

# Stellar Evolution Observing Log

## *Stellar Evolution – Stellar Nurseries (14 objects)*

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Tempel's Nebula	NGC 1435	1/4/2013	19:54	Deer Trail, CO	8" f/6 Newtonian	32x	Around the brighter stars of M45 is a nebula glow that is very noticeable. Never really ever noticed this before.
Miniature Orion Nebula	NGC1931	1/4/2013	19:45	Deer Trail, CO	8" f/6 Newtonian	32x	A small grouping of dim, blue white stars with nebula glow around brighter stars.
Orion Nebula	M42	1/4/2013	18:56	Deer Trail, CO	8" f/6 Newtonian	81x	See 6 stars. A good night when that happens. Rest of nebula awesome. Lots of detail seen especially with OIII filter.
M78	NGC2068	1/4/2013	19:36	Deer Trail, CO	8" f/6 Newtonian	32x	A nice fan shaped glow with 2 brighter field stars on right hand side and one fainter star on upper left of glow. It has been a long time since I have looked at this nebula.
Rosette Nebula	NGC 2237	1/4/2013	21:48	Deer Trail, CO	8" f/6 Newtonian	81x	See a distinct nebula glow around brighter central stars of the open cluster. Lots of blue white stars in area.
Cone Nebula	NGC2264	2/12/2013	21:03	Berthoud, CO	18" f/14.2 Cass	81x	A nice brighter blue white star and 6 dimmer stars, Bright star centered on a nebula glow around it and other 6 stars bound the glow. Glow fairly large in size.
Barnard 68		7/3/2013	22:43	Deer Trail, CO	8" f/6 Newtonian	47x	A small oval patch void of stars in a star right field of view. Fills center of FOV nicely.

Trifid Nebula	M20	7/3/2013	22:26	Deer Trail, CO	8" f/6 Newtonian	121x	A nice, larger, roundish glow with bisecting dust lanes and making it into 3 pieces.
Lagoon Nebula	M8	7/3/2013	22:20	Deer Trail, CO	8" f/6 Newtonian	121x	A nice, bright glow. Fills field of view nicely. Glow is bisected by a dust lane. Brightest and largest part of glow below land and dimmer and smaller part is above.
Eagle Nebula	M16	7/3/2013	22:32	Deer Trail, CO	8" f/6 Newtonian	121x	A larger, roundish dim glow with lots of stars sprinkled below and above center of glow, yet on glow.
Swan Nebula	M17	7/3/2013	22:34	Deer Trail, CO	8" f/6 Newtonian	121x	A nice, long, fat bright glow with hook on left hand side to form neck and head of swan. Nice.
Pelican Nebula	IC5070	7/3/2013	22:52	Deer Trail, CO	8" f/6 Newtonian	47x	26mm with UHC filter – Large. Fills FOV completely. A dim curved, roundish glow with top and right the brightest parts.
North America	NGC7000 / Caldwell 20	7/3/2013	22:50	Deer Trail, CO	8" f/6 Newtonian	47x	With UHC filter – Seen easily. 2 FOVs long. Left field of view (FOV) shows the “Mexico” and “Gulf” of the nebula. Right FOV is very dim and subtle and fills entire FOV with nebula glow with lots of stars on glow.
IC1396		1/4/2013	18:35	Deer Trail, CO	8" f/6 Newtonian	81x	The open cluster has lots of stars that fills field of view. All kinds of magnitudes. Very loose and open. Around brighter stars see nebulosity glow of nebula. With UHC, see a hint of a larger nebulous area.

**Main Sequence Stars (34 objects)**

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Sun		4/6/2013	9:45	Commanche Springs, TX	90mm Coronado		Nice. Lots of spots and prominences around edge.
Mu And	SAO 54281	1/4/2013	18:58	Deer Trail, CO	8" f/6 Newtonian	81x	Brighter white star.
107 Psc	HIP7981	1/4/2013	19:02	Deer Trail, CO	8" f/6 Newtonian	32x	A dim pale white star.
HD14633	SAO37987	2/12/2013	20:42	Berthoud, CO	18" f/14.2 Cass	81x	A brighter star with a blue-white hue to it, Mostly a white star.
Polaris	North Star	1/4/2013	17:53	Deer Trail, CO	8" f/6 Newtonian	32x	Bright, white star.
Epsilon Eri	18 Eri	1/4/2013	19:19	Deer Trail, CO	8" f/6 Newtonian	32x	A brighter yellow star.
Omega Aur	4 Aur	1/4/2013	19:49	Deer Trail, CO	8" f/6 Newtonian	32x	A bright white star with a tiny white companion very near it.
Rigel	Beta Ori	1/4/2013	19:20	Deer Trail, CO	8" f/6 Newtonian	32x	A <u>very</u> bright blue white star.
Alnitak	Zeta Ori	1/4/2013	19:34	Deer Trail, CO	8" f/6 Newtonian	32x	A bright white star.
Gliese 229	SAO 171334	2/12/2013	21:00	Berthoud, CO	18" f/14.2 Cass	81x	A very dim, reddish colored star.
Plaskett's Star	SAO 114146	2/12/2013	21:02	Berthoud, CO	18" f/14.2 Cass	81x	A dim, nice blue star. Nice.
Sirius	Alpha CMa	2/12/2013	20:58	Berthoud, CO	18" f/14.2 Cass	81x	A <u>very</u> bright blue white star.
Wezen	Delta CMa	2/12/2013	20:58	Berthoud, CO	18" f/14.2 Cass	81x	A bright, <u>very</u> yellow star. Cool.
Procyon	Alpha CMi	2/12/2013	18:23	Berthoud, CO	18" f/14.2 Cass	81x	A bright white star.
HD93521	HIP52849	5/27/2013	21:03	Berthoud, CO	6" f/9 Refractor	32x	A dimmer, blue-white star.
Lalande 21185	SAO 62377	5/27/2013	21:04	Berthoud, CO	6" f/9 Refractor	32x	A dimmer, reddish colored star. It is more of a hint of red than a deep red.
Theta Boo	23 Boo	5/27/2013	21:20	Berthoud, CO	6" f/9 Refractor	32x	A nice yellow colored star. Definitely not white or even pale white.
Gliese 581	HO Lib	5/27/2013	21:27	Berthoud, CO	6" f/9 Refractor	32x	A dim, red hue colored star. It's companion is below and a bit away and just a tiny point of white light.
HD 139341	SAO 64800	5/27/2013	21:23	Berthoud, CO	6" f/9 Refractor	32x	Top star a bit brighter than bottom. Bottom star shows its color better. Both definitely off white with hint of red color. Both stars dimmer.

14 Her	SAO 45933	5/27/2013	21:35	Berthoud, CO	6" f/9 Refractor	32x	A dimmer orange to reddish colored star. The more I look at it, the less red it was.
Zeta Oph	SAO 160006	5/27/2013	21:42	Berthoud, CO	6" f/9 Refractor	32x	A bright, blue-white colored star.
Rasalgethi	Alpha Her	5/27/2013	21:38	Berthoud, CO	6" f/9 Refractor	32x	A brighter, reddish colored star.
Rasalhague	Alpha Oph	5/27/2013	21:39	Berthoud, CO	6" f/9 Refractor	32x	A bright white colored star.
Barnard's Star	HIP87937	5/27/2013	21:45	Berthoud, CO	6" f/9 Refractor	32x	A very dim, reddish colored stars. Seeing is fair in this part of the sky.
Vega	Alpha Lyr	1/4/2013	18:24	Deer Trail, CO	8" f/6 Newtonian	32x	A bright white star.
Ross 154	V1216 Sag	6/24/2013	23:42	Berthoud, CO	18" f/14.2 Cass	162x	A very dim, hint of red colored star.
Albireo A	Beta Cyg	1/4/2013	18:15	Deer Trail, CO	8" f/6 Newtonian	32x	A yellow-orange star brighter than nice blue star very near it. One of my favorite objects to see.
Albireo B	Beta Cyg	1/4/2013	18:15	Deer Trail, CO	8" f/6 Newtonian	32x	A yellow-orange star brighter than nice blue star very near it. One of my favorite objects to see.
Altair	Alpha Aql	6/24/2013	22:47	Berthoud, CO	24" f/4 Newtonian	110x	A nice, very bright blue white colored star.
Alfirk	Beta Cep	1/4/2013	18:29	Deer Trail, CO	8" f/6 Newtonian	32x	A brighter, blue white star. Companion very dim and is a blue star.
Iota Peg	24 Peg	1/4/2013	19:07	Deer Trail, CO	8" f/6 Newtonian	32x	A brighter, pale white-yellow star.
Matar	Eta Peg	1/4/2013	18:49	Deer Trail, CO	8" f/6 Newtonian	32x	A bright pale white-yellowish star.
Omega Psc	SAO 128513	1/4/2013	18:45	Deer Trail, CO	8" f/6 Newtonian	32x	A brighter white star.

## Young Open Clusters (7 objects)

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Double Cluster	NGC 884, NGC 869	1/4/2013	18:06	Deer Trail, CO	20x80 Binocs	20x	Two small, compact open clusters with lots of white stars of many magnitudes. Both OCs in field of view.
Pleiades	M45	1/4/2013	17:43	Deer Trail, CO	20x80 Binocs	20x	Nice. Lots of blue-white stars of various magnitudes that fills center of FOV nicely.
M37	NGC2099	1/4/2013	19:40	Deer Trail, CO	8" f/6 Newtonian	32x	A nice compact open cluster with lots of stars of various magnitudes.
Beehive	M44	2/12/2013	21:08	Berthoud, CO	6" f/9 Refractor	57x	A nice, bright, large diffused open cluster with lots of blue white star of various magnitudes.
M6	NGC6405	6/24/2013	23:30	Berthoud, CO	6" f/9 Refractor	62x	A larger, open, boxy shaped cluster. 1 red star amongst many dimmer blue white stars.
NGC6530	Col 362	6/24/2013	23:32	Berthoud, CO	6" f/9 Refractor	62x	A small, compact open cluster with approx. 20 stars of about 3 different magnitudes.
Wild Duck	M11	6/24/2013	22:50	Berthoud, CO	24" f/4 Newtonian	110x	Lots of fainter stars, tightly packed with one much brighter, pale white colored star left of center on the stars of the open cluster.

## Stellar Evolution – Low Mass Stars

### Main Sequence Low Mass Stars (8 objects)

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Gliese 67	HD 10307 HIP 7918	2/12/2013	18:13	Berthoud, CO	18" f/14.2 Cass	81x	A brighter, nice pale white (dirty white) to light yellow colored star.
Tau Cet	HIP 8102	1/4/2013	19:15	Deer Trail, CO	8" f/6 Newtonian	32x	A brighter pale white-yellow star.

Eta Ari	SAO 75204	1/4/2013	19:02	Deer Trail, CO	8" f/6 Newtonian	32x	A dim, red-orange star.
Beta Com	SAO 82706	5/27/2013	21:31	Berthoud, CO	6" f/9 Refractor	32x	A brighter, pale white with hint of yellow colored star.
18 Sco	SAO 141066	6/24/2013	22:52	Berthoud, CO	24" f/4 Newtonian	110x	A dim, light yellow or pale white colored star.
Sigma Dra	SAO 18396	6/24/2013	23:09	Berthoud, CO	24" f/4 Newtonian	110x	A bright, nice, very yellow colored star.
61 Cyg A	HD201091 HIP104214 HR 8085	1/4/2013	18:22	Deer Trail, CO	8" f/6 Newtonian	81x	It's a double. The brighter member is a pale white colored star.
51 Peg	SAO 90896	1/4/2013	18:52	Deer Trail, CO	8" f/6 Newtonian	32x	A brighter, pale white star.

**Red Giant Stars (6 objects)**

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Mirach	Beta Andromedae	1/4/2013	17:53	Deer Trail, CO	8" f/6 Newtonian	32x	A bright orange-yellow star.
Aldebaran	Alpha Tau	1/4/2013	19:51	Deer Trail, CO	8" f/6 Newtonian	32x	A <u>very</u> bright orange star.
Pollux	Beta Gem	1/4/2013	20:56	Deer Trail, CO	8" f/6 Newtonian	32x	A nice, bright pale white star.
Capella	Alpha Aur	2/12/2013	20:45	Berthoud, CO	18" f/14.2 Cass	81x	A nice, very bright, pale white or yellowish colored star.
Arcturus	Alpha Boo	5/27/2013	21:15	Berthoud, CO	6" f/9 Refractor	32x	A bright, yellow-orange colored star.
Scheat	Beta Peg	1/4/2013	18:47	Deer Trail, CO	8" f/6 Newtonian	32x	A bright yellow star.

**Carbon Stars (5 objects)**

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Hind's Crimson Star	R Lep	1/4/2013	20:54	Deer Trail, CO	8" f/6 Newtonian	32x	A dim, red star. Nice.
UU Aur	SAO 59280	2/12/2013	20:46	Berthoud, CO	18" f/14.2 Cass	81x	A brighter, nice crimson red star. Very pretty. <u>Very</u> red.
X Cnc	SAO 98230	2/12/2013	20:50	Berthoud, CO	18" f/14.2 Cass	81x	A nice, dimmer, <u>very</u> red star. Not as red as UU Aur though.
La Superba	Y CVn	5/27/2013	21:14	Berthoud, CO	6" f/9 Refractor	32x	A dimmer, yet easy to see red colored star. This is more red than Lalande 21185 was.
Herschel's Garnet Star	Mu Cep	1/4/2013	18:35	Deer Trail, CO	8" f/6 Newtonian	32x	A brighter orange star. Very pretty.

***Planetary Nebulae / White Dwarfs (9 objects)***

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Eskimo Nebula	NGC 2392	1/4/2013	21:09	Deer Trail, CO	8" f/6 Newtonian	81x	A nice, large, bright oval glow with a bright central star that is easily seen in center of glow.
NGC6210		6/24/2013	22:55	Berthoud, CO	24" f/4 Newtonian	110x	A small, round glow with brighter central star easily seen. Has greenish tint to it. At 187x, you can see the green hue easier. Uniformly lit.
Cat's Eye Nebula	NGC 6543	6/24/2013	23:07	Berthoud, CO	24" f/4 Newtonian	187x	A small, oval, bluish-green tinted, uniformly lit glow. No central star seen.
Ring Nebula	M57	6/24/2013	23:00	Berthoud, CO	24" f/4 Newtonian	187x	Nice oval ring. Has greenish tint. See central star pop in a couple of times in center of ring.
Blinking Planetary	NGC 6826	6/24/2013	23:03	Berthoud, CO	24" f/4 Newtonian	187x	Nice. Round, small glow with central star easily seen.
Dumbbell Nebula	M27	7/3/2013	21:44	Deer Trail, CO	8" f/6 Newtonian	121x	Nice bowtie shaped glow. No central star seen.
Saturn Nebula	NGC 7009	7/4/2013	0:42	Deer Trail, CO	8" f/6 Newtonian	121x	A nice, bright, small, blue-green colored oval. Responds well to OIII filter. No central star seen. Uniformly lit.
Helix Nebula	NGC 7293	7/4/2013	1:07	Deer Trail, CO	8" f/6 Newtonian	81x	Low in southeast. Cannot see it without the OIII filter. Nice. Dim. Larger in FOV. A circular glow. Can see some circular ring detail on glow.
Blue Snowball	NGC 7662	2/12/2013	18:18	Berthoud, CO	18" f/14.2 Cass	81x	A small, oval to round shaped, blue-green dim glow. Central star seen in center of glow.



## ***Stellar Evolution – High Mass Stars***

### **High Mass Main Sequence Stars (6 objects)**

<b>Object</b>	<b>Other Name</b>	<b>Date</b>	<b>Time</b>	<b>Location</b>	<b>Telescope</b>	<b>Magnification</b>	<b>Description</b>
Delta Cet	SAO 110665	1/4/2013	19:17	Deer Trail, CO	8" f/6 Newtonian	32x	A dim, reddish colored star.
Bellatrix	Gamma Ori	1/4/2013	19:22	Deer Trail, CO	8" f/6 Newtonian	32x	A bright mostly white with a hint of blue colored star.
Theta 1 Orionis C	SAO132314	1/4/2013	19:23	Deer Trail, CO	8" f/6 Newtonian	32x	A brighter blue white colored star.
Adhara	Epsilon CMa	2/12/2013	20:54	Berthoud, CO	18" f/14.2 Cass	81x	A bright, off white colored star.
Zeta Cmi	SAO 116043	2/12/2013	20:55	Berthoud, CO	18" f/14.2 Cass	81x	A dimmer pale white star.
Spica	SAO 157923 Alpha Vir	5/27/2013	21:19	Berthoud, CO	6" f/9 Refractor	32x	A bright white star. Maybe a tint of blue seen.
10 Lacertae	SAO 72575	6/24/2013	23:27	Berthoud, CO	6" f/9 Refractor	62x	A dim, blue white star.

### Red Supergiant Stars (5 objects)

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Betelgeuse	Alpha Ori	1/4/2013	19:24	Deer Trail, CO	8" f/6 Newtonian	32x	A <u>very</u> bright orange star.
VY CMa	HD 58061	2/12/2013	20:52	Berthoud, CO	18" f/14.2 Cass	81x	A very dim, <u>very</u> red star. Nice.
Antares	Alpha Sco	6/24/2013	22:45	Berthoud, CO	24" f/4 Newtonian	110x	A nice, very bright yellow-orange star.
VV Cep A	HD 208816	1/4/2013	18:34	Deer Trail, CO	8" f/6 Newtonian	32x	A dim, yellow-orange star.
RW Cep	SAO 34387	2/12/2013	18:09	Berthoud, CO	18" f/14.2 Cass	81x	A dim, pale red colored star. Definitely had a red color to it.

### Supernova Remnants (2 objects)

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
Crab Nebula	M1	1/4/2013	19:52	Deer Trail, CO	8" f/6 Newtonian	32x	A nice, bright, larger oval that is uniformly lit.
Veil Nebula	NGC 6960	7/3/2013	22:56	Deer Trail, CO	8" f/6 Newtonian	47x	With OIII filter – 52 Cyg on glow. Below 52 Cyg is brightest part, thin and curved. Shorter than what is above 52 Cyg which is dimmer, longer and fatter.

### Variable Stars (4 objects)

Object	Other Name	Date	Time	Location	Telescope	Magnification	Description
R Aql		7/3/2013	23:08	Deer Trail, CO	8" f/6 Newtonian	121x	A brighter pale white or yellowish colored star.
RR Lyra		5/27/2013	21:50	Berthoud, CO	6" f/9 Refractor	32x	A dimmer pale white colored star.
$\eta$ Aql		7/3/2013	23:03	Deer Trail, CO	8" f/6 Newtonian	121x	An off colored star. Dim. Pale white or light yellow in color.
$\delta$ Cep		1/4/2013	18:27	Deer Trail, CO	8" f/6 Newtonian	32x	A double. Left star yellow-orange and much brighter than right star, which is a very dim, blue colored star.