the ASTROGRAPH



Volume 40 No. 4 February/March 2009

the ASTROGRAPH

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COVER PHOTOGRAPH

Object.....M16, the Eagle Nebula

Photographer.....Robert C. Price

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

Exposure..... two 20 minutes exposures at 400ASA

Camera.....Hutech modified Canon 40D

Date.....23 September 2008

Location.....farm just south of BlueKnob State Park, PA

VOLUME 40 No. 4

EDITOR.....Robert C. Price
CONTRIBUTING EDITOR.....Ralph Proctor
PROOFING CONTRIBUTOR.....Linda Miller
CONTRIBUTORS.....Lee C. Coombs

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ASTROPHOTOGRAPHY PRODUCT SURVEY

by

Robert C. Price

The last product survey was published in the February/March 2008 issue. As with past surveys this survey is a summary of astrophotography related equipment that has been advertized on the Web and for the last 12 months in *Sky and Telescope* and *Astronomy* magazine. It is intended to help ASTROGRAPH readers locate equipment and suppliers that meet their astrophotographic needs. Although prices have remained fairly constant for most items, CCD costs still remain high while digital camera costs have been reduced by about half for the same capability. Several film and film related items are no longer available. Lumicon no longer advertizes hypersensitized film or the hypering chambers and hypering gas. The only DSLR camera specifically made for astrophotography, the Canon 20Da, is no longer available from Canon.

ASTROPHOTOGRAPHY PRODUCT SURVEY

MANUFACTURER	PRODUCT	COST
OPTICAL SYSTEMS		
Borg	45ED II F/4.7	$895.00
	60ED F/3.8	$1095.00
	77ED II F/4.3	$1795.00
	101ED F/4.1	$2495.00
	125SD F/3.9	$5195.00
Takahashi	FSQ-85ED	$2995.00
	EQS-106EDxII	$4195.00
	Epsilon 180ED Hyperbolic astrograph	$4224.95
	BRC-250 Baker Chretien F/5	$12695.00
TeleVue	NP-101	$3685.00
	NP-127is	$6985.00
Orion	Mak-Newt Optical tube F/5.3	1299.00
CAMERA PRODUCTS		
Apogee Inc	Piggy-back camera mount	$14.95
Celestron	Focal reducer/Field corrector F/6.3	$139.00
Hutech	Canon XS (1000DH)	$1025.00
	Canon 450DH	$1125.00
	Canon 40DH	$1395.00
	Canon 50DH	$1795.00
	Canon 5D mark II	$unk
	Camera mod IR filter/clear filter	$550.00
Lumicon	Camera T-rings	$19.95
	Deluxe piggyback adjustable (6"-14") camera mount	$59.50
	Camera adapter prime focus .965 inch	$19.95
	Camera adapter prime focus 1.25 inch	$24.95
	Camera adapter prime focus 2 inch	$49.95
	Camera adapter eyepiece projection .965 inch	$39.95
	Camera adapter eyepiece projection 1.25 inch	$39.95
	Camera adapter T-thread	$29.95
Meade	Series 4000 F/6.3 focal reducer/field flattener	$129.95
	Series 4000 F/3.3 focal reducer/field flattener	$149.95
	#644 1.25 inch flip-mirror system	$149.95
	#647 2 inch flip-mirror system	$249.95

Orion	1.25 inch astrophotography flip mirror	$111.95
Scopetronix	MaxView digital camera eyepiece projection adapter 1.25 inch	$129.00
	MaxView digital camera eyepiece projection adapter 2 inch	$189.00
	Digi-T digital camera adapter	$119.95

OFF AXIS GUIDERS

Astrodon	Off-axis guider for CCD imaging	$-unk
Celestron	Celestron radial guider	$124.00
Hutech	Off axis guider	$395.00
	xy guider positioner	$215.00
Lumicon	Newtonian Easy-Guider (1.25 or 2 inch)	$189.95
	Cassegrain Easy-Guider F/6.5 for 5 - 9.25 inch SCT	$249.95
	Giant Easy-Guider F/6.5 (C11,C14, and 10-16" Meade)	$399.95
Taurus Technologies	Taurus Tracker III off-axis guider	$394.00

FILTERS

TeleVue	TeleVue UHC filter 1.25 inch	$95.00
	TeleVue UHC filter 2 inch	$185.00
	TeleVue Oxygen III filter 1.25 inch	$95.00
	TeleVue Oxygen III 2 inch	$185.00
Celestron	Oxygen III filter 1.25 inch	$69.00
	Oxygen III filter 2 inch	$99.00
	Minus Violet filter 1.25 inch	$49.00
	UHC/LPR filter 1.25 inch	$69.00
	UHC/LPR filter 2 inch	$99.00
	UV/IR cutoff filter 1.25 inch	$59.00
Lumicon	UHC (Ultra High Contrast) filter 1.25 inch	$99.95
	UHC (Ultra High Contrast) 48mm or 2 inch dia.	$199.95
	Deep Sky 1.25 inch	$99.95
	Deep Sky 48mm or 2 inch T-threaded	$199.95
	H-alpha pass 1.25 inch	$79.95
	H-alpha pass 48mm	$69.95
	H-alpha pass 58mm	$79.95
	H-alpha pass 77mm	$89.95
	H-alpha pass 82mm	$99.95
	Hydrogen beta, 1.25 inch	$99.95
	Hydrogen beta, 48mm and 2 inch	$199.95
	Oxygen III 1.25 inch	$99.95
	Oxygen III 48mm and 2 inch	$199.95
	Minus violet 48mm	$79.95
	Minus violet 58mm	$89.95
	Minus violet 72mm	$99.95
	Comet band filter 1.25 inch	$99.95
	Comet band filter 48mm and 2 inch	$199.95
Meade	Series 4000 nebula broadband 1.25 inch #908B	$79.95
	Series 4000 nebula broadband 36mm for SCT #911B	$99.95
	Series 4000 nebula narrowband 1.25 inch #908N	$89.95
	Series 4000 nebula narrowband 36mm for SCT #911N	$119.95
	Series 4000 Oxygen III, 1.25 inch #908x	$99.95
	Series 4000 Oxygen III, 36mm for SCT #911x	$149.95
Orion	1.25 inch LRGB filter set	$202.95
	Oxygen III narrowband filter	$131.95

	Sulfer II narrowband filter	$131.95
	Hydrogen alpha narrowband filter	$131.95
	1.25 inch 5 position filter wheel	$169.95

CCD CAMERAS

Anacortes Telescope	Yankee Robotics Trifid-2 CCD camera	$5125
Apogee Instruments	Alta U16M	$9896.00
	Alta U9000	$9896.00
	Alta U4000	$6606.00
	Alta U8300	$3995.00
	Ascent A16000	$5995.00
	Ascent A4000	$4496.00
	Ascent A2000	$3596.00
	Ascent A340	$1295.00
Celestron	Neximage	$99.99
Finder Lakes Instrumentation	Cooled CCD camera	$1495 to $40000
Meade	DSI deepsky imager	$299.00
	DSI II pro with filters	$699.00
	Lunar planetary imager	$99.00
Orion	Star shoot autoguider	$249.95
	Star shoot solar system color imager III	$179.95
	Star shoot color imager II	$369.95
	Deep Space monochromer imaging package	$unk
	Star shoot pro deep space color CCD	$1299.95
SAC Imaging	SAC 8 CCD	$549.00
	SAC 10 CCD, 3.3 megapixel	$900.00
SBIG	ST-402ME	$1495.00
	ST-7XME	$2495.00
	ST-8XME	$4495.00
	ST-9XE	$2495.00
	ST-10XME	$5995.00
	ST-2000XM	$3495.00
	St-4000XCM	$4495.00
	STL-4020M	$5995.00
	STL-6303E	$8995.00
	STL-11000M	$8795.00
Starlight Express Ltd	SXV-M25C	$3895.00
	SXV-M8C	$1950.00

ILLUMINATED RETICLE GUIDING EYEPIECES

Lumicon	25mm Kellner crosshair	$69.95
	12.5mm Orthoscopic wireless 1.25 inch	$149.95
	Pulse guide illuminator	$42.95
Meade	MA 35mm Plossl1.25 inch cordless	$129.95
	MA 12mm 1.25 inch cordless	$99.95
	Series 4000 Plossl 9mm wireless 1.25 inch	$149.95
Rigel Systems	Pulse Guide 12.5mm Plossl reticle 1.25 inch	$119.95

BOOKS/SOFTWARE

William-Bell	The Handbook of Astronomical Image Processing by Richard Berry and James Burnell	$99.95
	Photoshop Astronomy by R Scott Ireland	$39.95

SOLAR FILTERS

Coronado	Solar Max 40	$1450.00
	Solar Max 60	$2590.00
	Solar Max 90	$5045.00
Lumicon	Solar prominence filter 1.5 angstrom, 7 and 8 inch SCT.	$779.95
	Solar prominence filter 1.5 angstrom, 10 inch Meade.	$789.95
	Solar prominence filter 1.5 angstrom, C11	$799.95
	Solar prominence filter 1.5 angstrom, 12 inch Meade	$809.95
	Solar prominence filter 1.5 angstrom, C14.	$819.95
	Solar prominence filter 1.5 angstrom, 14 inch Meade	$819.95
	Solar prominence filter 1.5 angstrom, 16 inch Meade.	$899.95

EQUATORIAL MOUNTS

Astro-Physics	Mach1GTO German equatorial mount	$5950.00
	900GTO German equatorial mount	$8450.00
	1200GTO German equatorial mount	$9800.00
	3600GTO German equatorial mount	$19900.00
Celestron	Celestron CGEm	$1399.00
	Celestron CGE GOTO	$2850.00
	CG-5 GOTO	$699.00
Losmandy	Lasmandy GM8	$1495.00
	Lasmandy GM8 GOTO	$2640.00
	Lasmandy GM11	$2195.00
	Lasmandy GM11 GOTO	$3360.00
	Titan GOTO	$7800.00
Optical-Craft Machining	Equatorial mount and drive 1 - 4.5 inch dia. steel shaft $300-12000	
	6.6 inch diameter drive	$495.00
	9.0 inch diameter drive	$585.00
Orion	Siris EQ-6 GOTO	$1199.95
	Atlas-G GOTO	$1499.95
	SkyView Pro GOTO	$819.95
Software Bisque	Paramount ME	$14500.00
Takahashi	EM-11 VSD 300x	$2885.00
	EM-11 Jr GOTO	$3650.00
	EM200 Jr GOTO	$4670.00
	EM200 GOTO	$5049.95
	EM400 GOTO	$8155.00
	EM500 GOTO	$11149.00
	P2Z	2035.00
Vixen	Vixen Great Polaris equatorial mount GPD2	$1099.00
	Sphinx SXW	$1999.00
	SXD	$2699.00
	ATLUX GOTO	$5299.00

LISTING OF MANUFACTURERS

NAME	ADDRESS	PHONE #
Anacortes Telescopes and Wild Bird www.buytelescopes.com	unk	(800) 850-2007
Apogee Instruments Inc. www.ccd.com	1020 Sundona Way Ste 150, Roseville CA 95661	(916) 218-7450
Astrodon www.astrodon.com	unk	unk
Astro-Physics www.astro-physics.com	11250 Forest Hills Rd, Rockford IL 61115	(815) 282-1513
Celestron International www.celestron.com	2835 Columbia Street, Torrance CA 90503	(800) 421-1526
Colorado www.coronadofilters.com	unk	(866) 786-9282
Finger Lakes Instrumantation www.fli-cam.com	unk	(585) 624-3760
Hutech Corporation www.hutech.com	23505 Crenshaw Blvd #225, Torrance CA 90505	(310) 325 5511
Lumicon www.lumicon.com	2111 Research Dr, Livermore CA 94550	(415) 447-9570
Losmandy www.losmandy.com	1033 N Sycamore Ave, Los Angeles CA 90038	(323) 462-2855
Meade Instruments Corp. www.meade.com	1675 Toronto Way, Costa Mesa CA 92626	(714) 556-2291
Orion Telescope Center www.telescope.com	421 Soquel Ave Box 1150, Santa Cruz CA 95061	(800) 447-1001
Optical-Craft Machining www.opticcraft.com	33918 Macomb, Farmington MI 48335	(248) 476-5893
Regel Systems www.regelsys.com	unk	(310) 375-4149
SAC Imaging www.sac-imaging.com	PO box 360982, Melbourne FL 32935	(321) 259-6498
SBIG www.sbig.com	147-A Castilian Dr, Santa Barbara CA 93117	(805) 571-7244
Scopetronix www.scopetronic.com	1423 SE 10th Street, Cape Coral FL 33990	(941) 945-6763
Software Bisque www.bisque.com	912 12th Street, Golden CO 80401	(800) 843-7599
Starlight Express Ltd. www.starlight-xpress.co.uk	Foxley Green Farm, ascot rd, Holyport Berks, UK	(877) 348-8433
Takahaski America www.takahaskiamerica.com	1925A Richmond Ave, Houston TX 77098	(713) 529-3551
Taurus Technologies www.taurus-tech.com	PO Box 14, Woodstown NJ 08098	(609) 769-4509
TeleVue www.televue.com	32 Elkay Dr, Chester NY 10918	(845) 469-4551
Vixen North America www.vixennamerica.com	32 Erkay Dr., Chester NY 10918	(845) 469-8680
Willmann-Bell Inc www.willbell.com	PO Box 35025, Richmond VA 23235	(800) 825-7827



Above: M28 photographed by Lee C. Coombs on 2 July 2002 using a 10 inch F/5 Newtonian. Exposure was 30 minutes on Kodak Ektachrome Professional 200.



Above: NGC2362 photographed by Lee C. Coombs on 5 February 2003 using a 10 inch F/5 Newtonian. Exposure was 15 minutes on Kodak Ektachrome Professional 200.

Astrophotography for February and March

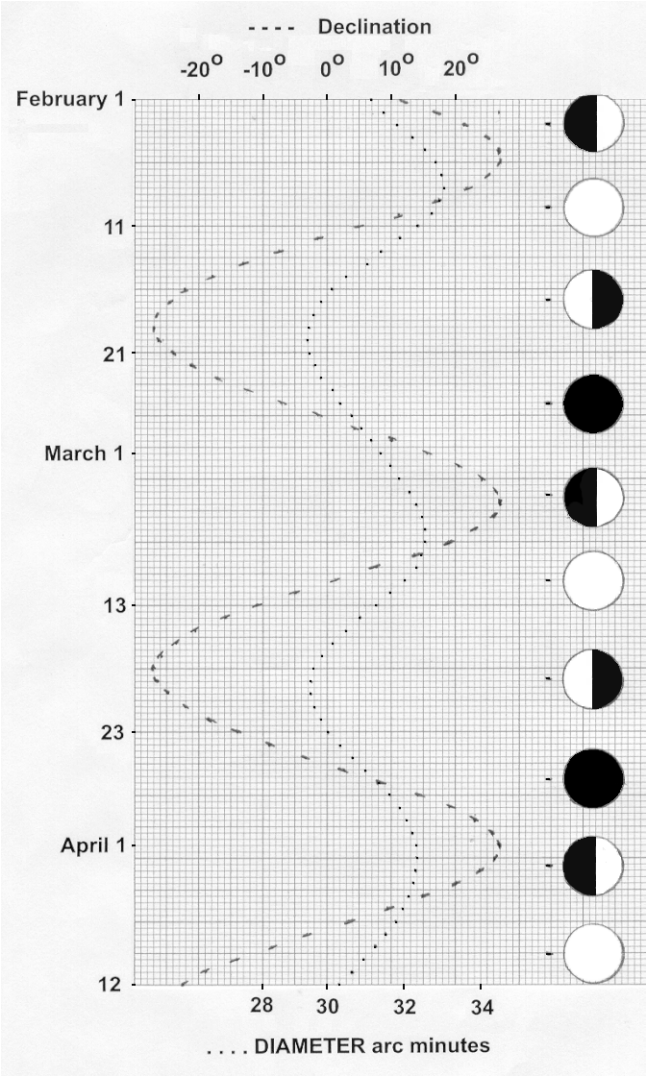
by

Ralph Proctor

Mercury begins February as a morning object low in the eastern sky. Mercury moves higher in the eastern sky and reaches a greatest western elongation of 26 degrees on 13 February when it will be in poor photographic position with a declination of minus 20 degrees. During the remainder of February Mercury moves lower in the eastern sky and by the last week in March disappears into the Sun's glare.

Venus begins February as an evening object high in the western sky. During February and March Venus moves lower in the western sky and by mid-March disappears into the Sun's glare.

Lunar Declination and Diameter:



The Moon's waxing gibbous and quarter phases will be located high on the ecliptic and in excellent photographic position during February (February 6) and March (March 5), with an apparent declination of up to +27 degrees.

Mars begins February as a morning object low in the eastern sky in the constellation Sagittarius. During February and March Mars moves higher in the eastern sky, increases in brightness from magnitude +1.3 to +1.2, and increases in diameter from 3.99 to 4.29 arc seconds.

Jupiter begins February lost in the Sun's glare. Jupiter reappears in early February as a morning object low in the eastern sky in the constellation Capricornus. During February and March Jupiter moves higher in the eastern sky, increases in brightness from magnitude -1.9 to -2.1, and increases in diameter from 32.4 to 34.9 arc seconds.

Saturn begins February as a morning object high in the eastern sky in the constellation Leo. Saturn reaches opposition with the Sun on 8 March when it will be in good photographic position with a declination of plus 8 degrees. During February and March Saturn moves higher in the eastern sky, increases in brightness from magnitude +0.8 to +0.6, and increases in diameter from 19.3 to19.6 arc seconds.

Uranus begins February as an evening object low in the western sky in the constellation Aquarius. During February and March Uranus moves lower in the western sky and disappears into the Sun's glare by mid-February. During February and March Uranus remains constant in brightness at magnitude +5.9, and decreases in diameter from 3.38 to 3.35 arc seconds. Uranus is located at R.A. 23 hours 28.4 minutes declination -04 degrees 12 minutes on 14 February and at R.A. 23 hours 34.4 minutes declination -03 degrees 34 minutes on 15 March.

Neptune begins February lost in the Sun's glare. Neptune reappears as a morning object in early March in the constellation Capricornus. During February and March Uranus moves higher in the eastern sky, remains constant in brightness at magnitude +8.0, and increases in diameter from 2.20 to 2.25 arc seconds. Neptune is located at R.A. 21 hours 45.7 minutes declination -13 degrees 52 minutes on 14 February and at R.A. 21 hours 49.8 minutes declination -13 degrees 31 minutes on 15 March.

Pluto begins February lost in the Sun's glare. Pluto reappears as a morning object in early February in the constellation Sagittarius. During February and March Pluto remains constant in brightness at magnitude +14.1. Pluto is located at R.A. 18 hours 10.6 minutes declination -17 degrees 44 minutes on 14 February and at R.A. 18 hours 12.7 minutes declination -17 degrees 41 minutes on 15 March.

Events:

Antares will be occulted by the Moon on 17 February (21 hours universal time) for southeastern Asia, Indonesia, most of Australia, Oceania, and French Polynesia; and on 17 March (05 hours universal time) for the northeastern portion of South America, the southern Atlantic Ocean, all but the southern tip of southern Africa, northern Madagascar, and Yemen.

Mercury will be occulted by the Moon on 22 February (22 hours universal time) for the most eastern portion of China, Japan, northeastern Siberia, Alaska, and the Aleutian Islands.

Jupiter will be occulted by the Moon on 23 February (01 hours universal time) for the Philippines, Malaysia, Guam, southeastern Asia, most of China, eastern Siberia, Japan, and the Aleutian Islands.

Venus will be occulted by the Moon on 27 February (23 hours universal time) for the Southern Ocean southwest of Chile.

The Sun will undergo an annular eclipse on 26 March 2009 for the southern Indian Ocean and Indonesia. The eclipse begins at 4 hours 56.6 minutes and ends at 11 hours 00.7 minutes universal time. Central eclipse at local apparent noon occurs at 7 hours 46.4 minutes. The shadow of the annular eclipse begins southwest of the southern tip of Africa, travels northeast across the southern Indian Ocean and Indonesia, and ends in the Pacific Ocean.

The Sun will undergo a total eclipse on 21-22 July 2009 for India, southern and eastern Asia, Japan, northern Indonesia, the Philippines, and the western and central portion of the Pacific Ocean. The eclipse begins at 23 hours 58.3 minutes universal time 21 July and ends at 05 hours 12.4 minutes universal time 22 July. Central eclipse at local apparent noon occurs at 02 hours 33.0 minutes universal time 22 July. The shadow of the total eclipse begins in the central Pacific Ocean, travels across Asia, and ends off the eastern coast of India.

MINOR PLANETS

		position			
		14 February		15 March	
Planet	Magnitude	R.A.	Decl.	R.A.	Decl.
Ceres	07.2 - 07.5	11 hr 07.6 min	+23 deg 21 min	10 hr 43.2 min	+25 deg 57 min
Pallas	08.2 - 08.7	04 hr 52.7 min	- 20 deg 00 min	05 hr 24.7 min	- 11 deg 01 min
Juno	10.8 - 10.7	20 hr 40.7 min	- 10 deg 58 min	21 hr 27.2 min	- 08 deg 01 min
Vesta	08.1 - 08.5	02 hr 37.7 min	+10 deg 33 min	03 hr 15.3 min	+14 deg 25 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
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Volume No. 27 issue 2, 3, 4, 5, and 6
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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.

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Product Evaluation: Two Image Reducers

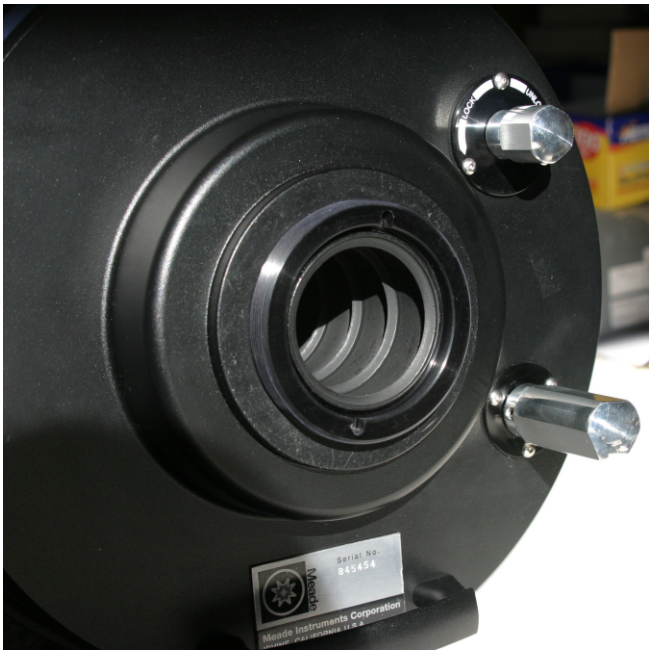
by

Robert C. Price

The products being evaluated are two popular Schmidt-Cassegrain telescope image reducers. The Celestron reducer/corrector attaches to the rear cell, shown in Figure 1, of Celestron and Meade Schmidt-Cassegrain telescopes. The Celestron reducer/corrector has identical male and female threads on each side of the four-element reducer/corrector lens that allows any attachment that would normally be attached to the rear cell to also be attached to the reduced/corrector. The Celestron reducer/corrector is both a focal reducer and field corrector. The focal reducer reduces the F/10 focal ratio of Schmidt-Cassegrain telescopes to a focal ratio of F/6.3. This amount of focal ratio reduction will result in a three fold decrease in exposure to achieve the same image exposure. The Lumicon Giant Easy Guider contains a focal reducer lens within the off-axis guider. The Giant Easy Guider is designed for attachment to the large 80mm threads, as seen in Figure 2, on the back of the rear cell of 10 inch and larger Celestron and Meade R-series Schmidt-Cassegrain telescopes. The reducing lens reduces the F/10 Schmidt-Cassegain focal ratio to F/5.5. The rear of the Giant East Guider has a 2 inch diameter tube holder for visual or photographic use. Figure 3 shows how the Celestron reducer/corrector is attached to the telescope and camera by means of a T-adapter and T-ring. Figure 4 shows this combination attached to the telescope. Figure 5 shows how the Lumicon Giant Easy Guider is attached to the telescope and camera by means of a 2 inch T-adapter and T-ring. Figure 6 shows this combination attached to the telescope. Figure 7 shows the full frame image centered on M42 taken with the Celestron reducer/corrector. Note that all the corners of the small 22.2 by 14.8 chip in the Canon 40D camera show vignetting. Figure 8 shows the full frame image centered on M42 taken with the Lumicon Giant Easy Guider. Figure 8 was taken shortly after the image in Figure 7 was taken. Figure 8 shows better coverage of the image sensor in the camera. The star images appeared to be about equal in sharpness with both reducers, however, the Lumicon reducer did seem to exhibit less bloom in the brighter star images. The scale on the image of the Lumicon reducer was slightly less than the Celestron reducer/corrector image. This was expected since the Celestron was specified as F/6.3 and the Lumicon specified as F/5.5



Above, Figure 1: Rear cell attachment threads of a 10 inch Meade LX200 Schmidt-Cassegrain telescope.



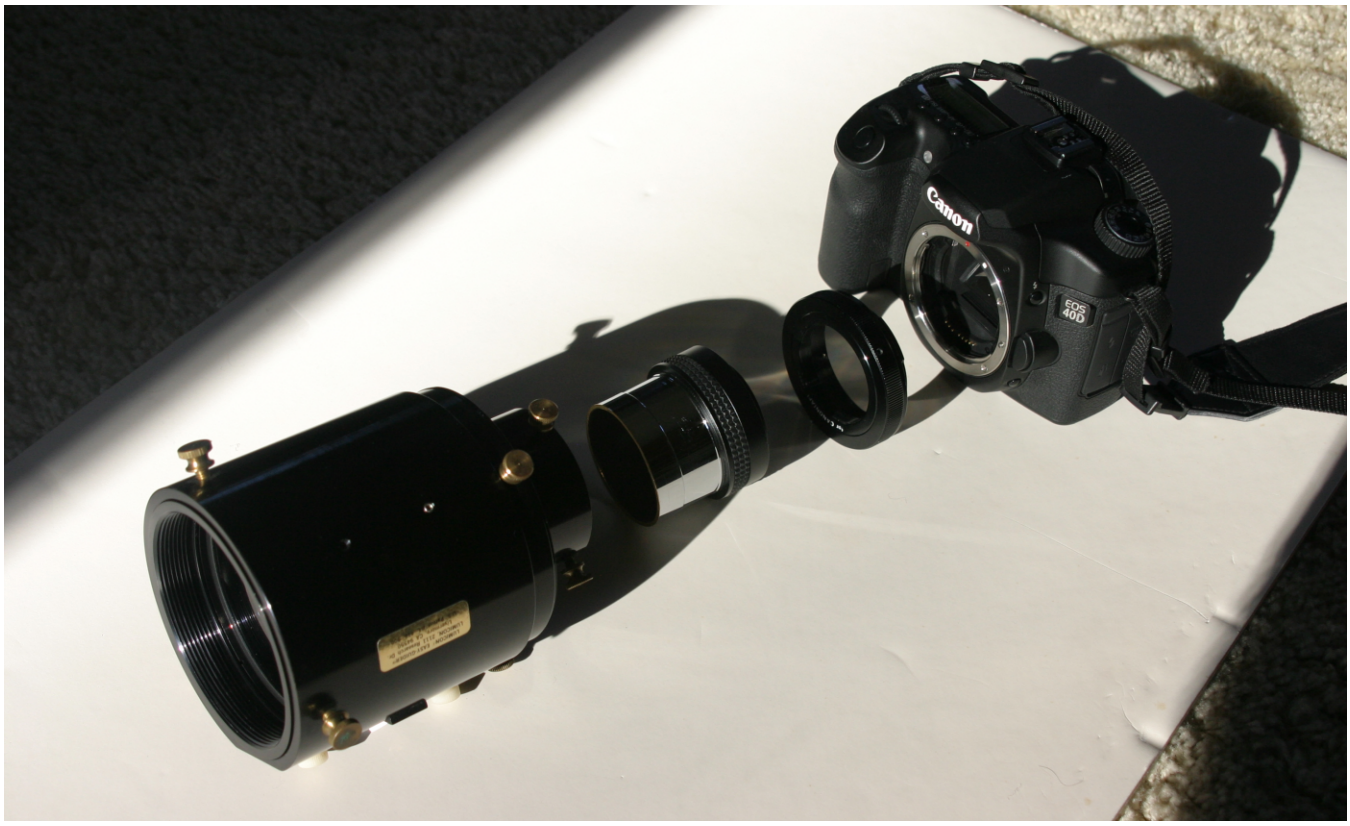
Above, Figure 2: Large, 80mm, rear cell attachment threads of a 10 inch Meade LX200 Schmidt-Cassegrain telescope.



Above, Figure 3: Components used to attach a Celestron F/6.3 reducer/corrector to a Canon 40D camera. Shown above left to right are the F/6.3 corrector, T-thread adapter, camera T-ring, and Canon 40D camera.



Above, Figure 4: Shown above is a Celestron F/6.3 reducer/corrector, T-thread adapter, camera T-ring, and Canon 40D camera attached to the small threads of the rear cell of a 10 inch Meade Schmidt-Cassegrain telescope.



Above, Figure 5: Components used to attach a Lumicon Giant Easy Guider with reducing lens to a Canon 40D camera. Shown above left to right are the Lumicon Giant Easy Guider, 2 inch T-thread adapter, camera T-ring, and Canon 40D camera.



Above, Figure 6: Lumicon Giant Easy Guider with reducing lens, 2 inch T-thread adapter, camera T-ring, and Canon 40D camera attached to the 80mm rear cell threads of a 10 inch Meade Schmidt-Cassegrain telescope.



Above, Figure 7: Full frame image of M42 taken with a 10 inch Meade LX200 Schmidt-Cassegrain telescope and Celestron F/6.3 reducer/corrector. Exposure was 5 minutes at 400ASA with a Canon 40D. Note the edges are dark, an indication that the Celestron reducer/corrector does not cover the 22.2 by 14.8 mm field very well. Image was color balanced and brightened to better show frame illumination.



Above, Figure 8: Full frame image of M42 taken with a 10 inch Meade LX200 Schmidt-Cassegrain telescope and Lumicom Giant Easy Guider with reducing lens. Exposure was 5 minutes at 400ASA with a Canon 40D. Note the edges are more uniformly illuminated than with the the Celestron reducer/corrector. Image was color balanced and brightened to better show frame illumination.