nitescapes 3-D

Fred demonstrates the proper use of stereo fuser
Grand Rapids, MI – August 2008
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# THE BOOK

This book is not meant to be a scientific book on the Aurora Borealis. There are books in recent print which describe the current scientific understanding of the Aurora while also including historical and cultural aspects of this phenomenon. Several studies are currently taking place of this amazing display of nature both from terrestrial and space-based observatories. The basics are pretty well understood but the incredible variations of the Aurora displays are still puzzling. I have taken over 4,000 3-D images of the Northern Lights and no two are alike.

I began taking 3-D astro photography in 1996 with Comet Hyakutake and I still learn something (translate, make mistakes) every time I go out shooting. You have to worry about having the two cameras perfectly level while making sure they are aimed correctly. These images are what is considered hyper stereo since the cameras are separated by 9 – 12 inches vs. 2 – 3 inches for human eyes. Consequently, you are getting 3 – 4 times more depth in these pictures than if you were personally observing.

Some pictures have more stereo effect than others due to the proximity and type of foreground objects. However, even far away roads, bushes and trees have a feeling of depth. Most of the images were taken when there was no moon so all the illumination is either from starlight or the Aurora. Occasionally, the ice-road trucks would pass by and kindly add a splash of light. Since the photographs are time exposures, the foreground can sometimes be somewhat blurry. This is usually due to wind that is moving the branches but is can also be due to using a fast focal ratio and fast film.

The method used in this book to give 3-D is exactly the same as the old stereoscopes. The book uses 7-inch wide cards with a left and right image. The stereoscope used two lenses to fuse the two images into one 3-D image. A hand-held fuser called a lorgnette is included with the book. The fuser used in this book was invented in the 1950's when an individual self-published his own 3-D book. The lorgnette is also sent out by the magazine "Stereo World" when you join the National Stereoscopic Association. Other fusers can be purchased online and range in price from $3 to $300.

To use the fuser you need to wear your distance glasses. The focus point is approximately 10 inches from the stereo card. It may take some practice but the more you use it, the easier it gets. You can eventually train yourself to merge the two pictures without a fuser. Many people have described how after trying for some time, the two pictures suddenly "snapped" into one 3-D image. Sometimes three images are initially seen. In that case concentrate on the middle image. Please keep in mind that some people are not able to see in stereo or use stereo equipment.

Most stereo images are cropped and mounted so that the "stereo window" is at the stereo card. However, there are several pictures that violate the stereo window due to how the image was originally taken. The pictures were scanned professionally and no color enhancements were made, in an attempt to conserve as closely as possible the authenticity to what was observed directly in nature.

## EQUIPMENT

All of the pictures in this book were taken with very basic 35mm film cameras. Olympus OM 2's were used and very inexpensive second hand lenses (28mm Vivitar F 1.9, 50mm Olympus F 1.8 and 135mm Albinar F 2.8). The comet photos of Hale-Bopp were taken with Kodak Royal Gold 1000. The Aurora images were primarily taken with Fuji Provia 400 slide film. The exposures were typically 20 seconds with the 50mm lens and 40 seconds with the 28mm with a stereo bar holding the two cameras on a sturdy tripod. Please keep in mind that fast film is typically more "grainy" than slower film.

The two cameras are mounted on a stereo bar which allows spreading the cameras up to 12 inches; however, most images were taken with the cameras separated by 9 inches.

## MUSIC

Grammy nominated composer and producer Jonn Serrie is at the forefront of the electronic music industry. His album portfolio is both diverse and esteemed. Some of his well known titles include Century Seasons, The Stargazer's Journey, Lumia Nights and many other fine works.

In addition to scores for the hit Hollywood film "What The Bleep Do We Know?" and David Carradine's Tai Chi series, Jonn Serrie has composed music for George Lucas and the Hayden Planetarium in New York City, the Discovery Channel, PBS, the Blue Angels flight demonstration team and an award winning IMAX film called "Hubble: Galaxies Across Space and Time."

Included in this book is a CD by Jonn Serrie. The CD is from his album, "Century Seasons." I use Jonn's music while presenting these images in a digital slide show. Many of the attendees have commented that his "space music" sets the perfect mood while viewing these images. I also enjoy listening to his music while observing the night sky. Jonn is an amazing composer, musician and person. I encourage you to check out his other numerous CD's he has released over the years. His web site is www.vipinfo.com.

## ACKNOWLEDGEMENTS

I would like to thank my family, Suzi White and Wil White, for the total support they have given me over the years regarding my interest in astronomy. Probably the best example of that support was the time I gave up a turkey dinner to take pictures of an approaching comet. They were also understanding or our traipsing all over the western United States chasing the Comet Hale-Bopp. Also many thanks to my late parents, Jean and Charles, to my brother, Bill, and sister, Betty, who have come out to observe the night sky with me on various occasions as well as giving me much valuable advice. Many other people have helped me in my quest to fulfill my passion for astronomy. These include Chuck Pisa, who sold me my first telescope and patiently answered my questions and George Fleenor who has shared with me his wealth of knowledge about astronomy. Finally, astronomers too numerous to name from various local astronomy clubs have so often increased my knowledge of astronomy, and shared countless wonderful hours under the powerful majesty of the night sky.