

Your Guide to the 2017 Total Solar Eclipse

Michael E. Bakich

Springer, 2016. \$34.99 paper (395 pp.). ISBN 978-3-319-27630-4



The path of totality for the Great American Eclipse of 21 August 2017 will sweep majestically from sea to shining sea, span almost 5000 km, and have a width of about 115 km. Landfall is on the Pacific coast west of Salem, Oregon; from there, the Moon's shadow will cross 14 states at speeds of up to 1.0 km/s before departing the continental US northeast of Charleston, South Carolina.

This eclipse, the first one visible from coast to coast since 1918, might well prove to be the most viewed sky event in history, with observers numbering in the millions. Hotels along the center line, where observers will see the entire Sun obscured, have been fully booked for years. Maximum totality will be in the vicinity of Carbondale, Illinois, and will last just 2 minutes and 41.6 seconds. Carbondale is also the spot where the center lines of the 2017 eclipse and the 8 April 2024 eclipse intersect, making it the Eclipse Crossroads of America.

Outside the path of the Moon's shadow, the eclipse will be partial: Everyone in the continental US will see at least 48% of the Sun's surface obscured, which is great. However, a total eclipse is about totality! To experience the wonder of the corona, the chromosphere, the diamond-ring effect, and maybe prominences too, you must be in the path of totality. Being close simply isn't good enough.

Michael Bakich's new book, *Your Guide to the 2017 Total Solar Eclipse*, is all about being fully prepared, whether you're a dedicated eclipse chaser or a first-timer. With great clarity, the first six chapters introduce important concepts for curious members of the public who may never have witnessed a total eclipse. The illustrated glossary and frequently asked questions are an accessible guide to the basics: Is the eclipse safe to view, and what equipment is needed?

However, I found that chapter 5 on the Saros cycle of eclipse recurrences introduced unnecessary complexity too soon for the average Sun watcher. I rec-

ommend skipping it. Chapter 6, in contrast, inspires with a well-researched narrative on historical solar eclipses. It includes an enjoyable short account of Arthur Eddington's expedition to observe the eclipse of 1919. His trip provided the photographic evidence for the deflection of light by the Sun's gravitational field, predicted in 1915 by Albert Einstein.

From that historical launch, chapters 7–12 cover every aspect of observing an eclipse with the unaided eye. They offer vital safety advice, tips on how not to observe, and guidance on what you can see. Bakich, a senior editor at *Astronomy* magazine and a veteran of 13 total eclipses, provides a handy diagram of what the sky will look like during totality. Venus, Arcturus, and Sirius will be easy to spot, but don't waste your precious seconds finding fainter objects. Above all, do not attempt to photograph your first eclipse because you will miss experiencing one of nature's greatest spectacles.

Storm in a Teacup The Physics of Everyday Life

Helen Czerski

W. W. Norton, 2016. \$26.95 (288 pp.). ISBN 978-0-393-24896-8

Books written to show nonphysicists the world as a physicist sees it have a long history. In 1939 George Gamow published *Mr Tompkins in Wonderland*, which described how the world would look were the universal constants to take on very different values—for example, if the speed of light were 10 m/s. Between 1980 and 1986, James Trefil wrote six books with titles like *A Scientist at the Seashore*, in which commonly observed phenomena were carefully described and then qualitatively analyzed. Brian Greene explored cosmology in his 2005 *The Fabric of the Cosmos*. All three of these authors tell a story both correctly

and well, in a manner that is compelling to the untrained reader. I am delighted to add Helen Czerski, author of the new book *Storm in a Teacup: The Physics of Everyday Life*, to that distinguished company.

Authors write best about what they know well. Czerski is a physicist at University College London who studies the behavior of bubbles and films of bubbles; her expertise is in phenomena at the human scale as opposed to those of elementary particles or galactic clusters. Each of her nine chapters tells a story with a rich and varied cast of people,

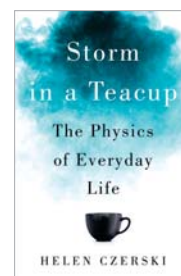
Chapters 13–18 concern different types of equipment—binoculars, telescopes, cameras (for experienced eclipse chasers), and filters—and how to use them. A notable strength of the book is the extensive information on specific products that can be purchased for making serious observations of the Sun. The consumer information on telescopes and their accessories is particularly helpful. Next up, for those ready to make the trek, is advice on getting to the center line, including checklists of what to take (cash, sunscreen, toilet paper, and so forth), weather data, and suggestions of 20 prime spots for viewing the eclipse.

Twelve appendices conclude the book. They include many helpful lists of eclipse facts and a self-indulgent 22 pages of the author's collection of eclipse postage stamps. Throughout, the guide is enriched by more than 100 photographs, a great many of them by the author or his wife, Holley Bakich, and a gold mine of explanatory diagrams from *Astronomy* magazine.

Overall, *Your Guide to the 2017 Solar Eclipse* is an inspiring practical handbook to this month's exciting event, and much of the advice will be valid for the repeat performance in 2024. Astronomy is looking up: Enjoy the eclipse!

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