's book accompany scenes of a young Asian boy moving through a series of landscapes. These scenes, artistic and experimental, provide an impressionistic view of what a person with autism might experience. They are interspersed with straightforward documentary filmmaking.

We meet Amrit, from India, who is completely nonverbal. That Amrit has a complex interior life cannot be in doubt; she creates extraordinarily expressive drawings of people, and the film culminates in a show of her work. In the United States, Ben and Emma, friends since they were toddlers, spell out words using a board on which each letter of the alphabet is printed—as Higashida did when he wrote his book—thereby allowing them to communicate simple but profound sentiments. The family of Jestina, from Sierrra Leone, faces not only the challenges of autism itself but also a stigma arising from superstitious beliefs that such children are possessed. Her parents' success in getting the government to establish a school for kids like

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ILLUSTRATION: CAT FINNIE



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her is inspiring. And finally, with Joss, a U.K. adolescent, we see the poignancy, worry, and commitment that accompany parenthood in the world of autism.

“I think we can change the conversation around autism by being part of the conversation,” declares Ben. *The Reason I Jump*, which won an Audience Award at Sundance, succeeds in pushing the conversation forward.

The Reason I Jump, Jerry Rothwell, director, MetFilm Sales, 2020, 82 minutes.

The Social Dilemma

Reviewed by **DDW Cornelison**²

“There are only two industries that call their customers ‘users’: illegal drugs and software.” This provocative observation, attributed to Yale computer scientist Edward Tufte, hits home in *The Social Dilemma*, as former executives from Facebook, Pinterest, Google, Twitter, and YouTube describe how they built online platforms to attract and reward our attention, with the goal of packaging and selling it to advertisers.

Just as illegal drugs hijack and overwhelm pleasure circuits in the brain, which evolved to help us survive, social media hijacks and

overwhelms our prosurvival instinct to seek social connection. As the film’s primary voice, Tristan Harris (formerly of Google), notes: “We evolved to care whether other people in our tribe think well of us or not, because it matters. But we were not evolved to be aware of what 10,000 people think of us; we were not evolved to have social approval dosed to us every 5 minutes.” Harris and others are now raising concerns about how social media is changing how we perceive ourselves, other people, and even objective reality.

Through interviews interleaved with a narrative movie-within-a-movie, whose scenes will be familiar to anyone who has ever tried to impose a “no phones at the table” rule, the documentary describes how and why social media evolved to attract and keep our attention by gathering massive amounts of information about each of us and then using that information to target specific content to our feeds to keep us engaged. The interviewees link increases in teen self-harm and suicide, political and social polarization and isolation, outrage and self-centeredness, and even flat-Earth conspiracy theories to algorithms whose function is not necessarily to provide us with what we want or what is good for us, but to keep us scrolling and clicking. These themes are carried through the fictional

narrative as well, with varying success.

One of the film’s most striking interviews is with Tim Kendall, who, as director of monetization in the early days of Facebook, conceived of selling advertising to make it profitable and then helped tune the news feed to maintain engagement through intermittent positive reinforcement (“like slot machines in Vegas”). He describes how, despite knowing that he was being manipulated, he would find himself hiding in his pantry, ignoring his family, just to spend time on social media. Kendall—like the film’s other subjects—has since had a change of heart. He is now CEO of Moment, a company whose app helps people spend less time on their phones.

The Social Dilemma, Jeff Orlowski, director, Exposure Labs, 2020, 93 minutes.

Okavango

Reviewed by **Gabrielle Kardon**³

Lightning crackles across the sky, lions roar as they tussle over a freshly killed waterbuck, raindrops smack the parched earth, and elephants trumpet. These are the sights and sounds of the Okavango River, the sub-



Two lionesses and their cubs cross a spillway in the Okavango River.

ject of a new documentary film by National Geographic explorers-in-residence Dereck and Beverly Joubert.

The Okavango is a distinctive river. More than 1000 km in length, it begins in the highlands of Angola, passes through Namibia, and empties into the Kalahari. It is entirely continental and never touches the ocean. Instead, when the water reaches the Kalahari, it evaporates in the heat of the desert. Using close-ups of droplets hanging on grasses growing alongside the river and expansive aerial footage, the film documents the important role of water to the Okavangan ecosystem.

The animals living along the river are the stars of the film. The story of an injured lion named Fekeetsa, for example, is interwoven with the tale of the leopardess Moporoto, who is protecting her two cubs. Meanwhile, close-up and slow-motion footage details the ever-present conflict between predators and prey. Underwater footage shows crocodiles and catfish stirring up river waters as they voraciously pursue their next meal.

The most thought-provoking scenes are those that explore how animal–river interactions shape the ecosystem. Elephants, in their quest for grasses, trudge paths through the wetlands, opening new waterways and changing the course of the Okavango. At the river's terminus, termites build towering mounds of clay that form the nucleus of islands on which trees sprout and stabilize the land, ultimately leading to the mosaic of islands that form the complex delta.

Like the river it documents, the film meanders through the Okavangan landscape. Luminous aerial images bathed in orange light, dramatic footage of lion hunts, and unusual underwater perspectives of the river draw the viewer in. The sounds—the

deep rumble of lions and the snorts of baby warthogs—are some of the most surprising aspects of the film. *Okavango* is the Jouberts' love letter to the river, and Dereck's poetic narration conveys this love.

The Botswanan government recently lifted a ban on trophy hunting, endangering the inhabitants of the Okavango, particularly the region's elephant population (which is currently the world's largest). This film allows viewers to voyage to this fascinating biosphere and encourages them to advocate for its future.

Okavango: River of Dreams (Director's Cut)

Dereck Joubert and Beverly Joubert, directors, Terra Mater Factual Studios and Wildlife Films, 2019, 94 minutes.

Spaceship Earth

Reviewed by **Michael D. Shapiro**⁴

In 1991, eight adventurers donned designer astronaut jumpsuits and began a 2-year mission in a 3-acre airtight terrarium in the Arizona desert called Biosphere 2 (Biosphere 1 being the environment the rest of us earthlings inhabit). A media circus, complete with cringeworthy celebrity cameos, surrounded the launch of the massive project that would be a model for similar ventures on other worlds. *Spaceship Earth* chronicles the fascinating history and prehistory of Biosphere 2, a \$200 million earthbound space expedition that blurred the line between science and entertainment.

Biosphere 2 was the culmination of a series of ambitious projects led by the charismatic and brilliant John Allen. Allen assembled a group of followers that began as a theater troupe at the height of 1960s commune

culture in San Francisco, but these self-described “Synergists” soon began experimenting with bigger projects that they were profoundly unqualified to attempt. They built a massive sailboat for the purpose of exploring Earth's biomes and left sustainable businesses in their wake, thanks to a funding partnership with Ed Bass, a rebellious Texas oil billionaire with an environmentalist streak.

As idealists but also capitalists, the Synergists were members of a remarkably functional commune. Having mastered the seas, their next move was to save the planet from ecological destruction.

Biosphere 2 was a prototype for a planetary colony. More importantly, the Synergists hoped it would teach them how to live sustainably on Earth. Everything, from water and air to nutrients, had to be recycled during the 2-year mission, so expedition members were metabolically linked to the organisms under the Buckminster Fuller–inspired enclosure. The massive scale of the project drew intense media scrutiny, for which Allen and his followers were unprepared, and raised expectations for a level of scientific rigor that they had never quite promised.

The maiden voyage of Biosphere 2 was far from a controlled experiment, and enthusiasm from scientists outside the dome dropped as precipitously as the oxygen levels on the inside. Still, some of the original Synergists look back at Biosphere 2 as a triumphant project that taught them lessons about sustainability that were not otherwise knowable. Now entering their sixth decade of collaboration, Allen's group continues to operate a sustainable ranch, and some of the businesses they established on their global voyage are still afloat.

Director Matt Wolf, interviewing key

players in the Synergist movement, recounts their 50-year wild ride, and viewers are treated to a gold mine of riveting archival footage. Wolf's subjects are wonderful storytellers, and he infuses the film with compassion and admiration for the Synergists' idealism and accomplishments.

Ultimately, the inspirational lessons of *Spaceship Earth* are that we have to push ourselves to chase important visions when moments of opportunity arise and that small collectives like the Synergists can be the engines of creative success. For Allen's group, a heavy dose of charisma and performance flair also went a long way toward seizing the moment and drawing others into their lofty, futurist goals.

Spaceship Earth, Matt Wolf, director, RadicalMedia and Stacey Reiss Productions, 2019, 116 minutes.

Rebuilding Paradise

Reviewed by Michael D. Shapiro⁴

On 8 November 2018, residents of the town of Paradise, California, evacuated through a forest of flames. Although it was past 9 a.m., the sky was black from the fire that had traveled 8 miles in just a few hours and now completely surrounded the town. The aftermath of the Camp Fire, as documented in Ron Howard's *Rebuilding Paradise*, is a portrait of staggering destruction. Empty concrete pads mark the former sites of houses, among the 18,000 structures obliterated. Sparse old-growth trees stand above the ruins of the 100-year-old town, their green crowns the only reminder that the scenes were filmed in color rather than tones of ash.

Paradise is the kind of close-knit town where everyone turns out for a parade or a funeral. Howard's privileged access and the film's immersive perspective make every new trauma feel more harrowing and every victory more ascendant as Paradise inches back toward normalcy. The film captures residents' deeply personal stories as they scatter to surrounding communities in the fire's immediate aftermath and wrestle with the decision to return or move elsewhere. Is it worth it, they ask, to rebuild in a town with toxic benzene in the water supply that will take years to purge, a century-old utility infrastructure in disrepair, and onerous government directives that nag the physically broken and financially broke community?

Howard treats the critical themes of land

management and climate change with a gentler touch that reaches a crescendo late in the film. Ghosts of century-old mismanagement still haunt the forests around Paradise, and when coupled with long-term drought, they create perfect conditions for firestorms.

Rebuilding Paradise and the disaster it chronicles will deservedly get a lot of attention; Howard is a well-known filmmaker, who crafts an engrossing, personal, and emotionally raw story. Yet as the frequency of climate-fueled disasters increases worldwide, most of these stories will drift into obscurity, becoming the problems of voiceless people in distant places. *Rebuilding Paradise* challenges us to see ourselves in climate refugees and to reject the illusion that catastrophic events only happen somewhere else.

Rebuilding Paradise, Ron Howard, director, NatGeo, 2020, 95 minutes.



Mauny Roethler clears debris in the aftermath of the 2018 California Camp Fire.

The Cost of Silence

Reviewed by Paul L. Koch⁵

The 2010 Deepwater Horizon explosion unleashed a catastrophic amount of oil, gas, and other toxic compounds into the Gulf of Mexico. As the massive spill overwhelmed responders, federal agencies approved the use of chemical dispersants by aerial spraying and injection into the oil plume at its source. Dispersants break up oil, which is highly toxic, into tiny droplets that are, ideally, diluted and decomposed far from beaches and marshes, and far from surface-dwelling mammals, birds, and people. Reducing the

exposure of offshore responders and cleanup crews to volatile organic compounds and toxic oil was also a key consideration in 2010. However, the decision to use dispersants was controversial, because these compounds are also toxic and had never been subject to careful epidemiological study. About 3 million liters of dispersant were released—their largest application in U.S. history.

The Cost of Silence, a new documentary by director Mark Manning, offers a more nefarious reading of this decision: that it was part of a conspiracy between the U.S. government and the oil company BP to reduce the firm's liability and convince tourists and residents that the Gulf was open for business, when, in fact, a dangerous chemical stew was brewing offshore. In the film, Riki Ott, a toxicologist and environmental activist, argues that the dispersant made the oil more toxic and increased the ease with which it was taken up by people and animals. She also maintains that the tiny droplets formed clouds that wafted oil-dispersant mixtures onshore.

Whistleblowers claim that the dispersant was released too close to shore and that cleanup workers used inadequate protective gear. Over 9 years of filming, Manning interviewed offshore responders, cleanup crew members, and Gulf Coast residents who are sick and scared. Some are despondent and others defiant, but all feel abandoned and betrayed by the government.

The film has a polemical tone. Yet whether or not a viewer is convinced that the spill's impacts were worsened by dispersants, responders and cleanup crews were at the greatest risk of exposure to toxic oil and dispersant. The health of these individuals needs more study, and we need new methods for assessing exposure to spills and dispersants, as recommended by a recent report (1).

Physician Michael Harbut, a consultant on the BP medical settlement, argues that the potential health impacts of the Deepwater Horizon spill on coastal communities will become obvious through epidemiological studies during the next two decades. Manning's film seeks to accelerate that process and change global policy on the use of dispersants.

The Cost of Silence, Mark Manning, director, Conception Media, 2020, 84 minutes.

REFERENCES AND NOTES

1. National Academies of Sciences, Engineering, and Medicine, *The Use of Dispersants in Marine Oil Spill Response* (The National Academies Press, 2019).

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