

# In the Midst of the California Wildfires

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Citation | May, J. Daniel. 2019. "Writing in Context: Reviewing a New Book on Natural Disasters, the Review Being Composed in the Midst of the California Wildfires of October 2019." *Journal of Big History*, IV (1): 76-79. <http://dx.doi.org/10.22339/jbh.v4i1.4180>.  
DOI | <http://dx.doi.org/10.22339/jbh.v4i1.4180>

## 26 October 2019, Bodega Bay, California, USA

You are doubtless reading these words as published some weeks or perhaps even months after the destructive wildfires that struck California in October of 2019, but in the moment at which I am setting these words to page, my wife Diana and I remain, unwilling to leave despite a mandatory evacuation order, in our coastal home. Just one week ago, I'd completed reading (for the second time) the 2019 non-fiction book by Dr. Lucy Jones: *The Big Ones: How Natural Disasters Have Shaped Us (and What We Can Do About Them)*. When I'd reached the final page last week, I had no idea that we would soon be experiencing the very subject matter of the book I'd just finished reading.

But such obliviousness as mine is very much a theme of Jones's book. *The Big Ones* goes well beyond the physics of natural disasters. Though a leading seismologist herself, Jones explains only enough of the natural phenomena to allow the reader to comprehend the sheer unopposable power of earthquakes, volcanoes, floods, and the like. These forces of nature are truly beyond human control, but well within human control is how we plan for disaster and how we respond to it

once it has struck. This resonates deep within me today because, although it is true that wildfires have ignited naturally for millions of years, the wildfire sweeping toward my home at this moment was likely ignited by faulty electrical transmission equipment. Modern human beings have hundreds of unnatural ways of sparking what was once a purely natural occurrence. In *The Big Ones*, Jones weaves an interconnected narrative of human psychology, culture, politics, economics, and technology. Her storytelling is compelling in itself, while her rich mix of disciplines should be a pleasure to readers who appreciate a Big History approach to understanding our world. Though the chapters are each multifaceted, the book as a whole is organized by simple chronology, starting with the volcanic destruction of Pompeii in 79 AD, and proceeding with each chapter devoted to a particular event, leading up to recent 21st-century disasters. The chronological organization serves an important purpose in developing the key ideas Jones wishes to impart. We may not see much change in the physical phenomena of planet Earth, but we see a huge evolution in the cultural and technological responses to disaster over the last two thousand years. In sharp con-

trast, we also see human nature remaining relatively unchanged, exhibiting over and over behaviors such as scapegoating, wishful thinking, and the leveraging of natural events to achieve political ends.

Jones opens with a theme that is familiar to Big Historians but much underappreciated by many people in a modern world that insulates us from our natural surroundings:

We plant farms near rivers and near the springs that form along faults, for their access to water; on the slopes created by volcanoes, for their fertile soil; on the coast, for fishing and trade. These locations put us at risk of disruptive natural forces. (8)

My wife and I were certainly aware of those facts eighteen years ago when we purchased our Bodega Bay home, a property that sits almost directly atop the San Andreas Fault. Indeed, Bodega Bay exists precisely because of tectonic plate movements. But Diana and I were both born and reared just north of San Francisco, a region where the 1906 earthquake and the specter of a future Big One loom large in the popular imagination from an early age. Like most Californians, we have

developed a variety of coping mechanisms and emotional adaptations to this knowledge. (For example, I am coping right now by concentrating on writing this book review because I have no control over the conflagration blazing just forty miles away.)

How humans respond to the pure randomness of natural disasters is another important theme of *The Big Ones*. Such randomness "means that every moment presents a risk, leaving us anxious" (10), to which I would add that humans simply cannot go about their everyday lives in a permanent state of anxiety. Jones draws on what psychologists describe as "normalization bias," the tendency by which "what we experience now or in recent memory becomes our definition of what is possible" (10). For Diana and me, recent memory includes nearby wildfires of the previous two years that inundated our region with noxious smoke and a horror movie orange sky for weeks. But we never saw the flames near our home; our electricity stayed on; life continued despite the discomforts. Our "new normal" became frequent nearby wildfires but not something we had experienced directly. As Jones explains further, "We think the common smaller events are all we have to face, and that, because the biggest one isn't in anyone's memory, it isn't real" (10).

But the "new normal" began changing for us just a few days ago (as I write this), in the early morning of October 24th. We'd gone to bed the night before with very routine expectations for the next few days. Our first hint of something strange came, not from the Weather Channel, nor from the local electric company, nor from any of

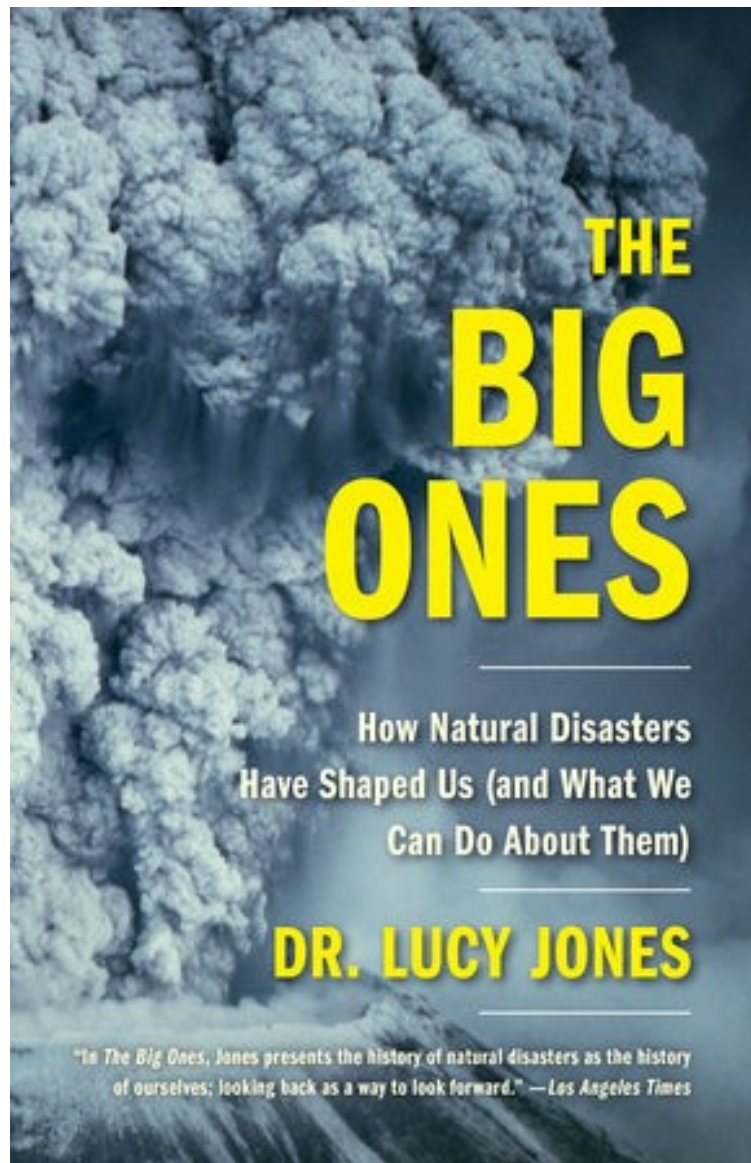
the various governmental entities charged with ensuring public safety. No, our first hint came from our cat, Miracle. Around four in the morning, Miracle began poking us with her paws and pacing back and forth across our bed, not unusual behavior for her when she wants food or attention. But two hours later, the young cat's fussing and fretting still continued. I began dreading my drive to work after losing so much sleep due to Miracle's prolonged nervous behavior. Several hours later, fortified by much coffee, I was on the road to my job at Dominican University while listening to the local news on the radio. Wildfire was the lead story, indeed almost the only story being covered that morning. A blaze had begun around nine-thirty the previous night about fifty miles

from our house. Now Miracle's fidgeting made sense. She must have smelled the first traces of distant smoke while Diana and I slept peacefully unaware.

However, before you imagine that I am about to wax eloquent about the wonders of feline threat-perception, I must point out the contrasting case of Miracle's litter-mate and brother, Merlin. Far from living up to the prophetic fame of his namesake, Merlin continued to lounge about the house as always, a laid-back little lion-king, blissfully oblivious to any possible danger. Although it's reasonable to speculate that Miracle might have smelled smoke, the fact is that animals of any kind are not good predictors of impending disaster, despite the popular belief that they are.

This is one of the many popular myths regarding natural disasters that *The Big Ones* debunks. Jones emphatically makes the point that the animal-predictor hypothesis, which was taken seriously by scientists for decades, has been methodically and exhaustively investigated and has yielded no supporting evidence whatsoever.

Another popular myth that Jones addresses repeatedly, and in convincing evidence-based detail, is the claim that scientists already know how to predict various disasters, but are hiding what they know from the public. Quite to the contrary, scientists have been actively and energetically attempting to predict disasters for over one hundred years without coming up with a reliable method. In particular, the United States, China, Japan, and Italy have invested huge amounts of time, effort, and money attempting to solve this problem. But if no one



can predict disasters, why does the myth persist that prediction is already possible? Jones offers several explanations.

The first is basic wishful thinking. Disasters are scary, but we could be less afraid if we could be warned in advance. When scientists refuse to give such warnings, conspiracy theories are born. Many people choose to believe, for example, that the government has a top-secret method for forecasting earthquakes, rather than accept the fact that an earthquake can strike at any second with no warning whatsoever. Jones personally receives requests on a weekly basis asking her to divulge this secret knowledge. In one poignant example, a woman wrote that she knew that Jones was not allowed to share her secret information, but perhaps Jones could announce when her own children were taking a trip out of town.

A second difficulty is the counter-intuitive quality of statistical information. Scientists do have the historical records to make reasonable probability statements. For example, I recently learned (because I was renewing insurance) that my own home has a 3% chance of flooding within the next one hundred years. But that's not the kind of answer frightened people want. They want to know exactly when the next Big One will hit them, and that information simply does not exist.

A third factor fueling the myth of disaster prediction is that some short-term events are predictable, creating the illusion that longer-term prediction must also be possible. But current short-term prediction is limited to obvious observations with simple cause-and-effect relationships. Weather satellites can observe tropical storms forming near the equator; and experts can make sound predictions of the speed, strength, and path of the nascent hurricane; but the observable process is already well underway by the time such predictions are made. Likewise, the causal relationship between earthquakes and tsunamis is well understood. The tsunamis that devastated the coastlines of the Indian Ocean in 2004 and Japan in

2011 (which each receive a detailed chapter in *The Big Ones*) were entirely predictable results of magnitude 9.1 and 9.0 earthquakes—but those enormous quakes were themselves thoroughly random, absolutely unpredictable events.

Because of the seismic technology and global communication networks in place in 2004, Jones was notified by e-mail about the Indian Ocean quake only fifteen minutes after it occurred, and could easily foresee the devastating tsunami that would soon follow. Unfortunately, the technological infrastructure was not available to warn the coastal populations along the Indian Ocean that a deadly wave was heading for their shores. This was all the more tragic because all the necessary seismic detectors and communication devices already existed, but it takes the cooperation and vision of scientists, engineers, bureaucrats, and governments to create such a rapid-response international warning system. The ease of modern air travel meant that thousands of foreign tourists and business travelers were in the stricken regions, with the result that citizens of fifty-seven countries perished, making this a disaster mourned by a truly global community. Within two weeks, aggressive steps began to update the antiquated warning systems.

When the magnitude 9.0 quake struck offshore at Fukushima, Japan, on March 11, 2011, coastal residents of western North America were rapidly alerted that a tsunami was headed their way. Video via television and Internet showing the devastation taking place in Japan aroused both sympathy and fear. In the days following the Fukushima earthquake, Diana and I closely followed the news reports of the resulting tsunami traversing the Pacific Ocean and heading for the California coast and quite literally aiming at our front door.

One morning just after daybreak, we received a reverse-911 phone call, the recorded voice predicting arrival of the tsunami in five hours and urging residents to seek high ground. I needed to leave for work, so Diana took charge of loading our dog (on

leash) and our cat (in a pet carrier) into our SUV. We'd bought this rugged vehicle specifically for emergency conditions, especially the annual flooding to which the roads near our home are vulnerable. While I tried to concentrate on my duties at work, Diana drove the SUV to the parking lot of the general store (yes, those still exist) located on a hillside from which she could see our house. Not surprisingly, all of our closest neighbors had picked the same spot to await the arrival of the big wave. There was no doubt it was coming. The suspense lay in the fact that the experts could not predict its size upon reaching landfall.

As Diana described it to me that evening, it turned out not to look like a wave at all. Instead, it looked like a fast-motion film of the daily tide: the water in the harbor dropped rapidly, right down to the muddy bottom, then refilled just as rapidly, stopping just short of the level required to overflow the banks protecting our home and the homes of our neighbors. It held that height for a few seconds—and all watching held their breath—then the sea water dropped about a foot, stabilizing at the normal level for that time of day. Everyone broke into applause, whistles, cheers, and some car-horn-honking. Later, in a more reflective moment, Diana and I, well aware that the roles could easily be reversed with the next big California quake, weighed our own good fortune against the catastrophe still unfolding in Japan. There is simply no way to know when such a disaster will strike.

#### **27 October 2019, Bodega Bay, California, USA**

Official warnings began arriving on Thursday, October 24th, by e-mail, text, and automated phone messages; each new message becoming increasingly dire, arriving with increasing frequency. The wildfire was largely uncontained. Record-breaking high winds were expected to whip the flames across hundreds or thousands of acres yet untouched. One town after another received mandatory evacuation orders, the speed of the conflagration being described on the

local news as "three football fields per minute." It was all headed right for us. Even though the skies remained temporarily blue and clear in our little village of Bodega Bay, every new text or automated phone call raised our anxiety another notch. My wife and I began to jump at every sound, and with two cell phones plus a land line at home, we had an ongoing chorus of ring tones going off, each new automated text or voice message delivering increasingly ominous news.

By Saturday, October 26th (yesterday as I write this), fewer than three full days after the blaze began, Diana and I received the phone call we'd been dreading: electricity being turned off by the utility company as a safety precaution and mandatory evacuation ordered for our little coastal town. Our SUV was already packed with the essentials, including Diana's wheelchair. You see, Diana has been coping for years with a steadily debilitating arthritic condition, a glacial affliction that makes moving about incrementally harder for her each year. She still walks short distances, using a pair of fore-arm crutches, but it was critical to have the wheelchair packed and ready for the other end of our journey, wherever that might be. Evacuation was going to be especially rough on her.

We weighed the mandatory evacuation order against our up-close knowledge of our own particular circumstances. The fire was nowhere near us yet. Were we being flogged into fleeing by overzealous safety officials? Was the Pacific Gas & Electric Company cutting our electricity prematurely? Part of me was deeply suspicious of the motives of both our government and the private corporation that delivers our power. But then I thought of the scapegoating psychology that Jones documents in her book. Was I falling into the trap of blaming faceless "big government" and "big business" just to avoid the reality of what was happening?

If we ignored the order and chose to remain in place, what were our risks? On the one hand, we are about as far west of the blaze as a person can get without falling into the Pacific

Ocean. On the other hand, this is a rural area with limited roads and only one practical escape route. What if we guessed wrong, and found ourselves trapped by an inferno? My strong gut feeling was that the whole combination of electricity cutoffs and evacuation orders was bogus, a sham display of private and public officials covering their own derrieres. As I tried rationally to calculate our odds, another portion of Jones's book kept coming to mind, her discussion of the evolutionary psychology that drives life-or-death decisions:

Evolutionary pressure rewarded brains that saw patterns, even in randomness. When we heard a rustle in the grass, we could imagine it was a random breeze and ignore it, or we could hypothesize that it hid a waiting predator and try to escape it. For the many times it was a breeze, the wrong answer made us unnecessarily anxious, but it did not interfere with our survival. For the rare times that it was a predator, the anxious survived, and those who believed it to be random made a fatal error. (22)

If we gambled by remaining in our home, would we be making such a "fatal error"? Some of our neighbors came by to check on us and commiserate; they, too, were contending with the same questions.

In the end, we decided to remain in our home, but vigilant. We still had cell phone service, so we could easily see updates on the spread of the fire. By the next morning it was plain to see that hundreds of people in Bodega Bay had made the same choice. Traffic bustled back and forth on local streets. The sound of gasoline-powered generators was humming from nearby households everywhere. If we had guessed wrong, at least we had plenty of company.

### **30 October 2019, Bodega Bay, California, USA**

As I complete this writing, several more days have passed, and we remain in our home, with Diana exhausted and asleep in her armchair while the two cats, Miracle (the early warning

system) and Merlin (the nonchalant aristocrat), take turns sleeping in her lap. Fortunately, the fire itself is still quite distant from us, and we have been advised to continue to "shelter-in-place" for the time being. The skies in Bodega Bay are thick with wildfire smoke. The sun is crisply outlined as a bright orange disc. The electricity remains off. We are cold and uncomfortable, but we are also counting our blessings. So many other people have already lost their homes or been forced to flee with no place to go. This is bad, but it is hardly "the big one" for us.

Speaking as a scientist, Jones explains the rigor expected in defining a relativistic word like "big" in objective, measurable terms, especially when communicating with other scientists. Much of her work is consumed by translating how scientists speak in terms that are useful to urban planners, public safety officials, and the general public. Much of the value of reading *The Big Ones* is that it deepens the reader's understanding of this complicated interplay of objective research and practical decision-making. How big is "big"? How big does a disaster have to be to count as "the big one"? What is the biggest "big one" for which we should prepare?

In my personal experience, there is a psychological, emotional, intuitive use of the phrase "the big one" that demands no such rigorous definition and thrives in common usage because it feels right. Californians talk about "the big one" with a quasi-legendary quality, as though it were the name of a monster hinted at in a prophetic vision, always moving toward us but never quite arriving. No matter what happens—earthquake, storm, wildfire—the damage and destruction you live through may be horrendous, but it is never quite "the big one," because we know in our hearts that something even worse is always possible. The Big One is always coming.

#### Reference

Jones, Lucy. 2019. *The Big Ones: How Natural Disasters Have Shaped Us (and What We Can Do About Them)*. New York: Anchor.