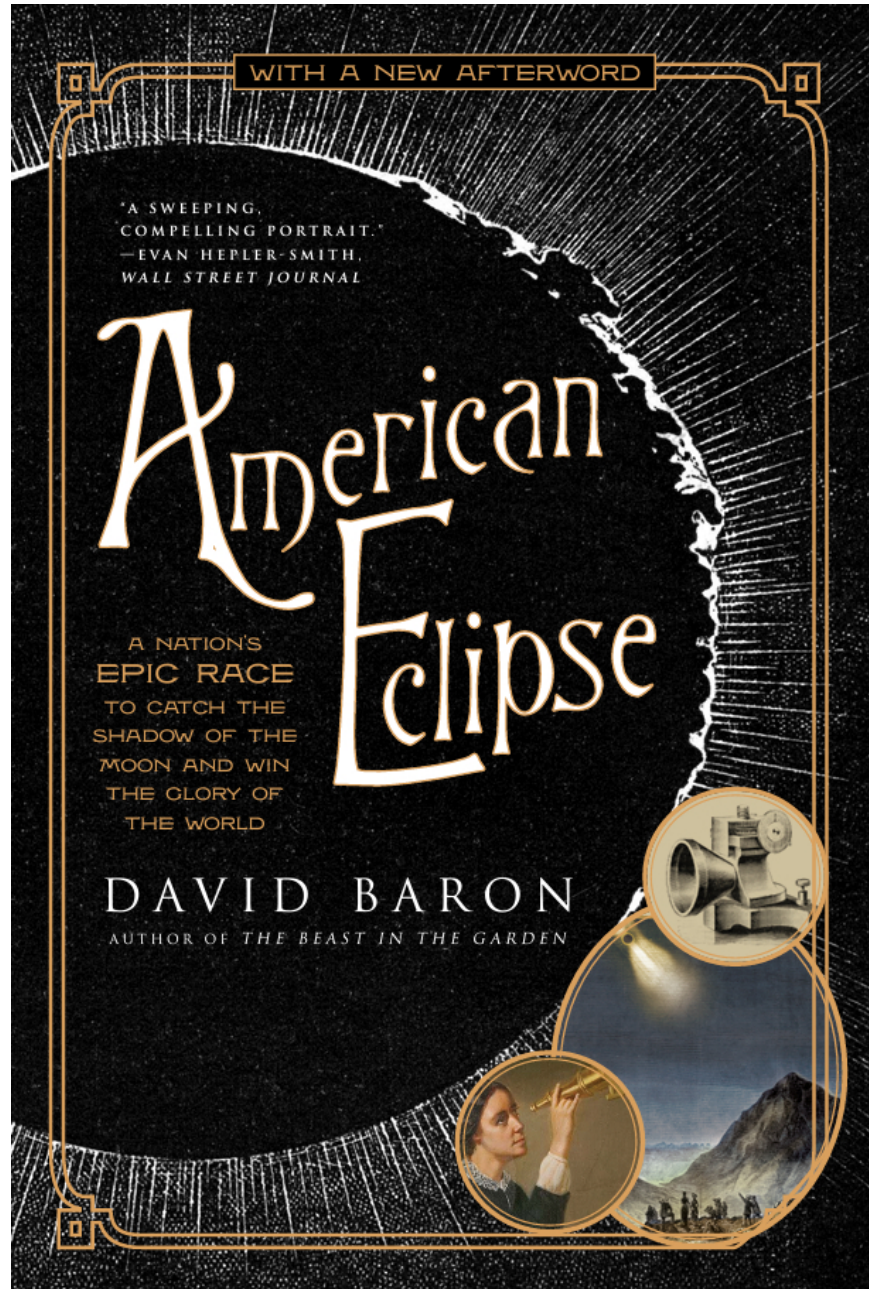


AMERICAN ECLIPSE

Book Club Kit for Revised Edition (2024)



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A letter from the author

Thank you for your interest in *American Eclipse*.

This book tells the true story of a momentous yet largely forgotten event in American history. It's a tale set in the Gilded Age and Wild West, and it stars a cast of remarkable characters. I enjoyed getting to know them as I wrote the book, and I hope you will relish spending time with them as a reader. These remarkable women and men helped shape the America we inhabit today.



I observed my first total solar eclipse in 1998, and it changed my life. To stand in the moon's shadow and gaze at the sun's glorious corona is an awe-inspiring experience. If you have never witnessed this most spectacular of heavenly sights, I would urge you to do so at least once in your life.

David Baron

David Baron is an award-winning author, journalist, and broadcaster. A former NPR science correspondent and recent Chair in Astrobiology at the Library of Congress, he has written for *The New York Times*, *Boston Globe*, *Los Angeles Times*, and other publications. His many honors include journalism prizes from Columbia University, the National Academy of Sciences, and the American Association for the Advancement of Science. An avid eclipse chaser whose TED Talk has been viewed more than two million times, David has witnessed eight total solar eclipses across five continents.

Author Q&A

1) On April 8, 2024, a rare total solar eclipse will cross the United States. How significant will this astronomical event be?

It will be huge—indeed, quite likely be the most witnessed event of its kind in American history. If you were in the United States in the summer of 2017, you probably remember the excitement of the total solar eclipse that occurred on August 21 of that year. As the moon’s shadow raced across the country from Oregon to South Carolina, people stopped their daily routines to watch the alignment in the heavens. TV networks covered the event wall-to-wall, and organized eclipse festivals hosted spectators by the thousands at fairgrounds and sports stadiums. The upcoming eclipse on April 8, 2024, will be an even bigger event. On that day, virtually all of North America (minus Alaska) will be treated to a *partial* eclipse, and the 100-mile-wide zone where the eclipse will be *total* will cross fifteen states from Texas to Maine, as well as portions of Mexico and Canada. Thirty million Americans live within this zone—called the *path of totality*—and more than half the country’s population lives within a 250-mile drive. Millions will likely make that drive.

2) What is so special about a total solar eclipse?

When the moon passes directly in front of the sun and fully blocks the solar surface, it creates a bizarre and spectacular sight. For a few brief minutes, the blue sky turns to twilight, bright stars and planets appear in the daytime, and the sun’s outer atmosphere—the solar corona—is revealed. The corona is a mesmerizing spectacle, a wispy, shimmering wreath that hangs in the sky like a celestial crown.

3) Total solar eclipses have always awed the humans who witnessed them, but—as you write in your book—the events were at one time extremely important for science. Why was that?

During the nineteenth century, astronomers were starting to investigate basic questions about our sun. What is it made of? What fuels its fires? Total eclipses offered an opportunity to find answers. When the moon hid the sun, astronomers could train their telescopes and spectroscopes on the corona and other features along the solar edge, and these observations provided clues to the sun’s structure and chemical composition. In that era, scientists would plot the tracks of upcoming eclipses and then launch expeditions to reach them, which often meant crossing oceans and remote terrain in Africa or Asia. Once there, the astronomers would set

up their equipment and nervously wait for the eclipse. These expeditions took months of planning and weeks of travel, yet success came down to a mere two or three minutes of observation. If a cloud floated by at the wrong moment, the entire effort could be rendered worthless.

4) What set apart the eclipse of 1878?

The total solar eclipse of July 29, 1878, traversed a remarkable place at a remarkable time. The path of totality ran down the American frontier—Montana Territory to Texas—at the height of the era we remember today as the Wild West. Settlers were streaming into the region, Indians were being pushed off their native lands, and America was reinventing itself in that vast domain beyond the Mississippi. The recently constructed transcontinental railroad made access relatively easy, and that prompted scores of scientists from the East—and from Europe—to travel to the frontier for the eclipse.

5) What was the state of scientific research in America at the time?

The United States had a poor reputation in the international scientific community. A small band of American astronomers was determined to change the nation's fortunes, and they approached the 1878 eclipse as if it were a global scientific tournament. The American public was keenly interested in how this competition between New and Old World astronomers would play out.

6) One famous competitor at the eclipse was Thomas Edison. Why was he interested in astronomy? Weren't his goals and interests more terrestrially oriented?

At the time of the eclipse, Edison was young—just 31 years old—and he was on friendly terms with a number of academic scientists. A physicist invited Edison to join an eclipse expedition to Wyoming, and he eagerly accepted. In fact, he brought along a special device—called a *tasimeter*—that he had invented to study the solar corona. The eclipse fell at a critical juncture in Edison's life. As soon as he returned from Wyoming, he began work on a new invention: the incandescent lamp.

7) *Another notable scientist who participated in the 1878 eclipse was Maria Mitchell. Tell us about her.*

Mitchell [whose first name was pronounced muh-RYE-uh] was America's most famous female scientist in that era. She taught astronomy at Vassar, which had recently been founded as a college for women. Against the backdrop of overt sexism in the upper echelons of American higher education (one Harvard doctor even argued that women's colleges endangered the health of maturing girls, turning them sickly and sterile), Mitchell in 1878 decided to do something radical. With teams of men heading west to observe the eclipse, she assembled the all-women Vassar College Eclipse Party, which served as a political statement as well as a scientific expedition. It demonstrated to the public that women could be educated, strong, scientifically minded, and feminine—despite the prejudices of the day.

8) *Among the biggest headlines to come out of the 1878 eclipse were those generated by astronomer James Craig Watson. Who was he, and what did he do?*

Watson worked at the University of Michigan, and he was known in his day as a planet hunter. Back then, the word *planet* applied not only to major worlds like Jupiter and Mars, but also to asteroids, which were termed *minor* planets. Watson possessed a knack for finding these wandering bodies among the fixed stars, and he intended to use that skill during the 1878 eclipse to establish the existence of a hypothetical world called Vulcan, which was believed to orbit extremely close to the sun. Watson traveled to Wyoming in 1878 determined to find this ghost world, and during the eclipse he thought he spied it.

9) *What is an umbraphile?*

That's a fancy word for what I am—an eclipse chaser. Total solar eclipses can be addictive. Some people, after witnessing what they expect will be a once-in-a-lifetime sight, feel compelled to repeat the experience. Since I saw my first total eclipse in Aruba in 1998, I have traveled the world—to Germany, Australia, the Faroe Islands, Indonesia, Chile—to stand again in the moon's fleeting shadow. Total eclipses are not only unbelievably beautiful; they are also deeply moving, both emotionally and spiritually.

10) What advice would you give to anyone wanting to view the solar eclipse that will cross the United States on April 8, 2024?

My number one piece of advice is to *get yourself to the path of totality*. Even a 99% partial eclipse is nothing compared with the awe-inspiring experience of totality. You'll find detailed information on how to view the total eclipse at my website: www.american-eclipse.com. I realize, of course, that not everyone has the time or resources to travel to the path of totality, so—wherever you are on April 8—be sure to enjoy the partial eclipse. Remember that it is never safe to look at the bright surface of the sun with the naked eye, so you'll want to purchase eclipse glasses for watching the event. Check with your local science museum, library, or hardware store to see if you can purchase a pair there. For advice and a list of reputable online vendors, see the American Astronomical Society's website: <https://eclipse.aas.org/resources/solar-filters>.

Discussion Questions

- 1) Where were you for the solar eclipse that crossed America on August 21, 2017? Did you witness it as a *total* eclipse? What are your memories?
- 2) David Baron writes in his afterword that an eclipse—especially a total eclipse—can foster a sense of human connection. Have you experienced that sensation with other awe-inspiring spectacles? For instance, watching a dramatic sunset, gazing at the full moon, or taking in a vista like that of the Grand Canyon with friends or loved ones?
- 3) The America of 1878 was very different from the America of 2024, yet aspects of the culture back then still resonate. What parts of the story in *American Eclipse* seem most antiquated? What parts seem eerily familiar?
- 4) Thomas Edison was both a prolific inventor and a tireless showman. Do you think he would have succeeded as a businessman if he had not possessed the talent for self-promotion?
- 5) What qualities did Maria Mitchell possess that enabled her to succeed in the face of blatant anti-female bias? What lessons can we learn from her life story?
- 6) *American Eclipse* reveals that the process of science is not simple or linear. The advancement of knowledge includes many detours and dead ends. Can you think of examples, in your own lifetime, of great scientific announcements—like James Craig Watson’s discovery of the planet Vulcan—that turned out to be mistaken? What about great inventions—like Edison’s tasimeter—that ended up duds?
- 7) The frontier West has often been mythologized as a romantic, adventurous place, yet it could be brutal and cruel. Would you have wanted to visit Wyoming or Colorado in 1878?
- 8) The next total solar eclipse to cross a great swath of the United States will not occur until August 12, 2045, when the path of totality will run from California to Florida. Where do you think you will be at that time? What will America be like?