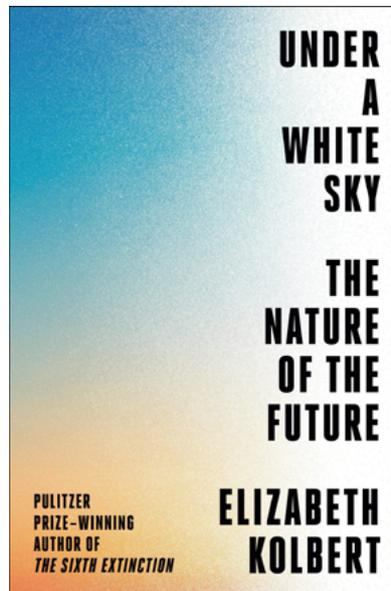


ALL WE'VE GOT

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Under a White Sky: The Nature of the Future by Elizabeth Kolbert, Fulbright Scholar to Hamburg, Germany in 1983.

In her latest book, *Under a White Sky: the Nature of the Future*, Pulitzer-Prize winning author Elizabeth Kolbert proves herself to be an engaging story teller, using first-hand experience and subtle, somewhat quirky, humor. The book chronicles the frustration of “people trying to solve problems created by people trying to solve problems” (200). There is a big overall problem, and it is truly monumental: human-caused, global environmental degradation. The various stories here document how our attempts to address this problem range from heartbreaking to terrifying.

The book is organized as kind of a three-act play, with two or three scenes each. The first act (“Down the River”) takes us to the Chicago River and into the Chicago Sanitary and Ship Canal, an artificial waterway that diverted the Chicago River from Lake Michigan towards the Mississippi River and “upended the hydrology of roughly two-thirds of the United States” (6). But typical of human attempts to re-engineer the planet, solving one problem (prevention of waste entering Lake Michigan) created a host of other problems, in this case invasive species moving from one major drainage basin to the other.

From the Chicago River we next go to the Mississippi River delta in Louisiana where decades of engineering efforts have attempted to control flooding, only to reduce the natural deposition of sediment leading to the increasingly rapid loss of terra firma. It was interesting to learn that the scientists and engineers dealing with this challenge use a scale model of the Mississippi River and bordering lands made of stiff foam, simulated sediment, and actual water to make and test predictions, rather than simpler (and less messy) computer simulations.

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In the second act (“Into the Wild”), the author takes us to desolate areas of Nevada to learn about the Herculean human efforts to save the Devils Hole pupfish, probably the rarest fish in the world, as well as several other incredibly rare and isolated desert fish, from extinction. These efforts, ranging from constructing habitat simulacra, laboriously feeding the fish by hand, and collecting single microscopic eggs to be raised in captivity, are just as amazing as they are heartbreaking—especially when you realize they are probably all doomed to fail. Opposing bumper stickers reflect the local sentiments: “SAVE THE PUPFISH!” or “KILL THE PUPFISH!” (Sound familiar?)

From there we travel to Australia to learn about attempts at “assisted evolution,” using biotechnology to counteract the decimation of coral from the bleaching effects of warming ocean waters and about attempts to use the genetic engineering tool CRISPR to convert the toxin of invasive toads from lethal to merely distasteful to protect naïve predators. Toad legs, anyone?

The third and last act (“Up in the Air”) addresses the problem of human-caused carbon dioxide emissions, thought to be a key cause of global climate change. Here the author gets down (or rather up) to the nitty gritty: the biggest environmental challenge of all. On an optimistic note, we learn about a company that will allow you to capture your carbon dioxide emissions for a fee. Skipping over the second scene for now (see below), the third scene describes how ice cores taken from one of Greenland’s glaciers can provide a direct record of changes in atmospheric temperature over time. The record shows dramatic fluctuations in atmospheric temperature until 10,000 years ago when it suddenly stabilizes. The fact that this stabilization coincides with the establishment of human agriculture is an unsolved puzzle and curiously, Kolbert lets it hang.

The most terrifying part of the book for me was scene two of the third and final act: stratospheric geoengineering. This, I believe, is the *raison d’être* for the book (or at least where the book’s title comes from). Stratospheric geoengineering involves scattering vast quantities of reflective material (such as microscopic diamonds) into the stratosphere to reflect the warming radiation of the sun back into space (turning the blue sky white). This idea is terrifying because it epitomizes the typical human approach to problems, from cancer to global climate change: treat rather than prevent. That means

we will probably end up doing it. Unfortunately, stratospheric geoengineering treats the symptom rather than the cause, and in the case of global climate change, stopping treatment would be “like opening a globe-sized oven door” (180)!

In summary, this short but thought-provoking book provides a frustrating glimpse of a few handfuls of people working on problems all having to do with the vast overall challenge of general environmental degradation induced by human activity, including previous efforts to control the damage. I recommend this book for anyone who is curious about human-induced environmental degradation, including global climate change, and some of the current human efforts to understand and mitigate it. Warning: The overall message is decidedly pessimistic.

Still, as the author states in her Afterword:

Neither optimism nor pessimism alters the fact that we live in an extraordinary moment. The choices that we’ll make ---that we are making right now, without necessarily being aware of them--- will determine the future of life for our children and their children and all the other species on earth for generations to come. This is the situation we’re in, and there’s no avoiding it, because, in the end, this marvelous, fragile planet is all we’ve got (207).

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BIOGRAPHY

Stanley K. Sessions received his PhD in Zoology at the University of California at Berkeley, working in the Museum of Vertebrate Zoology on salamander development and evolution with David Wake. After postdoctoral positions at the University of Leicester in the UK and the University of California in Irvine, he took a job as Assistant Professor in the Department of Biology, Hartwick College in Oneonta, New York. In 2016, he was awarded a Faculty Scholar Teaching/Research Fulbright to study the European blind cave salamander in Slovenia. He retired as Professor Emeritus of Biology in 2020 and currently lives in Eugene, Oregon.

