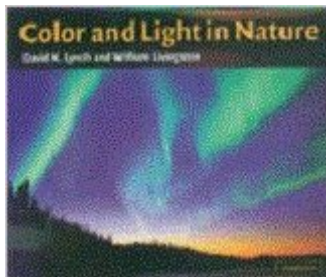


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# Color And Light In Nature



## Synopsis

We live in a world of optical marvels--from the commonplace but beautiful rainbow, to the rare and eerie superior mirage. But, how many of us really understand how a rainbow is formed, why the setting sun is red and flattened, or even why the sky at night is not absolutely black? *Color and Light in Nature* provides clear explanations of all naturally occurring optical phenomena seen with the naked eye, including shadows, halos, water optics, mirages, and a host of other spectacles. Separating myth from reality, David Lynch and William Livingston outline the basic principles involved, and support them with many figures and references. Rare and spectacular photographs, many in full color, illustrate the phenomena throughout. In this new edition the authors have added over 50 new color images and provide new material on experiments readers can conduct themselves, such as how to photograph geostationary satellites with your own camera. David K. Lynch is an astronomer and atmospheric physicist specializing in infrared studies of star-formation regions, interstellar matter, comets, novae, and supernovae. He began his career teaching at the California Institute of Technology and at the University of California at Berkeley. Today, he operates Thule Scientific, a private research institute. He is or has been the Principal Investigator on a variety of NASA, NOAA, NSF, and Department of Defense programs. He lives in Topanga, California. William Livingston has been an astronomer at the Kitt Peak Observatory in southern Arizona since 1959. He helped design and build instruments and telescopes before becoming a solar observer. Livingston has participated in many solar eclipse expeditions in Alaska, the South Pacific, Africa, Indonesia, India, and recently Turkey, but believes that his best sightings of atmospheric phenomena have been from his backyard in Tucson.

## Book Information

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## Customer Reviews

Why is the sky blue? Why do mountains glow in the dark? Is the darkest always before the dawn? An ideal reference to have on hand in answering questions such as these, *Color and Light in Nature* is an endlessly fascinating exploration of phenomena that are familiar to us all, but that even trained scientists take for granted. Take the question of why stars twinkle, for instance: twinkling, astronomers Lynch and Livingston observe, is strongest with stars that are low in the sky, and then on a clear and windy night, when starlight passing through the atmosphere encounters little pockets of turbulence that bend its rays "momentarily away from our eyes." Sunlight undergoes similar distortions, yielding mirages, "blinks," sundogs, halos, rainbows, "mountain light," and other wonders of nature, all of which the authors describe and explain in clear and accessible prose. Lynch and Livingston encourage their readers to seek out and study these phenomena for themselves, writing, for instance, "No effort should be spared to witness at least one total eclipse in your lifetime." They go on to make a good case for why that should be so, and why the workings of light and color should be of interest to students of science. Their book is a lively companion and teacher. --Gregory McNamee

"This magnificent collection of photographs of every imaginable optical phenomenon in the atmosphere deserves to be widely distributed..." *Meteorological and Atmospheric Physics* "[Lynch and Livingston] take the reader through hundreds of light and colour phenomena visible in the sky overhead, ranging from the straightforward to the exotic. Each account is succinct and lucid, illustrated by both diagrams and photographs, some stunning in their beauty....The balance of description and physical explanation is excellent. Many teachers as well as a good many naturalists will find the book to be a highly useful and comprehensive treatment of a beautiful subject, one that can be used to enliven dry classroom discussions of optics, light and colour." *Nature* "...a remarkable exposition of the many optical phenomena that delight and intrigue the eye of an observant person....delightful volume....It will certainly appeal to all readers interested in understanding color and light in nature." *Choice* "...impressive book....Lynch and Livingston deserve the thanks of the scientific community for re-opening our eyes to the wonderful world around us." *American Scientist* "Those who may be inspired for the first time to become careful observers of color and light in nature will enjoy reading about the green flash, supernumerary rainbows, mirages, the moon illusion, Haidinger's brush, earthshine, and many other topics presented in this book." *American*

Journal of Physics"...the up-to-date research, new ideas, beautiful pictures, and excellent explanations make Color and Light in Nature the new classic." Science"This book is about seeing the world with the naked eye... From mirages to white water to comet showers, it is all here.... This is the kind of book that makes you pay a lot more attention to your surroundings as you walk."

E-Streams

After reading this book, you will never look at the sky or the sea in the same way again.

Accompanied by beautiful photographs, including some rare sights in the sky, the book systematically covers atmospheric phenomena related to light and colour. For photographers it's a great book that will help you understand light effects in nature. The book is resplendent in the spirit of science: the topics are classified by the type of explanation for them: shadows, reflection, refraction and so on. This makes perfect, natural sense and really holds the book together. Some of the explanations include modest equations, tables and so on, but the text is always lively and readable. If you're scared of mathematics, buy it for the pictures. But be warned: this book will inspire you to go to Antarctica, chase solar eclipses, buy a telescope, and demand a window seat on every plane you fly for the rest of your life.

Very nice pictures and explanations of things you see everyday but may not have noticed and things you may have never seen until you know what to look for.

Very good ideas well explained about the basic science of light in the world we experience

This is a textbook, but is a great reference for photographers.

A wonderful book illustrating and describing numerous natural optical effects. Simply a must have on your shelf to whip out whenever something unusual plays out in your field of view. Entertaining to just take down and read as well.

This book is intended for people who are intrigued or awed by the way light is expressed in nature. It describes many natural phenomena involving light, including shadows, the color of the sky, clouds, mirages, halos, rainbows, the effects of ice in the atmosphere and much more. The intended audience in my eyes consists mainly of people who like physics but the beautiful color full-page pictures and tips on taking them also make this book a great resource for anyone interested in

photography. Even physics students can benefit from this book (although it is intended for laymen, so no equations are used) - the book shows them interesting manifestations of optics in nature. The book also makes a nice gift for people who enjoy nature and would like to know how it "works". Highly recommended!

I am sorry to see that this title is out of print. "Color and Light In Nature" is a wonderful look at the ways that light touches us everyday. I recommend this title for Directors of Photography as well as anyone captivated by light.

Noted solar astronomer Bill Livingston, PhD is a talented photographer in addition to his amazing astronomy skills. The menagerie of photographs showcases his blossoming picture-taking magic. Look for big things from this spunky up-coming go-getter!

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