the ASTROGRAPH

Volume 39 No. 5 April/May 2008

the ASTROGRAPH

Change of Address Notices - in order to expedite your change of address please send it to us promptly and include the old mailing label from your last issue. Remember the Post Office will not forward CDs unless you guarantee forwarding postage by leaving a deposit.

Renewal Notices - Unlike other publications that hound you with renewal notices, the ASTROGRAPH is currently sending out only one renewal notice. When you renew please use the self addressed envelope, or notify us that it is a renewal. Only include a mailing label if there is no indication of your current address.

Articles and Photographs - If possible send us articles on **3.5" floppy IBM compatible disks.** Any word processor is acceptable (WordPerfect is preferred).

COVER PHOTOGRAPH

Object.....M97, the Owl Nebula

Photographer.....Robert C. Price

Instrument.....Tele Vue NP-127 (5 inch F/5.2 refractor)

Exposure/Camera.....three 20 minutes/Hutech modified Canon 40D

Date.....12 March 2008

Location.....south of Blue Knob State Park, PA

VOLUME 39 No. 5

EDITOR.....Robert C. Price

CONTRIBUTING EDITOR.....Ralph Proctor

PROOFING CONTRIBUTOR.....Linda Miller

CONTRIBUTORS.....Lee C. Coombs

Features

Departments

The ASTROGRAPH is published in Adobe PDF format six times a year as follows: No. 1, August/March, No. 2 December/March, No. 3 December/March, No. 4 February/March, No. 5 April/May, No. 6 June/July. **Mailed CD** subscription rate is **$15.00** per year for the United States or any address with a U.S. zip code. Mailed CD subscription rate for Canada is $31.00 per year. Mailed CD subscription rate for Mexico is $31.00 per year. Mailed CD subscription rate for all other foreign countries is $35.00 per year. Subscriptions and all manuscripts and photographs submitted for editorial consideration should be sent to **the ASTROGRAPH, Post Office Box 369, Dumfries, VA 22026**. NOTE: for persons submitting articles please indicate if you do not want your name and address to appear at the conclusion of the article. Photographs are kept on file for possible use as illustrations at a later date unless accompanied by a self addressed envelope with return postage. AIRMAIL CD subscription rates per year: U.S. $15.00, Canada and Mexico $31.00, all other foreign countries $35.00.

Product Evaluation: Tele Vue NP-127 IS

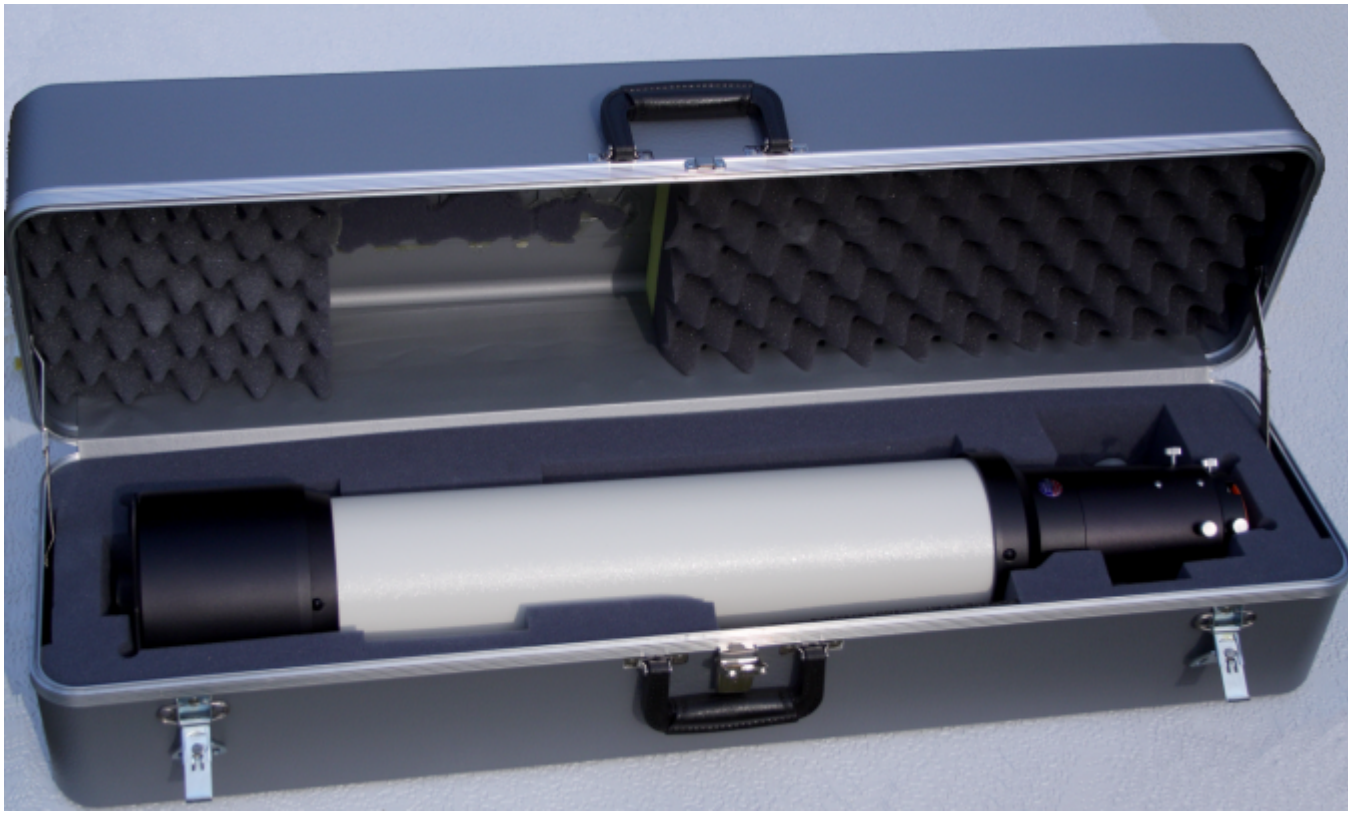
by

Robert Price

The Tele Vue NP-127 IS is a 5 inch refractor telescope utilizing a 4-element Nagler-Petzval design. The NP-127 IS is essentially the big brother of the NP-101, which was reviewed in the October/November 2006 issue of the ASTROGRAPH. The NP-127 IS has an aperture of 127mm and a focal length of 660mm, giving it an F-value of 5.2. The NP-127 IS weighs 16 pounds and the optical tube assembly is 33.5 inches long when compacted. By comparison the NP-101 weighs 10 pounds and is 26 inches long. The NP-127 IS comes in a hard shell carry case and the optical tube assembly contains a screw-on lens cap and sliding dew shield. Figure 1 shows the NP-127 IS in its case. The NP-127 IS also come with a 2.4 inch focuser with a 6:1 reducer for fine focusing, a 2 inch eyepiece/accessory adapter, and a photographic accessory adapter. The ring mount for the NP-127 IS is an optional accessory. The ring mount comes with an adapter plate for a Tele Vue mount. It was not readily adaptable to the author's Losmandy dovetail plate. It took some effort to mount the Tele Vue mount ring to the Losmandy dovetail plate because the Tele Vue plate had to be removed and screws of a specific type and length acquired. Figure 2 shows the NP-127 IS mounted to a G-11 dovetail plate.

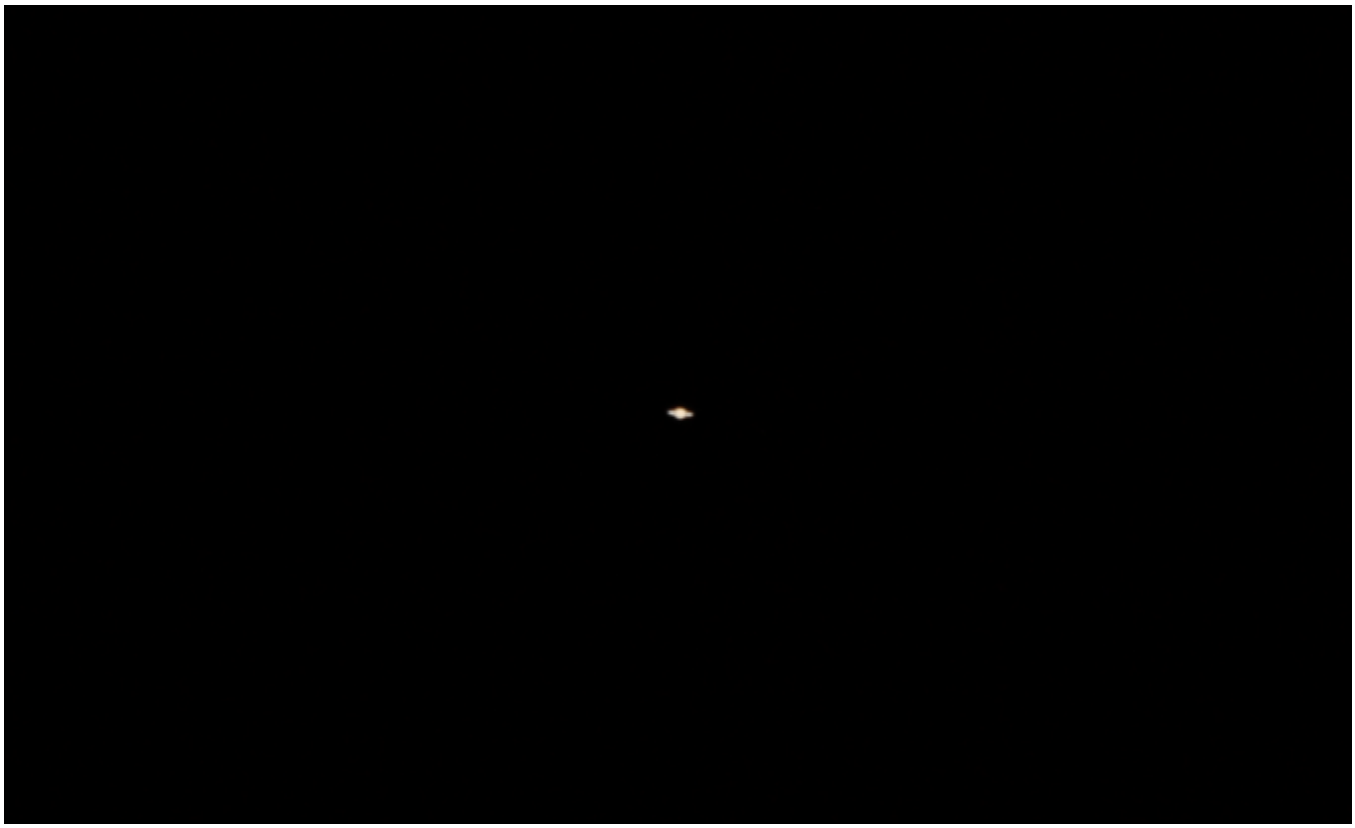
The author took some test exposures from his backyard in the light polluted suburbs 28 miles south of Washington D.C. Figure 3 is a 1/10 second exposure of Saturn taken at prime focus with a Canon 40D. Even with this small scale, Saturn's rings show nice symmetry. Figure 4 is a four second exposure of the trapezium in the Orion Nebula. It is well resolved. Longer exposures show well formed star images from the center to the edge of the frame. Star images showed no hint of coma, astigmatism, spherical aberration, or chromatic aberration. In summary the NP-127 is an excellent lens for astrophotography

On 12 March 2008 the author took a number of images with the NP-127 IS and Hutech modified Canon 40D from a location just south of Blue Knob State Park, Pennsylvania. Figures 5 and 6, and 7 show three of the images taken on this night.



Above, Figure 1: Tele Vue NP-127 IS in its supplied case.

Above, Figure 2: Tele Vue NP-127 IS with a Losmandy dovetail plate attached.



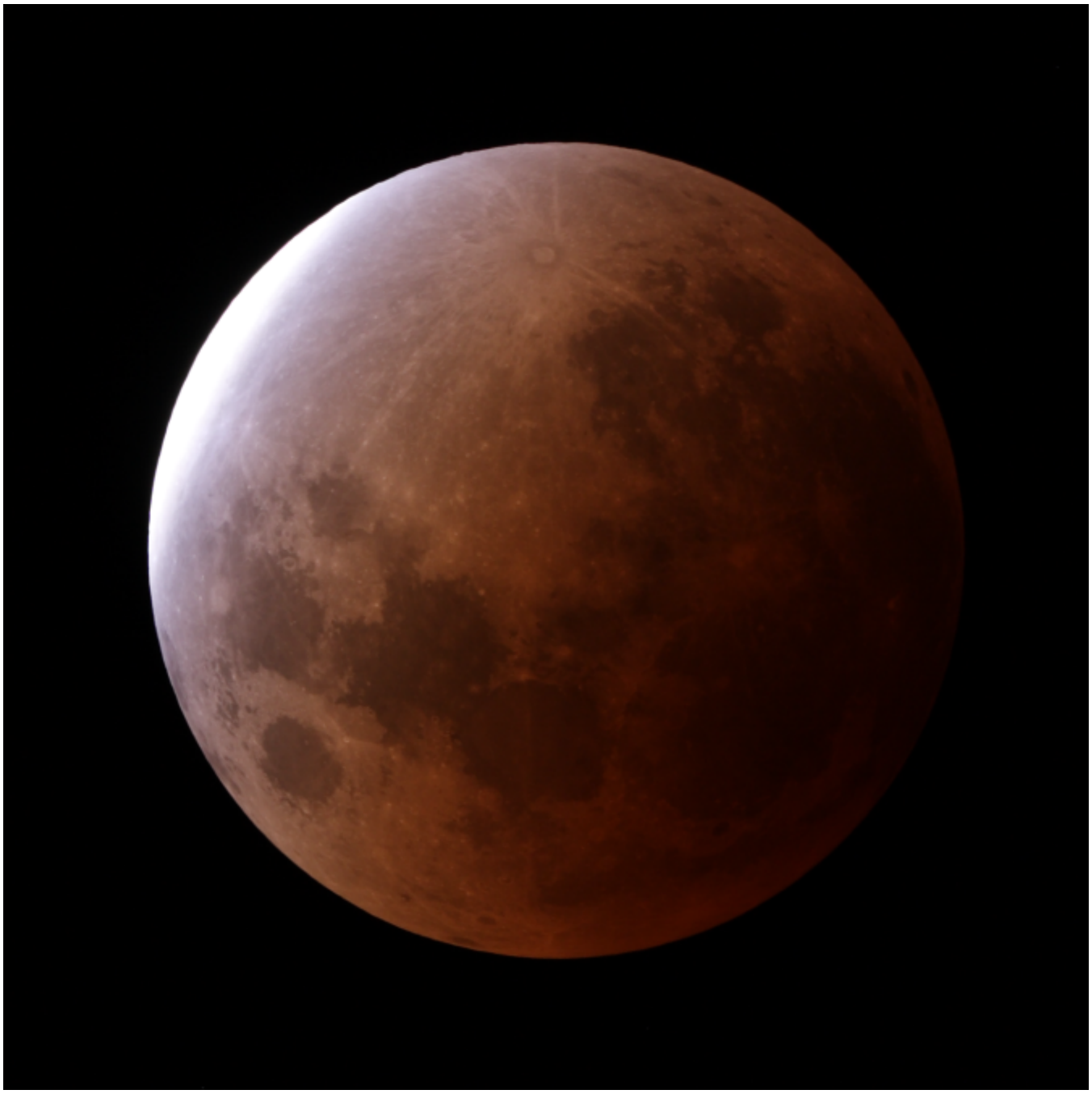
Above, Figure 3: Saturn photographed by the author on 20 February 2008 using a Tele Vue NP-127 IS and Canon 40D. Exposure was 1/10 second at 100ASA. Cropped image is scaled at 100%.

Above, Figure 4: M42 and the trapezium photographed by the author on 9 March 2008 using a Tele Vue NP-127 IS and Hutech modified Canon 40D. Exposure was 4 seconds at 100ASA. Cropped image is scaled at 100%.

Above, Figure 5: M81 and M82 photographed by the author on 12 March 2008 from Blue Knob, PA using a Tele Vue NP-127 IS and Hutech modified Canon 40D. This image is a combination of three 20 minute exposures at 100ASA. Cropped image is scaled at 50%.

Above, Figure 6: Rosette Nebula photographed by the author on 12 March 2008 from Blue Knob, PA using a Tele Vue NP-127 IS and Hutech modified Canon 40D. This image is a combination of three 20 minute exposures at 100ASA. Image shown is full frame.

Above, Figure 7: The Orion Nebula photographed by the author on 12 March 2008 from Blue Knob, PA using a Tele Vue NP-127 IS and Hutech modified Canon 40D. This image is a combination of three 20 minute exposures at 100ASA. Image shown is full frame.



Above: Total Lunar Eclipse of 20 February 2008 photographed by Robert C. Price using a Tele Vue NP-127 IS and Canon 40D. Exposure was 1 second at 100ASA.

Above: Total Lunar Eclipse of 20 February 2008 photographed by Robert C. Price using a Tele Vue NP-127 IS and Canon 40D. Exposure was 5 seconds at 100ASA.

Astrophotography for April and May

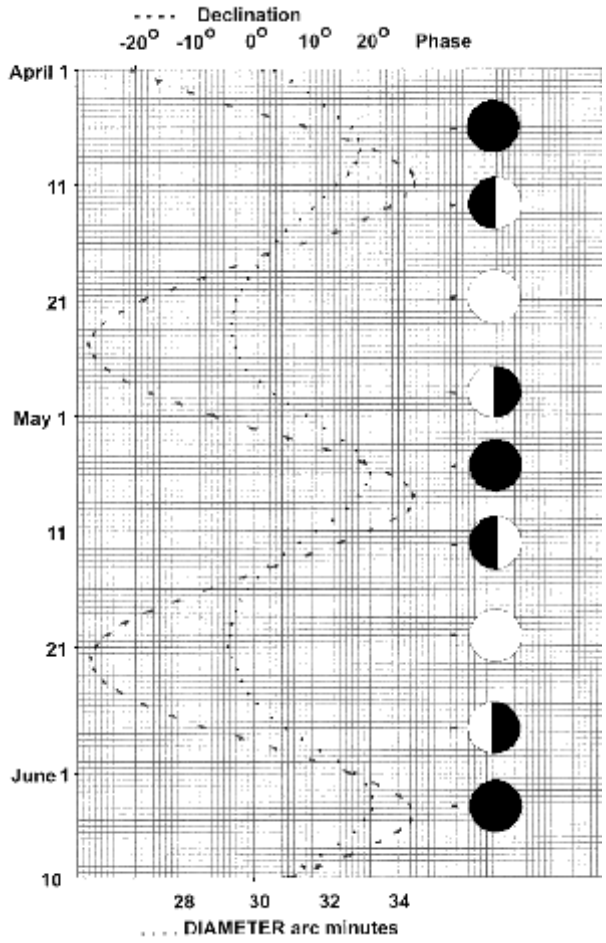
by

Ralph Proctor

Mercury begins April as a morning object low in the eastern sky and is lost in the Sun's glare by the end of the first week in April, reaching superior conjunction with the Sun on 16 April. Mercury emerges from the Sun's glare in late April as an evening object low in the western sky. Mercury mover higher in the western sky and reaches a greatest eastern elongation of 22 degrees on 14 May when it will be in excellent photographic position with a declination of plus 25 degrees. During the remainder of May Mercury moves lower in the western sky and by the end of May disappears into the Sun's glare.

Venus begins April as a morning object low in the eastern sky and by the first week in May disappears into the Sun's glare.

Lunar Declination and Diameter:



The Moon's waxing quarter phases will be located high on the ecliptic and in excellent photographic position during April (April 11) and May (May 8), with an apparent declination of up to +28 degrees.

Mars begins April as an evening object high in the western sky in the constellation Gemini. Mars moves into the constellation Cancer in early May. During April and May Mars moves lower in the western sky, decreases in brightness from magnitude +0.9 to +1.5, and decreases in diameter from 7.0 to 4.9 arc seconds.

Jupiter begins April as a morning object low in the eastern sky in the constellation Sagittarius. During April and May Jupiter moves higher in the eastern sky, increases in brightness from magnitude -2.0 to -2.6, and increases in diameter from 37.3 to 44.9 arc seconds.

Saturn begins April as an evening object high in the western sky in the constellation Leo. During April and May Saturn moves lower in the western sky, decreases in brightness from magnitude +0.4 to +0.7, and decreases in diameter from 19.6 to 17.7 arc seconds.

Uranus begins April as a morning object low in the eastern sky in the constellation Aquarius. During April and May Uranus moves higher in the eastern sky, remains constant in brightness at magnitude +5.9, and increases in diameter from 3.36 to 3.46 arc seconds. Uranus is located at R.A. 23 hours 26.9 minutes declination -04 degrees 23 minutes on 15 April and at R.A. 23 hours 31.5 minutes declination -03 degrees 54 minutes on 15 May.

Neptune begins April as a morning object low in the eastern sky in the constellation Capricornus. During April and May Uranus moves higher in the eastern sky, increases in brightness from magnitude +8.0 to + 7.9, and increases in diameter from 2.23 to 2.30 arc seconds. Neptune is located at R.A. 21 hours 44.8 minutes declination -13 degrees 53 minutes on 15 April and at R.A. 21 hours 46.5 minutes declination -13 degrees 45 minutes on 15 May.

Pluto begins April as a morning object low in the

eastern sky in the constellation Sagittarius. During April and May Pluto moves higher in the eastern sky and increases in brightness from magnitude +14.0 to +13.9. Pluto is located at R.A. 18 hours 04.1 minutes declination -17 degrees 03 minutes on 15 April and at R.A. 18 hours 02.4 minutes declination -17 degrees 01 minutes on 15 May.

Events:

Antares will be occulted by the Moon on 23 April (17 hours universal time) for the southern half of Australia, New Zealand, and Polynesia; and on 20 May (23 hours universal time) for the eastern portion of South America and the southern portion of Africa.

Neptune will be occulted by the Moon on 2 April (09 hours universal time) for central South America, central Africa, and the Middle East; on 29 April (19 hours universal time) for all Indonesia except Sumatra, northern Australasia, and the Hawaiian Islands; and on 27 May (03 hours universal time) for the northern half of Africa, southeastern Europe, and western Asia.

Mars will be occulted by the Moon on 12 April (06 hours universal time) for northeastern Canada, Greenland, Iceland, and northern Scandinavia; and on 10 May (14 hours universal time) for all but the northern portion of Europe, and southern Asia.

Regulus will be occulted by the Moon on 15 April (14 hours universal time) for Madagascar and part of Antarctica; and on 12 May (19 hours universal time) for southern South America, and part of Antarctica.

The Sun will undergo a total eclipse on 1 August for the northern and eastern portions of North America, Greenland, northern Europe, and all Asia except Japan. The eclipse begins at 8 hours 04.1 minutes and ends at 12 hours 38.4 minutes universal time. Central eclipse at local apparent noon occurs at 9 hours 47.4 minutes. The shadow of the total eclipse begins in China, travels northwest across Russia, then crosses the northern portion of Greenland, and ends in north central Canada.

MINOR PLANETS

		position			
		15 April		15 May	
Planet	Magnitude	R.A.	Decl.	R.A.	Decl.
Ceres	09.0 - 08.7	04 hr 18.4 min	+21 deg 21 min	05 hr 09.7 min	+23 deg 51 min
Pallas	09.6 - 09.8	01 hr 14.1 min	- 02 deg 29 min	02 hr 01.6 min	- 00 deg 47 min
0Juno	11.0 - 10.1	17 hr 57.8 min	- 07 deg 53 min	17 hr 49.9 min	- 05 deg 40 min
Vesta	08.1 - 08.2	00 hr 02.0 min	- 04 deg 54 min	00 hr 52.9 min	- 00 deg 07 min

Back issues of the ASTROGRAPH in its printed format are still available for $1.50 each ($2.00 for each color issue) plus postage. Currently the following issues are available:

Volume No. 6 issue 6
Volume No. 7 issue 5 and 6
Volume No. 8 issue 11, 3, 4, and 5
Volume No. 9 issue 1, 4, 5, and 6
Volume No. 10 issue 2, 3, 5, and 6
Volume No. 11 issue 1, 2, 3[1], 4, 5, and 6
Volume No. 12 issue 1, 2, 3, 4, 5, and 6
Volume No. 13 issue 1, 2, 3, 4, 5, and 6
Volume No. 14 issue 1, 2, 3, 4, 5, and 6
Volume No. 15 issue 1, 2, 3, 4, 5, and 6
Volume No. 16 issue 1, 2, 3, 4, 5, and 6
Volume No. 17 issue 1, 2, 3[2], 4, 5, and 6
Volume No. 18 issue 1, 4, 5, and 6
Volume No. 19 issue 1, 2, 3, 4, 5, and 6
Volume No. 20 issue 1, 2, 3[1], 4, 5, and 6
Volume No. 21 issue 1, 2, 3, 4, 5, and 6
Volume No. 22 issue 1, 2, 3, and 4
Volume No. 23 issue 4 and 5
Volume No. 24 issue 5 and 6
Volume No. 25 issue 1, 2, 4, and 6
Volume No. 26 issue 1, 2, 3, 5, and 6
Volume No. 27 issue 2, 3, 4, 5, and 6
Volume No. 28 issue 5 and 6
Volume No. 29 issue 1, 2, 3, 4, 5, and 6
Volume No. 30 issue 1, 2, 3, 4[1], 5, and 6
Volume No. 31 issue 1, 2, 3, 4, 5, and 6
Volume No. 32 issue 1, 2, 3, 4, 5, and 6
Volume No. 33 issue 1, 2, 3, 4, 5, and 6
Volume No. 34 issue 1, 2, 3, 4, 5, and 6
Volume No. 35 issue 1 and 2

NOTES: 1 - Color issue - $2.00 each
2 - Comet photography issue.

Postage (foreign and domestic) - Add $1.07 for the first issue and $0.75 for each additional issue.

MAILING ADDRESS:
the ASTROGRAPH
PO Box 369 Phone#
Dumfries, VA 22026 (703) 441-6778

Image Processing: color balance

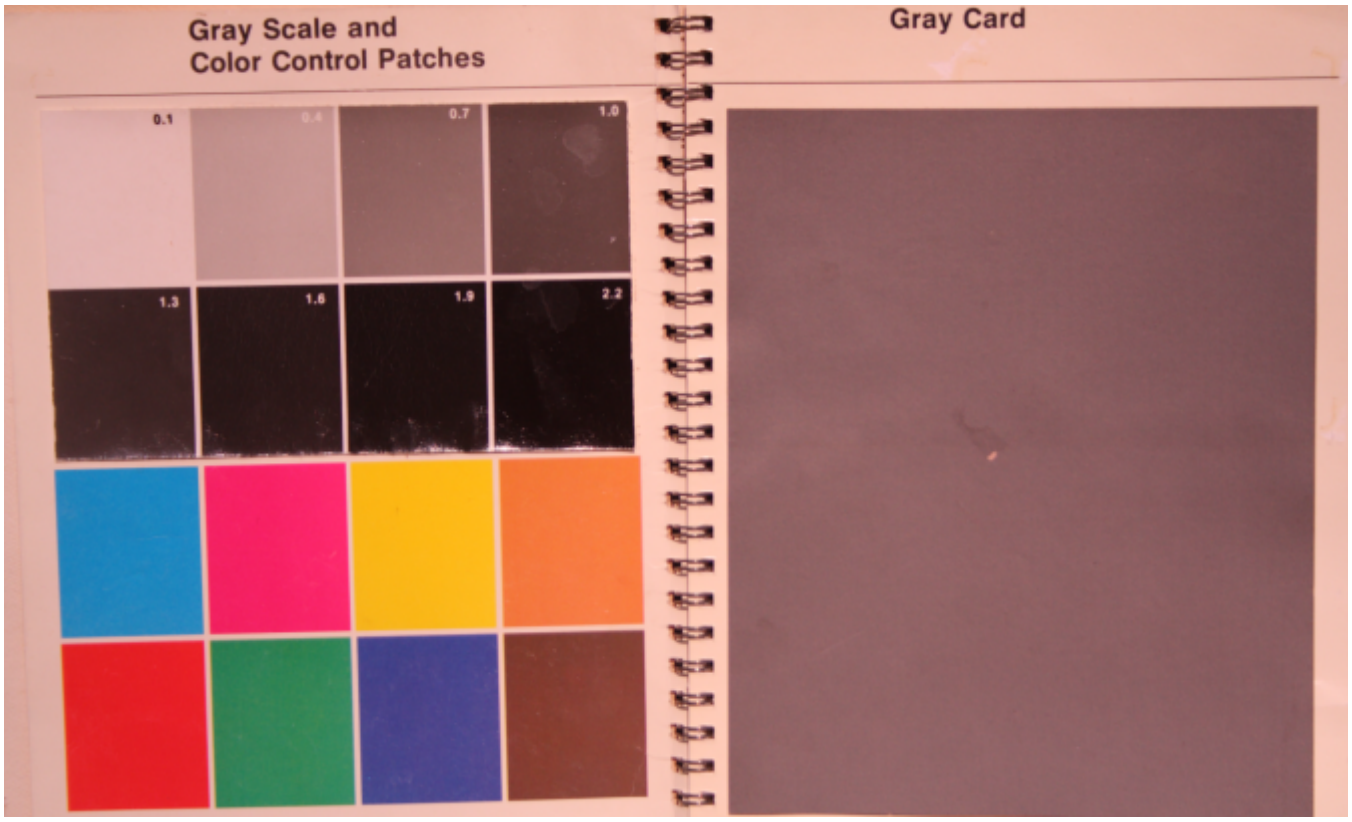
by

Robert Price

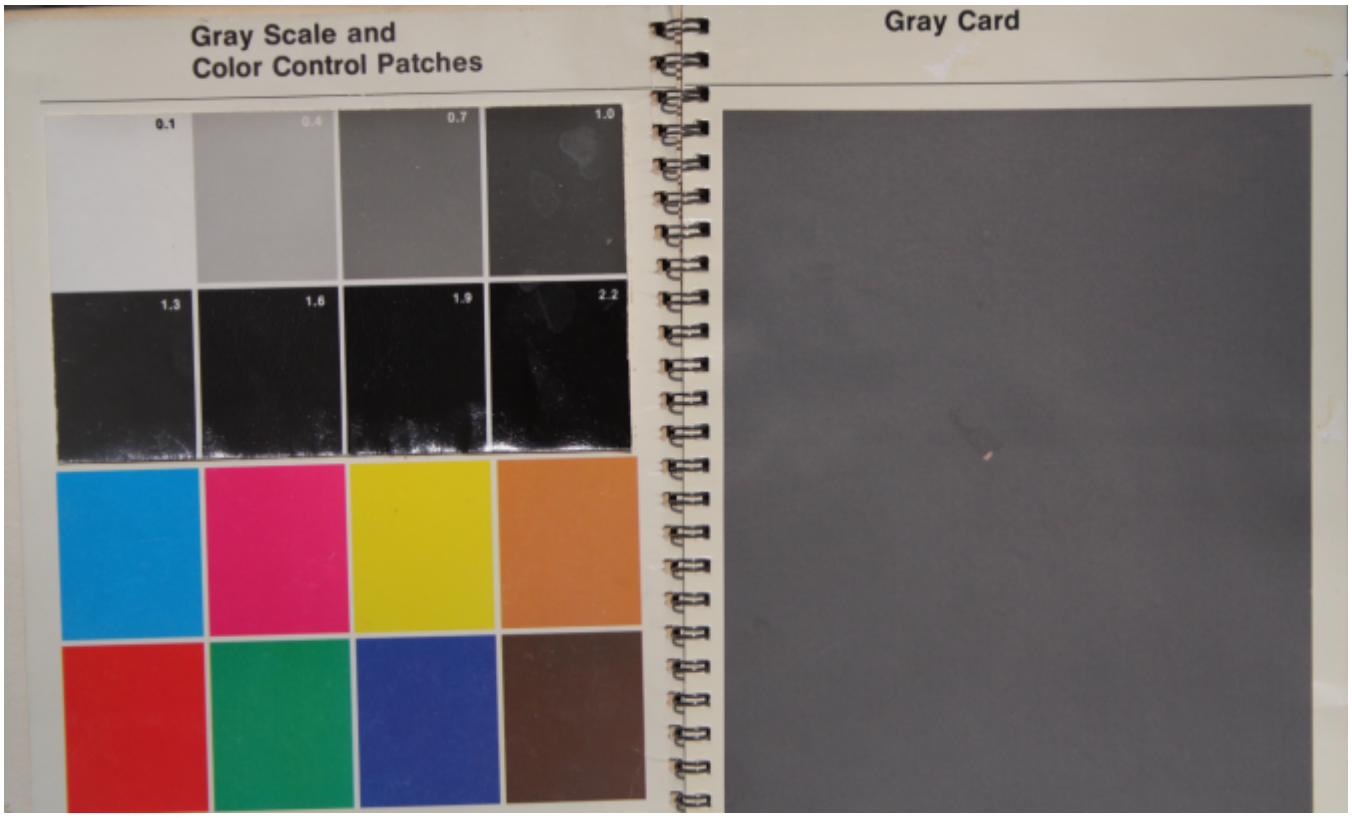
The Hutech astronomical modification to Canon cameras consists of replacing the infrared cut-off filter in the camera with an infrared cut-off filter that passes the hydrogen alpha wavelength of light at 656 nanometers. The red color of emission nebula is primarily caused by hydrogen alpha light. By passing this light at 656 nanometers, more red light is allowed into the camera. This additional red light changes the camera's normal color balance. Images taken using this Canon-Hutech filter combination take on a red hue. Figure 1 shows this red hue with the author's suburban sky. Figure 2 shows the same area taken with the same camera but using a custom color balance that allows the camera to take daylight pictures that look like normal daylight balanced images. Figures 3 shows the appearance of a color/gray card using the Hutech modified camera with its normal color balance, and Figure 4 shows the same card with a custom color balance for daylight use. Figure 5 shows an image of M42 with its strong hydrogen alpha light emissions taken with a Hutech modified Canon 40D and standard color balance. Figure 6 shows the same area taken with the same camera but using a custom color balance that mimics a daylight balanced picture. Both Figure 5 and 6 were processed with CCDStack and used the feature that "normalizes" sky background. Because of this normalization both images look very similar with respect to color. Even though the red color is suppressed with the custom color balance, the hydrogen alpha light still comes through very well. Figure 6 does show more noise in the areas where the nebulosity is faintest. These same areas have a much smoother appearance in Figure 5.

Above, Figure 1: Full frame image of M42 photographed by the author on 8 February 2008 using a NP-127 refractor and Hutech modified Canon 40D camera. Exposure was 20 minutes at 100ASA. Image shows the appearance of the background sky glow with the normal camera setting.

Above, Figure 2: Full frame image of M42 photographed by the author on 9 March 2008 using a NP-127 refractor and Hutech modified Canon 40D camera. Exposure was 20 minutes at 100ASA. Image shows the appearance of the background sky glow with the camera custom balanced for daylight photography.



Above, Figure 3: Color/gray card photographed with a Hutech modified Canon 40D camera. Image shows the appearance of the color/gray card using the camera's normal (auto mode) color balance.



Above, Figure 4: Color/gray card photographed with a Hutech modified Canon 40D camera.. Image shows the appearance of the color/gray card after the camera was color balanced for normal daylight photography.

Above, Figure 5: M42 photographed by the author on 8 February 2008 using a Tele Vue NP-127 refractor and Hutech modified Canon 40D camera. Image is composed of three 20 minute exposures at 100ASA. Image shows the appearance of the nebula using the camera's normal (auto mode) color balance.

Above, Figure 6: M42 photographed by the author on 9 March 2008 using a Tele Vue NP-127 refractor and Hutech modified Canon 40D camera. Image is composed of three 20 minute exposures at 100ASA. Image shows the appearance of the nebula using the camera after being custom balanced for daylight photography.

Above: NGC 7380 in Cepheus photographed by Lee C. Coombs on 22 Novemver 2003 using a 10 inch f/5 Newtonian. Exposure was 30 minutes on Ektachrome 200 professional film.