BOOKSHELF

# Gilded Age Shadow Catchers

On July 29, 1878, astronomers, tourists and even Thomas Edison traveled to the still-wild West to get a good glimpse of the total eclipse. Evan Hepler-Smith reviews 'American Eclipse' by David Baron.

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*By Evan Hepler-Smith*
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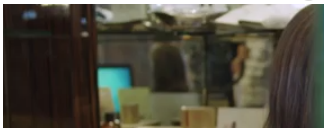
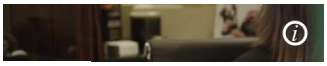
On July 29, 1878, a hundred-mile-wide patch of midday darkness swept across a swath of the western United States. It was a total solar eclipse—a rare transit of the moon directly between earth and sun. Across the still-wild West, thousands of stargazers gathered, chasing a few minutes of astronomical measurements and ecstatic experience. Afterward, famed Scottish astronomer Charles Piazzi Smyth congratulated his colleagues across the Atlantic on a scientific spectacle "which American men, and American instruments, methods, & ideas, have made more peculiarly & grandly American, than any Solar Eclipse you have had in your country yet."

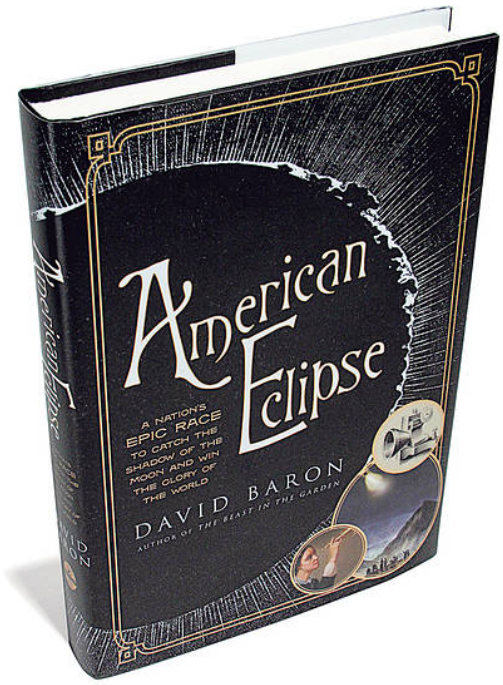
In "American Eclipse," science journalist David Baron tells the story of the men and women who went west to observe this dramatic event. Just as astronomers pieced together fragmentary observations of the 1878 eclipse to synthesize knowledge of the heavens, Mr. Baron has combed through scientific journals, newspapers, and two dozen archives to unravel the threads of American history that met there. The result is a sweeping, compelling portrait of the scientific and social aspirations of Gilded Age Americans.

Measured in wealth and industry, America of the mid-1870s was fast becoming a global power. The nation's scientific achievements were far less impressive, writes Mr. Baron, and American scientists were eager to change that. Astronomers, whose research supported celestial navigation—a matter of great economic and military importance—were better positioned than most American scientists to advance their own and their nation's prestige. A total solar eclipse offered the opportunity to do so. When the moon obscured the sun's blinding light, a mysterious luminous halo—the corona—would become visible, as would the faint light of bodies adjacent to the sun in the heavens. During the eclipse, careful observers might discern new clues about the nature of the sun and the solar system.










AMERICAN ECLIPSE

By David Baron
*(Liveright, 330 pages, $27.95)*

"American Eclipse" follows three of these observers. The first, University of Wisconsin astronomy professor James Craig Watson, was "keenly representative of his era," in Mr. Baron's judgment: corpulent, swaggering, competitive, acquisitive and unscrupulous. Watson had achieved renown as a "planet hunter"—a contender in the heroically painstaking competition in which astronomers combed the night sky for as-yet-unknown celestial bodies to add to their personal and national scorecards. His usual quarry were minor planets (what we call asteroids), but Watson saw the eclipse as an opportunity to bag bigger game: a conjectured major planet called Vulcan, thought to circle the sun somewhere inside the orbit of Mercury.

The book's second subject is the most famous of the eclipse observers, then and now: Thomas Alva Edison. Edison was no astronomer; along his journey west, he informed a reporter that he didn't "know anything more about it than a pig does about learning Latin." He was on the trip, first, as a vacation from the frenzy of attention that the indefatigable self-promoter had brought upon himself, and second, to test out a new instrument for measuring minuscule amounts of heat by examining the corona of the eclipsed sun. There was a catch: Edison made a habit of trumpeting his inventions before he had quite invented them. While his livelihood wasn't on the line here as it later would be with the light bulb, his credibility among scientists was.

Mr. Baron's third and most interesting subject is Maria Mitchell, decorated astronomer, Vassar College professor, and staunch advocate of women in science. As Watson, Edison,

and other male observers prepared to travel west on the government's dime, Mitchell organized an all-female eclipse expedition, recruiting four Vassar graduates and her younger sister. Previously, Mitchell had been denied a request to have her female students participate in an astronomy expedition; the head of the U.S. Naval Observatory had declared himself unwilling "to expose a woman to the fatigue, hardships and dangers of so long a winter's journey." Mitchell's party traveled to Denver not just to observe the eclipse but to be observed as women in the act of scientific inquiry.

The climax of "American Eclipse" is the eclipse itself. Mr. Baron is an umbraphile—an eclipse enthusiast—and it shows in his vivid account of the three minutes of totality. Interweaving the locomotive velocity of the moon's approaching shadow, the otherworldly twilight beneath it, the precise urgency of astronomer observers, and the gawking wonder of spectators, Mr. Baron captures the celestial drama nicely, and there is human drama here, as well. Along their journey west, drunken cowboys, parsimonious senators, desperate outlaws, and more threatened to derail the astronomers' expeditions. One suspects that the accounts Mr. Baron draws upon may have exaggerated some of these dangers, but exaggerated or not, such tales of adventure were intrinsic to the science of astronomy in the 19th century. Observers of other far-flung eclipses staked their reputations on feats of derring-do—shipwrecks, treks through mosquito-infested marshes, even escape by hot-air balloon. Astronomy was a science of exploration, discovery and conquest on earth as well as in the stars.

The term "eclipse," Mr. Baron observes, is a bit misleading: "What is notable is not what is hidden, but what is revealed." He acknowledges it is difficult to assess the direct contributions of the 1878 eclipse expeditions to the waxing prestige of American science. (The only false notes in "American Eclipse" come when, once or twice, Mr. Baron attempts to do so anyway.) The book's achievement lies in taking the measure of what this conjunction of celestial bodies and historical figures reveals about America, "as a society, a nation, a civilization," circa July 1878.

Today the country will once again fall under the path of a total solar eclipse, for the first time since 1991 and the last until 2024. Along a strip of continent running from Oregon to South Carolina, umbraphiles will gather to face the mysteries of the heavens. One wonders what stories of America their expeditions might reveal.

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