

# Longmont Astronomical Society

February 2020

Volume 34, No 2, February 2020

Orion Nebula by Martin Butley

ISSN 2641-8886 (web) ISSN 2641-8908 (print)

## Next LAS Meeting 7 pm February 20, 2020 at Niwot Inn in Niwot Science and Observations of the Chilean Eclipse of 2019 by Jim Elkins



Total solar eclipse in Chile by Chris Elkins

Our family had the wonderful opportunity of observing the 2019 solar eclipse together. We had a chance to tour the coast of Chile and see the countryside. Using our photos, we were able to do some science with the collaboration of some atmospheric scientists. We were able to observe the reactions to the eclipse by Chileans on a crowded beach, which was more interesting than the actual eclipse. I will show my portable tracker and camera setup so that I can travel lightly on standby airline tickets. I would encourage members to travel to see another solar eclipse over an adventurer's paradise in Chile and Argentina on December 14, 2020.

### Jim Elkins: a brief bio

February's presentation will feature LAS member Jim Elkins. In his day job Jim serves as Group chief, Halocarbons and other Atmospheric Trace Species Group for NOAA. Jim has essentially been a scientist since high school, and in atmospheric sciences since undergraduate days at the University of Virginia. Pursuit



of greater understanding in the field as taken Jim to such places as NASA's Goddard Space Flight Center in Greenbelt, MD in the Laboratory of Planetary Atmospheres, graduate school in the Division of Applied Physics and Engineering at Harvard University, the Center for Analytical Chemistry at the National Bureau of Standards (currently, NIST) in Gaithersburg, MD. In 1986, he joined the Geophysical Monitoring for Climate Change Program as the chief of the Nitrous Oxide and Halocarbons Group at the National Oceanic and Atmospheric Administration (NOAA) in Boulder, CO. The group has between 10 and 12 employees and has become the Halocarbons and other Atmospheric Trace Species Group. Along the way he has authored or co-authored over 90 publications in the fields of global warming and the depletion of stratospheric ozone. His research has covered measurements of atmospheric trace species

from the depths of the Pacific Ocean to the heights of the stratosphere, and earned him numerous awards. [Read his full bio here: <https://www.esrl.noaa.gov/gmd/staff/James.W.Elkins/>

[Excerpts of his bio was copied from that website and used for this brief introduction.]



Total solar eclipse in Chile by Chris Elkins

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## About LAS

The Longmont Astronomical Society Newsletter ISSN 2641-8886 (web) and ISSN 2641-8908 (print) is published monthly by the Longmont Astronomical Society, P. O. Box 806, Longmont, Colorado. Newsletter Editor is Vern Raben. Our website URL is <https://www.longmontastro.org>.

The Longmont Astronomical Society is a 501 c(3), non-profit corporation which was established in 1987. Our main goal is to promote local amateur astronomy. This is accomplished through regular monthly meetings, star parties and public observing sessions. Regular meetings are held every month (except December) on the third Thursday. The location this year is Niwot Inn, . Meetings are open to the public and begin at 7:00 PM.

A broad spectrum of topics are covered at the meetings and include such things as deep sky observing, planetary imaging, narrow band imaging, equipment discussions and demonstrations just to name a few. These subjects are presented by both club members as well as special guests who are professional astronomers or experts in a particular field.



The Longmont Astronomical Society is affiliated with the Astronomical League (<https://www.astroleague.org>). The Astronomical League is an umbrella organization of amateur astronomy societies in the United States.



## From the President - Bill Tschumy

### The Past Year in Review

- April ~ Oct - Seven scheduled star parties at Rabbit Mountain. Only one was cancelled.
- Jan 19th - Total lunar eclipse star party at Rabbit Mountain
- Feb 9th - Star party at Sandstone Ranch (Partially cancelled)
- May 4th - Members star party at Owl Hollow
- May 10th - Star party at Sandstone Ranch
- June 1st - Solar viewing at Louisville Library
- June 26th ~ 30th - Rocky Mountain Star Stare
- August 24th - Members star party at Owl Hollow
- Sept 20th - School star party at Burlington Elementary
- Oct 25th - School star party at Sanborn Elementary
- Sept 21st ~ 29th - Okie-Tex Star Party
- CANCELLED Nov 1st - School Star Party at Prairie Ridge Elementary
- CANCELLED Nov 11th - Mercury Transit at Soaring Heights ES
- 11 Great monthly meetings and talks
- New web site kicked off in March

### Goals for 2020

- Continue to work with Boulder County to put on public star parties
- More member star parties at a dark sky site
- Continue to look for a dark sky site to purchase / lease
- More school outreach
- New meeting location - Niwot Inn, 342 2nd Ave in downtown Niwot (next to Lefty's Pizza)



Image Credit: Niwot Inn & Spa  
<http://niwotinn.com>

### Announcements

The 2020 Rabbit Mountain star party dates have been set:

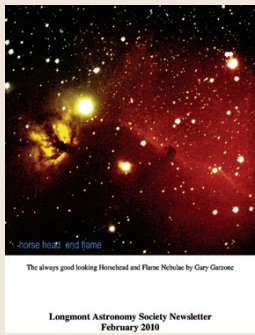
- Saturday Feb 29th (leap year star party!!)
- Saturday March 28th
- Saturday April 18th (No Moon)
- Saturday May 30th
- Saturday June 27th
- Saturday July 25th
- Saturday August 22nd
- Saturday Sept 19th
- Saturday Oct 17th
- Saturday Nov 21st

### Following Officers and Board members were elected for 2020

- Bill Tschumy, President
- Stephen Garretson, Vice President
- Michelle Blom, Secretary
- Bruce Lamoreaux, Treasurer
- Board Members:  
Mike Hotka, Gary Garzone, Brian Kimball, Vern Raben

# Newsletter Archives

## 10 Years Ago - February 2010



It has been an objective of LAS for the last 23 years to have an observing site or facility available. The purpose of the

meeting next month is to take a look at many of the issues involved such as funding, site design, site selection, construction, and maintenance. Vern Raben will present a possible approach and an initial project. There will be a star party for Skyline High School at Sandstone on March 19th.

## 20 Years Ago - February 2000

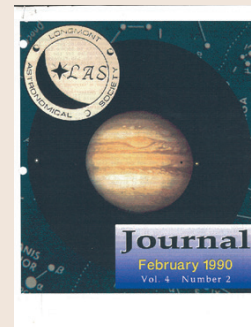


The January LAS meeting coincided with the total lunar eclipse so business was rapidly concluded and the membership dispersed to a

number of observing sites!

LAS officers for 2000 are Dave Street, president; Dave Larison, vice president; Mike Hotka, Secretary/Treasurer; Paul Hale, ALCor Representative, Paul Hale; Steve Albers, web page manager; and Jim Sapp, newsletter editor.

## 30 Years Ago - February 1990



Membership dues were raised to \$20. Jenifer Getson talked about her efforts to get tax exempt status for LAS. Plans were announced

for a FRASC star party at Badger Flats in June, Star Stare star party at Badger Flats in July, and MARS party at Fox Park in August. Bob Spohn will be setting up club's 10" mirror for grinding in his basement; members are asked to help out. Randy Cunningham secured permission for LAS to use the Rabbit Mountain site. LAS Officers for 2000 are: Bob Spohn, president; Dave Street, vice-president; Chris Schoenbauer, secretary; Jenifer Getson, treasurer; Bud Cohee, publisher; Kevin Brose, editor; Jim Wilson, ALCor Rep; and Jim Getson, info contact.

## Solar System Highlights for February

### Mercury

Mercury is an easy object to view in the evening sky until about the 17th. It magnitude -1 on the 1st and magnitude 1.2 on the 17th. It is highest up on the 9th.

### Venus

Venus is prominent in the western sky after sunset. It is magnitude -4.2 in brightness; its disk increases in size from 16 to 19 arc sec.

### Mars

Mars is visible in the morning sky in constellation Ophiuchus until the 10th when moves into Sagittarius. It brightens a bit from 1.4 to 1.1 magnitude this month; its disk increases from 4.5 to 5.5 arc sec across.

### Jupiter

Jupiter is visible in the morning sky in constellation Sagittarius. It is magnitude -1.9 in brightness and disk is 33 arc sec across.

### Saturn

Saturn becomes visible in the morning sky about mid month in constellation Sagittarius. It is magnitude 0.6 in brightness and disk is 15 arc sec across.

### Uranus

Uranus may be seen in the evening sky around 7pm in constellation Aries. It is magnitude 5.8

in brightness and its disk is only 3.6 arc sec across.

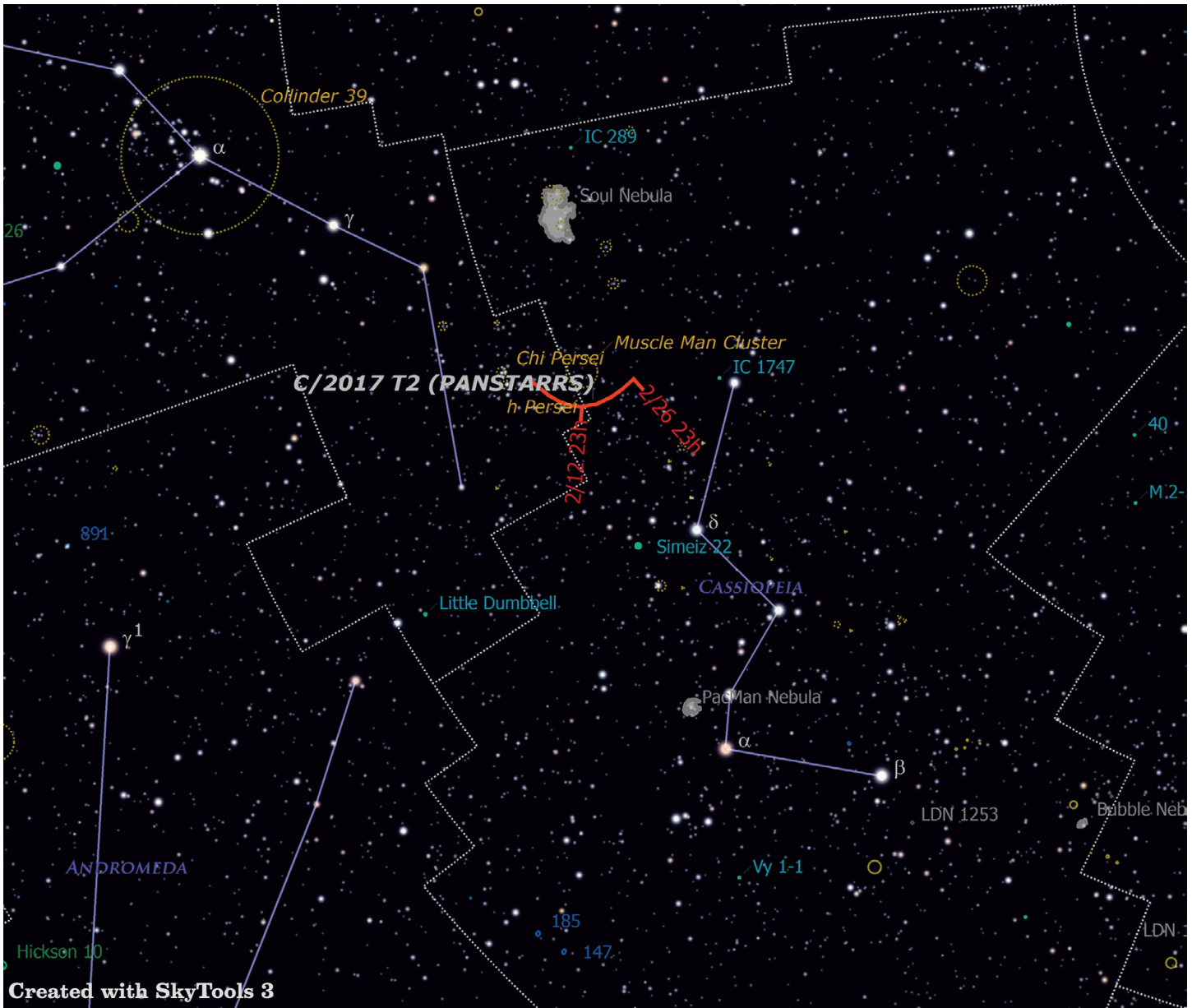
### Neptune

Neptune is visible in the evening sky until the 12th when disappears into bright evening twilight. It is magnitude 7.9 in brightness and its disk is 2.3 arc sec across.



# Comets in February

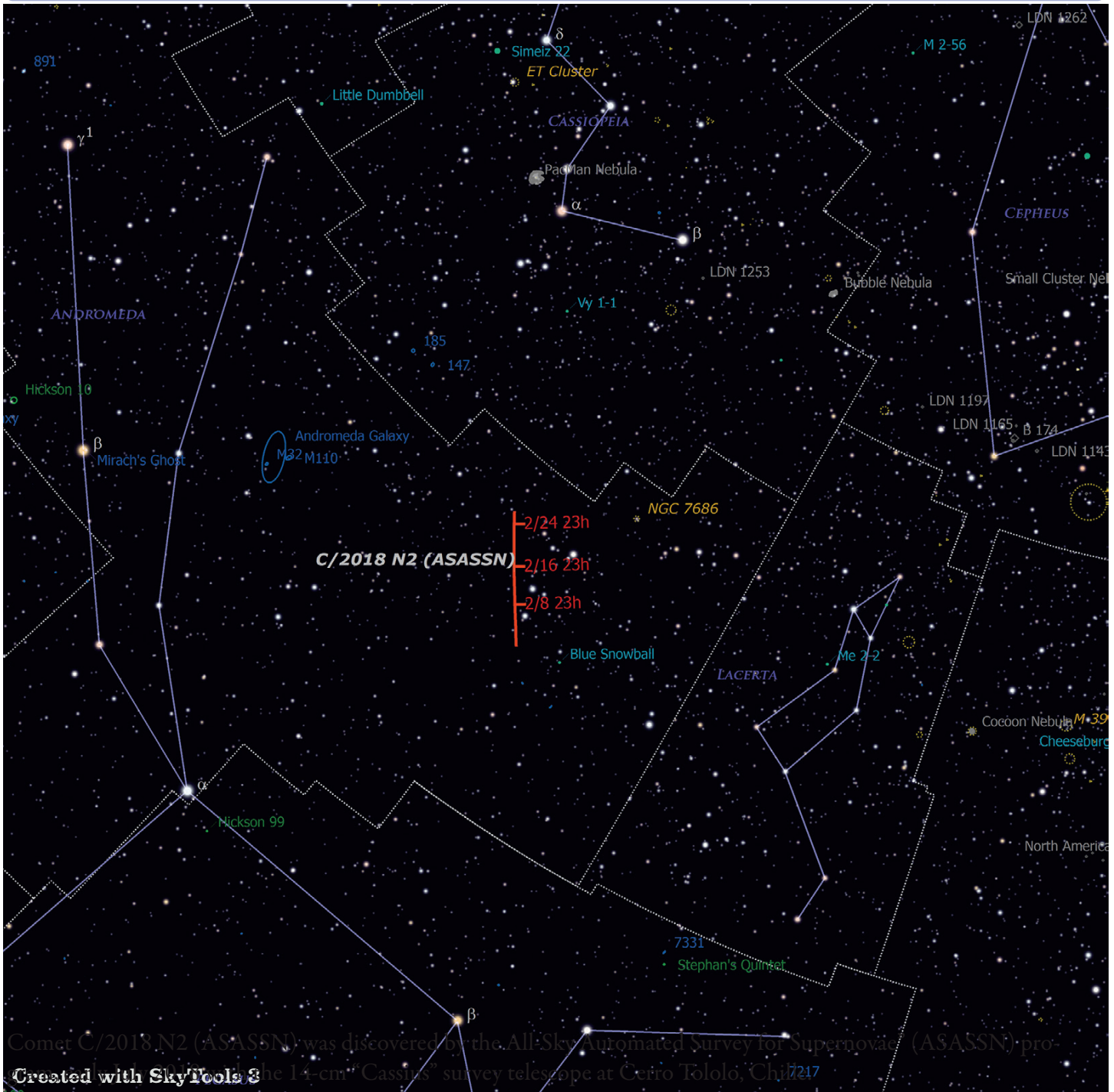
## Comet C/2017 T2 (PanSTARRS)



Comet C/2017 T2 PanSTARRS is now about magnitude 9.2. It will be at perihelion in early May 2020. The Panoramic Survey Telescope and Rapid Response System (PANSTARRS) is located at the Haleakala Observatory in Hawaii.

Date	Optimal time	RA	Dec	Brightness	Size (arc min)	Constellation
Feb 1	06:53 pm	02h16m23.2s	+58°09'05"	9.2	1.7'	Perseus
Feb 6	06:55 pm	02h11m46.0s	+58°32'41"	9.2	1.7'	Perseus
Feb 11	07:03 pm	02h08m46.8s	+59°00'30"	9.1	1.7'	Perseus
Feb 16	07:07 pm	02h07m21.4s	+59°33'23"	9.1	1.7'	Cassiopeia
Feb 21	07:12 pm	02h07m26.2s	+60°12'04"	9.0	1.6'	Cassiopeia
Feb 26	07:15 pm	02h08m58.9s	+60°57'05"	9.0	1.6'	Cassiopeia
Feb 29	07:17 pm	02h10m36.3s	+61°27'16"	8.9	1.6'	Cassiopeia

# Comets in February

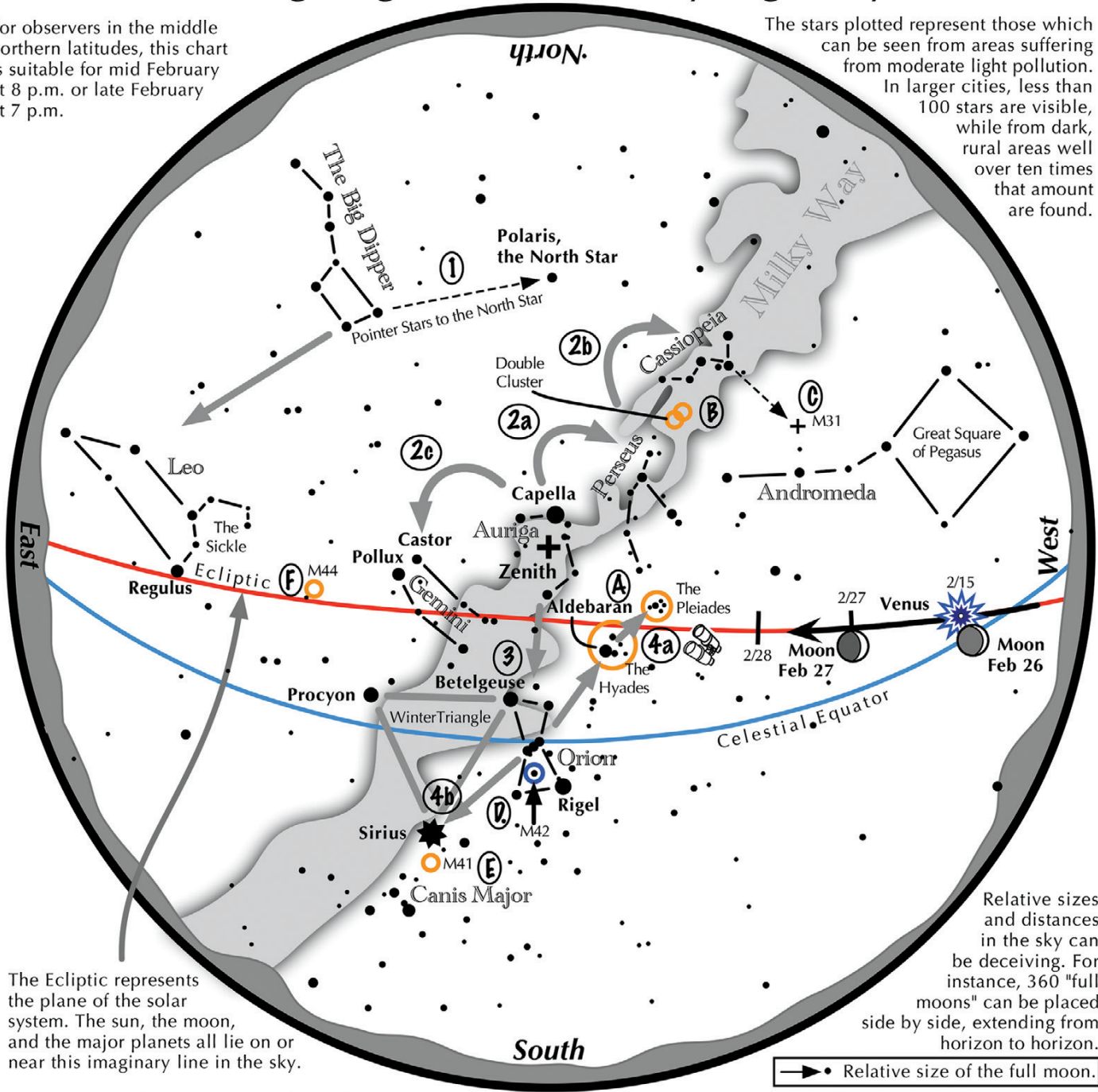


Date	Optimal time	RA	Dec	Brightness	Size (arc min)	Constellation
Feb 1	06:47 pm	23h38m18.8s	+42°33'09"	11.9	1.7"	Andromeda
Feb 6	06:50 pm	23h41m07.6s	+43°12'23"	12.0	1.7'	Andromeda
Feb 11	06:35 pm	23h44m16.2s	+40°29'09"	12.1	1.7'	Andromeda
Feb 16	06:57 pm	23h47m43.0s	+43°55'13"	12.1	1.6'	Andromeda
Feb 21	07:07 pm	23h51m26.9s	+45°31'22"	12.2	1.6'	Andromeda
Feb 26	07:12 pm	23h55m26.4s	+46°24'34"	12.2	1.6'	Andromeda
Feb 29	07:14 pm	23h57m57.2s	+46°58'04"	12.2	1.6'	Andromeda

# Navigating the mid February Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid February at 8 p.m. or late February at 7 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

—●— Relative size of the full moon.

## Navigating the February night sky: Simply start with what you know or with what you can easily find.

- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
- 2 Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
- 4 Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius, a member of the Winter Triangle.

### Binocular Highlights

- A: Examine the stars of two naked eye star clusters, the Pleiades and the Hyades.
- B: Between the "W" of Cassiopeia and Perseus lies the Double Cluster.
- C: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.
- D: M42 in Orion is a star forming nebula. E: Look south of Sirius for the star cluster M41. F: M44, a star cluster barely visible to the naked eye, lies southeast of Pollux.



Astronomical League [www.astroleague.org/outreach](http://www.astroleague.org/outreach); duplication is allowed and encouraged for all free distribution.



**If you can observe  
only one evening celestial event this month,  
consider this one:**

**...The dimming of Betelgeuse...**

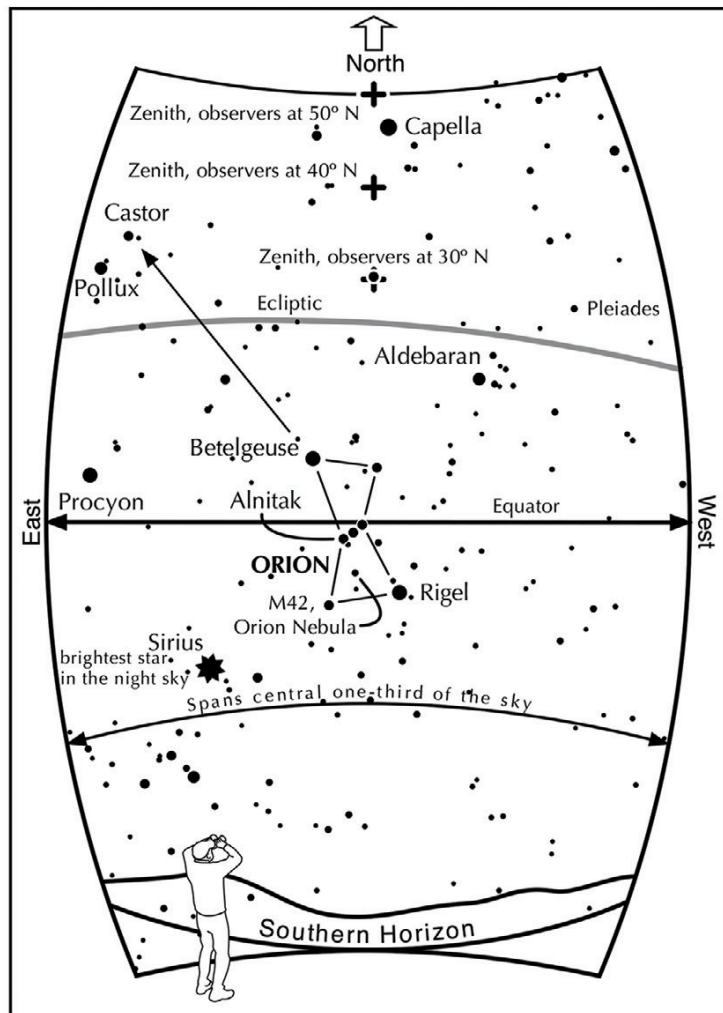
- 90 minutes after sunset, face south and look half way between the horizon and the zenith for Orion.
- On the southwest corner of Orion shines blue Rigel, the fifth brightest star visible from mid-latitudes.
- On the constellation's opposing corner lies Betelgeuse, a semi-regular variable star that is typically either the 8th, 9th, or 10th brightest star. Generally, it is not quite as bright as Procyon shining to its east.
- Since October, Betelgeuse has been dimming reaching a historic minimum. In late January, it shone about as bright as Castor, dropping to about 23rd place!
- Try comparing the brightness of Betelgeuse with that of neighboring stars, in particular Alnitak and Castor. (Alnitak is the easternmost belt star of Orion. Castor can be found by drawing a line from Rigel through Betelgeuse and extending it 1-2/3 that distance.)
- Don't look directly at Betelgeuse, but either mid-way between it and the comparison star, or quickly glance to it, then to the comparison star.

**What is your comparative brightness estimation of Betelgeuse?**

So, why has it dimmed? It could be a variation on its complex brightness cycle. Or it could be that the star is close to undergoing a supernova explosion. Most astrophysicists favor the former, but hope for the latter!



**By John Goss, Astronomical League**



**Facing South on an early evening in February.**



**“Orion Nebula and Satellite Streaks” by David Elmore**

David Elmore’s photo at the left illustrates the increasing problem of orbiting satellites streaking across our astro-photos.

The problem will most likely get much worse.

SpaceX has plans approved for the launch 42 thousand satellites. These will provide Internet to every corner of the globe. There are 3 or 4 other companies with similar plans.

## To Buy or Not to Buy by Mike Hotka



One part of our hobby that many amateurs partake in is imaging the heavens. It seems that many new people

joining the hobby want to be imagers. They have a nice DLSR camera and join our club to leverage the expertise of those experienced imagers.

I am only a novice when it comes to taking images of objects in the night sky. But what little imaging I have done, it appears to me that having a solid mount with descent tracking is a must. Good mounts of this quality are not cheap. Then you often need more than a DLSR type of camera, so you can capture the fainter magnitudes of the deep sky objects (DSO) that you are interested in. You will also have to purchase and learn how to use image processing software. All this can be expensive and for the amateur astronomer on a budget, could be prohibitive to undertake.

My current imaging interests are in imaging star fields that contain an asteroid or a variable star. I have taken images of galaxies, but only to capture the super novae that is shining brightly in that galaxy. I have used colored filters, but that is to get the blue or red magnitudes of variable stars. I have yet to take a picture with the red, green, blue (RGB) colored filters that others use to make color images of DSOs.

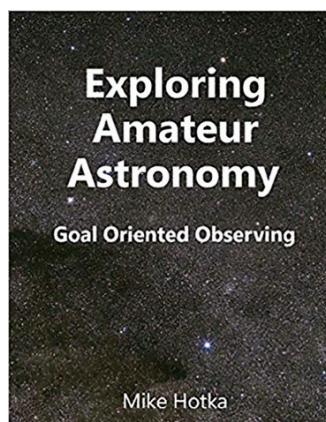
All the telescopes I own are on Dobsonian mounts. I do not own any cameras to take my images with. You might ask the question, “The how does he

take his images of the night sky?” The answer is I purchase time on robotic telescopes, located somewhere in the world other than my backyard.

The advantage of using a robotic telescope is that the only fees you pay are for when the shutter is open and you are taking an image. These telescopes have state-of-the-art mounts, with superb tracking and good astro-grade CCD cameras. They have a full set of filters for you to select from for taking your images with. Not only the standard RGB, but the Johnson-Cousins filters for variable stars and now a filter that you can gather the spectra of an object.

The newest robotic telescope network is the network Bill Tschumy sent out an email about a couple of weeks ago. The Telescope Live network. I investigated this network and quickly determined that it is not robust enough to capture images of asteroids. As compared to a fixed DSO object in the sky, an asteroid’s coordinates change over time. The robotic telescope’s scheduling system, the interface where you tell the telescope what you want to capture and sends image requests to the telescope at the appropriate times, needs to calculate the coordinates of the asteroid and THEN send the image request to the telescope. The Telescope Live system will have this

feature someday.



“Moon and Venus” by Brian Kimball on J



in 28 at 5:48 pm. Taken with iPhone 8 back camera, 1/9 sec exposure, 4mm lens, F1.8, at ISO 100.



**“NGC 1931 Emission and Reflection Nebula in Auriga” by M. J. Post on Jan 2, 2020**





**“NGC 1788 Reflection Nebula in Orion” by M. J. Post on Jan 9, 2020**





NGC 1977

“NGC 1977 Running Man Reflection and Emission Nebula in Orion by Gary Garzone on Jan 1, 2020



“Moon at 16.4 days” by Gary Garzone on Jan 12, 2020





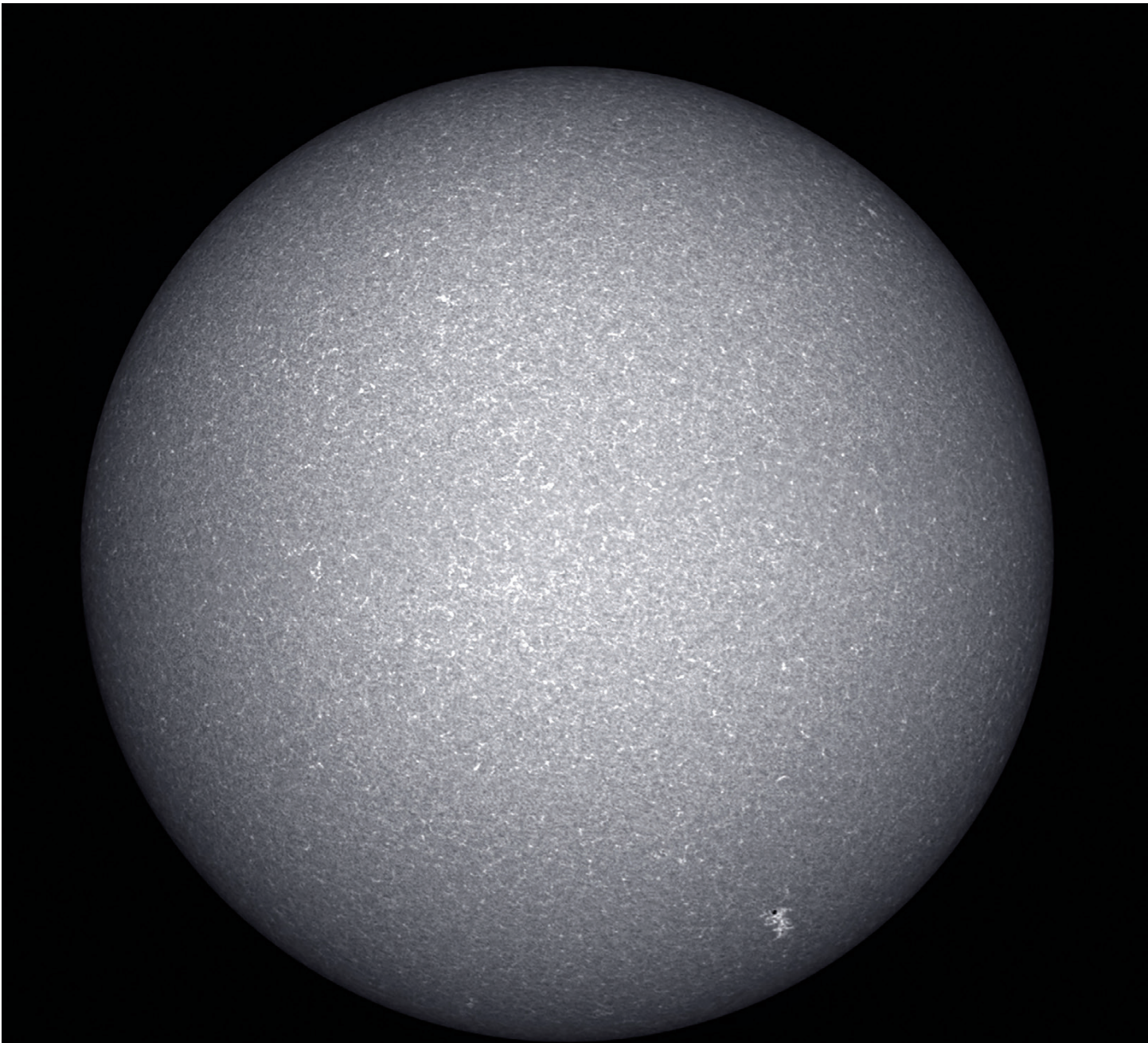
Comet 2017-T2-PanSTARRS by Gary Garzone on Jan 16, 2020

Comet PanSTARRS 2017-T2 Jan. 26.13 UT 2020 by Paul Robinson  
using iTelescope.net T11 at Mayhill, NM. 20" f4.5. 5-min each R, G, B



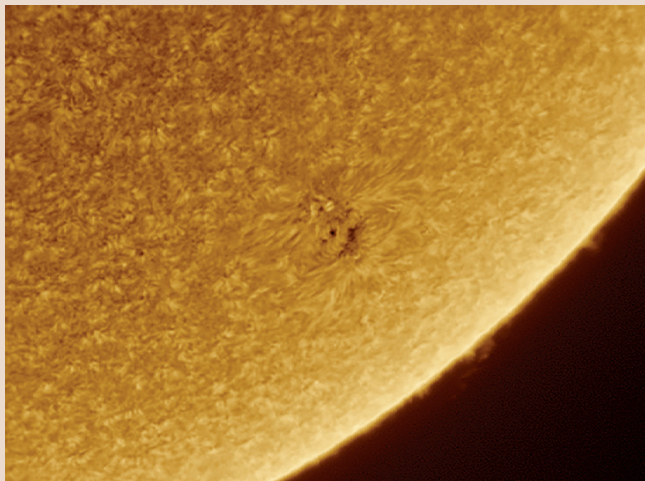


**“NGC 4236 Barred Spiral Galaxy in Draco” by M. J. Post on Jan 2, 2020**



**"Sun in Calcium K" by Brian Kimball on Jan 2, 2020**

**Active Region 2755 in H-Alpha  
by Brian Kimball on Jan 2, 2020**





**“M1 Supernova Remnant in Taurus” by Glenn Frank on Jan 10, 2020**



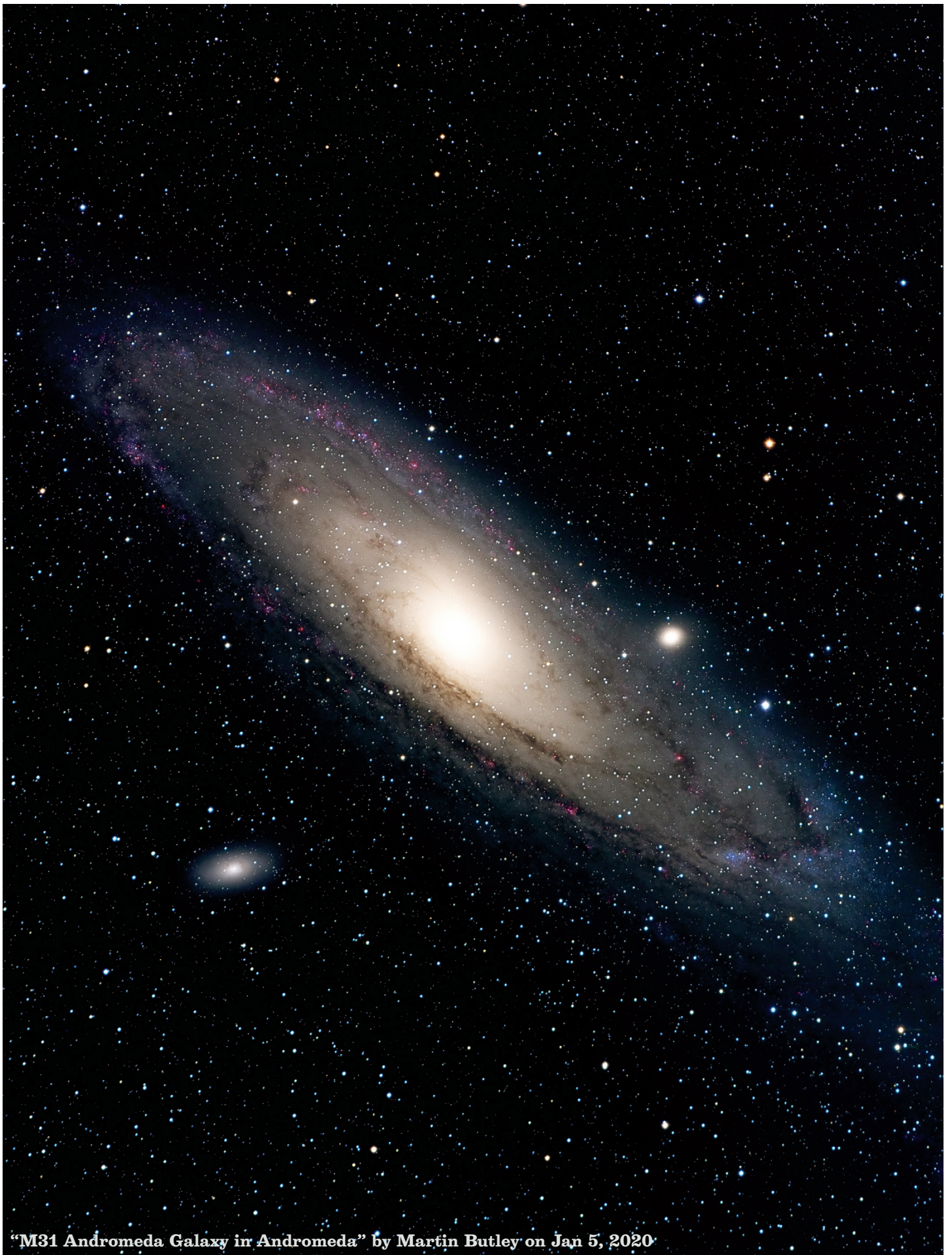
**“NGC 6888 Crescent Nebula in Andromeda” by Glenn Frank on Jan 10, 2020**



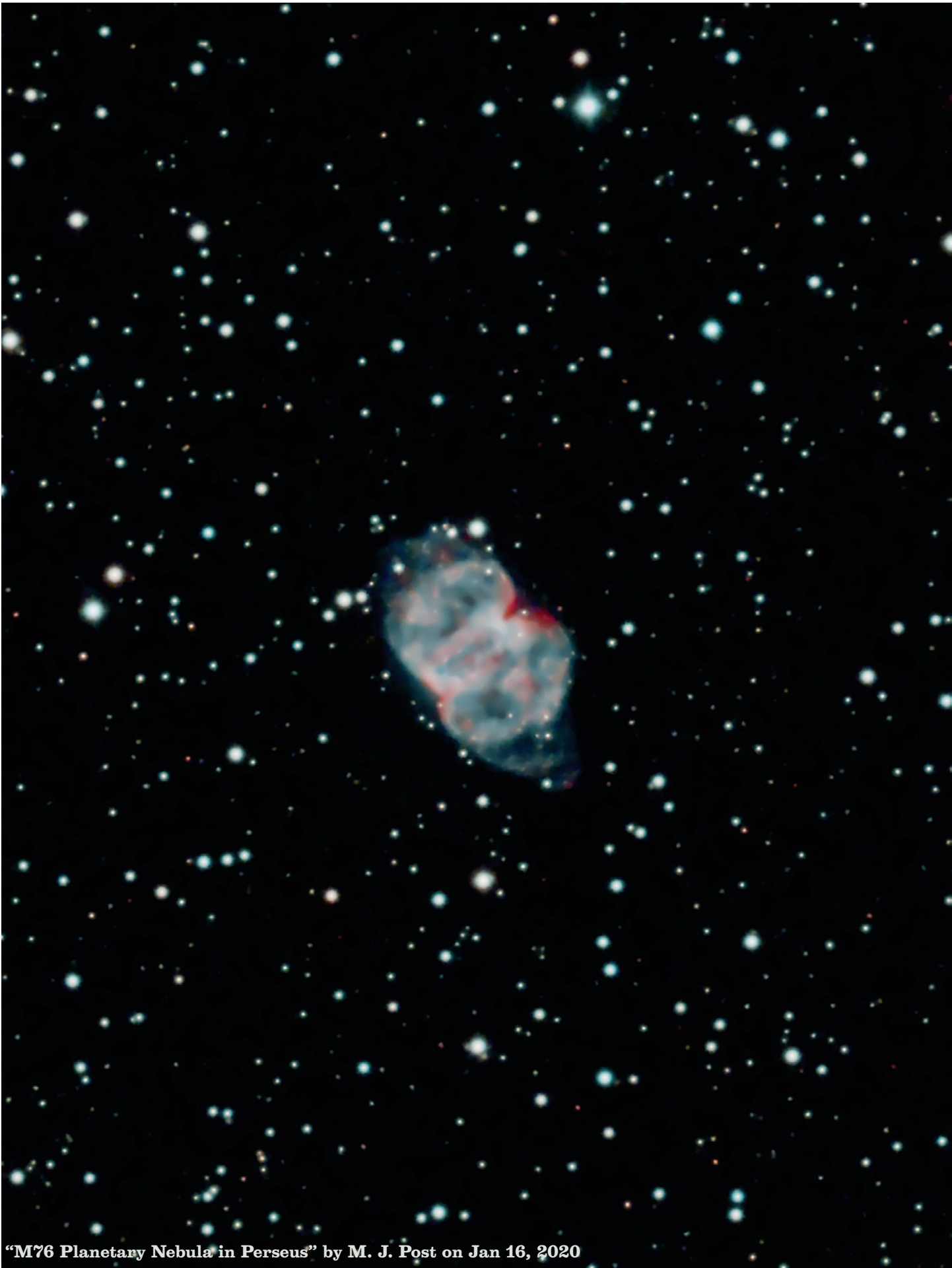
**“NGC 7822 Star Forming Region in Cepheus” by Glenn Frank on Jan 10, 2020**



**“IC405 Flaming Star Nebula in Auriga” by Glenn Frank on Jan 10, 2020**



**"M31 Andromeda Galaxy in Andromeda" by Martin Butley on Jan 5, 2020**



**“M76 Planetary Nebula in Perseus” by M. J. Post on Jan 16, 2020**



**“Orion Nebula in HDR” by Eddie Hunnell on Jan 4, 2020**