NIGHTFALL

A PUBLICATION OF THE HUACHUCA ASTRONOMY CLUB

SEPTEMBER 2019

PRESIDENT'S NOTES

They say the monsoons were late. Well, it's September, so what do they say about our skies now? Let's just discount the weather and speak as if the skies are clear, dark and we are full of positive vibes. The summer Milky Way arches overhead as the evening skies darken. Scorpius is crawling toward the western horizon and the Sagittarius star cloud glows brightly due south. There is no Moon to be seen. It is a good time to get out the binoculars or your telescope and the lowest power, widest field eyepiece to prowl through the nebulous knots of the Milky Way. We've talked about the bright bits before, of the Omega (M17, NGC 6618) and the Eagle (M16, IC 4703) nebulae. I believe we've covered some of the large open clusters, like M21, just up and to the left of the Trifid Nebula (M20), and NGC 6530, the bright star cluster associated with the Lagoon Nebula (M8, NGC 6523). Further away from M8 and M20, although still within say a radius of 10 degrees, are another twelve M (Messier) objects ready for your inspection, but we're not after those this time. No, we are after what look like large and small dark voids of the Milky Way. They've been dubbed Dark Nebulae or absorption nebula.

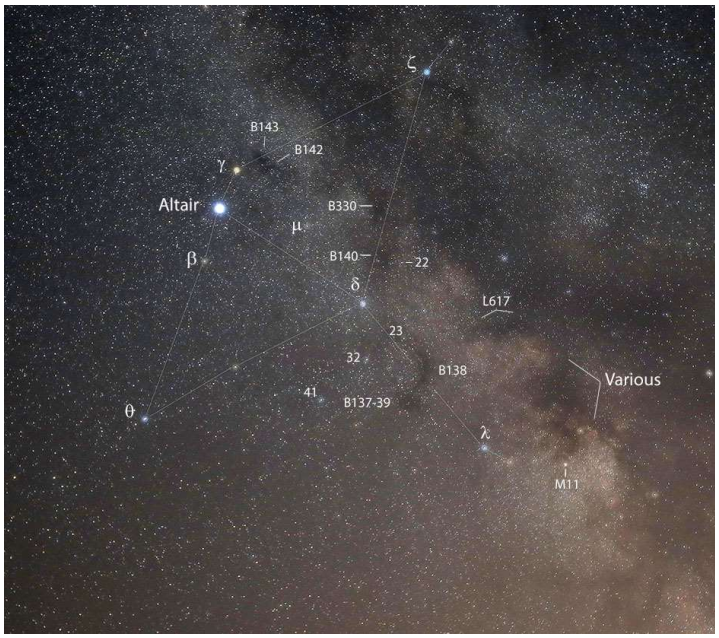
Dark nebulae are formed from gases and dust of sufficient density to obscure the starlight beyond them. The Trifid nebula got its common name from the dark lanes separating the larger emission nebula into into three lobes. These lanes are also designated as Barnard 85. What, another catalog to figure out? And, who's Barnard? Well, yes, and good question; thanks for asking. Barnard was a ground-breaking astronomer and astro-photographer who turned his telescopes and cameras not only to the bright stars and bright nebulae but also noticed the dark forms that framed many of those bright objects. Edward Emerson Barnard (E.E. Barnard) compiled a list of dark nebulae known as the *Barnard Catalogue of Dark Markings in the Sky.* More good news, there are more objects in the Barnard Catalog (the 1927 version, lists 369 objects) than the 110 objects in the Messier Catalog. Still more good news, there is an Astronomical League Dark Nebula Observing Program for you to wrestle with, either visually or by imaging. The list includes objects from Barnard (B), Lynds Dark Nebula (LDN), and other catalogs. But the program only asks for 70 objects, but you can always be an over-achiever. I'm thinking of going for the catalog using an Edmund Scientific Astroscan (original design), a 4-1/8" Newtonian reflector designed to be a low power, wide field telescope. I plan to use it at low power: 16x that will give me a 3-degree field of view, with a UHC filter to increase contrast for the big objects, and maybe bumping the power up to 30x, with a field of view of about 1.5 degrees for some of the smaller ink spots. It is possible to bag all the list with an 8" telescope and many of them with just your eyes or binoculars from a dark site with transparent skies.

Anyway, you have probably already seen several to many of the dark nebulae, B25 (dark part of the Trifid), B88 (dark part of the Lagoon) and, B33 (the Horsehead nebula). Also, from the dark, moisture-free skies we have here in southeast Arizona we can usually see the Milky Way with just our unaided eyes. If that is the case, then you may have noticed the dark lanes along the Milky Way, yes? Those dark lanes are large-scale dark nebulae. Indeed, many of the dark nebulae on lists and in catalogs are subsections and tendrils springing from these large dark lanes.

High up in our September skies, straddling the Milky Way, the small constellation of Aquila, the Eagle, soars. At its head, well by some drawings it's the head, is the bright star Altair. Altair is a very good point to start your journey, slowly working your way inward towards the Sagittarius star cloud. I won't go into a travelogue from here. I will instead point you to a nice article from August 15, 2018, *Sky and Telescope* that you can find online and print out for your evening viewing.

https://www.skyandtelescope.com/observing/shadow-play-summertime-dark-nebulae-for-binoculars/ It will serve you well as you get out this month and stare.

Altair is a Great Starting Point to look for Dark Nebulae. This photographic map plots the location of several of Aquila's more prominent dark nebulae.



Credit: Bob King, in Sky and Telescope
https://www.skyandtelescope.com/observing/shadow-play-summertime-dark-nebulae-for-binoculars/

At the September Meeting

The September meeting will be held in the Community Room, Student Union Building, Cochise College, Sierra Vista Campus at 7 pm on Friday September 13.

Our speaker is HAC member Dr. Dwight Hoxie, the new astronomy instructor at Cochise College. Dwight has a PhD in astrophysics but spent much of his career as a hydrologist for the USGS.

There will be a dinner at the Outback Steakhouse before the meeting (5PM). Please RSVP to Bill Howard howardwj5 at gmail dot com

Dine Under the Stars

The annual scholarship fundraiser will be held adjacent to the Patterson Observatory on Saturday October 5 from 6 to 9 PM. Tickets are $50 for adults, $25 students and $15 children under 12. Proceeds provide scholarships to U.A. Sierra Vista students. Your support of the University South Foundation helps to keep the Patterson Observatory up and running.

The observatory will be open for stargazing. There will be a catered dinner provided by Indochine (appetizers), Texas Roadhouse (entrée) and La Casita (dessert), music by Desert Fever, Entertainment by Alma Dolores Dance Centre, a silent auction, a live auction, a 50/50 raffle, and more.

Tickets will be on sale at the September meeting (see Ted Forte). Make checks payable to University South Foundation. You can also purchase tickets at Dillard's, Sierra Vista Area Chamber of Commerce, the University South Foundation office or online at

www.universitysouthfoundation.com

Sign up for the 2020 Astronomy Magazine Calendar

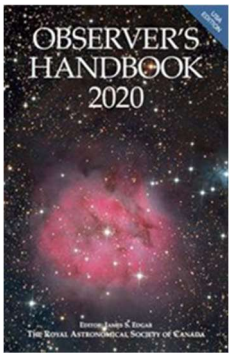
The treasurer will have a sign-up sheet for the purchase of 2020 calendars at the special club price of $6.50 (regular $12.99)

PLEASE PAY IN ADVANCE (Cash or check made out to Huachuca Astronomy Club) when signing up for calendars.

Orders will be taken at the September, October, and November meetings and placed on order after the November meeting for distribution in December.

Sign up for the 2020 RASC Observer's Handbook

The treasurer will have a sign-up sheet for the purchase of the Royal Astronomical Society of Canada (RASC) 2020 Observer's Handbook (U.S. Edition) and will collect $23.00 for each copy ordered. Purchasing the books together, we can benefit from a volume discount off the regular $29.95 price (over $35 on some websites).



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Name NASA's Next Mars Rover Contest

Spread the word! NASA's Mars 2020 rover needs a name! Any K-12 student in U.S. public, private, and home schools has a chance to name the next Mars rover bound for the Red Planet in July 2020.

To enter the contest, students submit their rover name and a short essay (max 150 words) to explain the reasons why their chosen name is the best. The contest closes Nov. 1, 2019. For contest entry and details, visit www.futureengineers.org/nametherover

Interested adults, especially with STEM experience can sign up to be a judge by visiting www.futureengineers.org/registration/judge/nametherover

Read more about the Mars 2020 mission here: https://mars.nasa.gov/mars2020/

Outreach Volunteers Needed

With the end of monsoon, we will again be accommodating outreach requests from teachers, youth groups and civic organizations. Interested members need only show up to be involved. We can use your help (with or without your telescope) at the Patterson Observatory and at the numerous outreach events we hold at schools, parks, and the library. Watch the HACAstro list for announcements and check the calendar there frequently (new events pop up all the time). No experience necessary – just bring your enthusiasm. You are sure to find it a fun and rewarding experience!

Kartchner Star Party

Mark your calendars: the fall Kartchner Star Party at Kartchner Caverns State Park will be held on Saturday October 19. Details and information will be provided in the October Nightfall newsletter.

NASA Night Sky Notes

September 2019

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.org to find local clubs, events, and more!

Spot the Stars of the Summer Triangle

By David Prosper

September skies are a showcase for the Summer Triangle, its three stars gleaming directly overhead after sunset. The equinox ushers in the official change of seasons on September 23. Jupiter and Saturn maintain their vigil over the southern horizon, but set earlier each evening, while the terrestrial planets remain hidden.

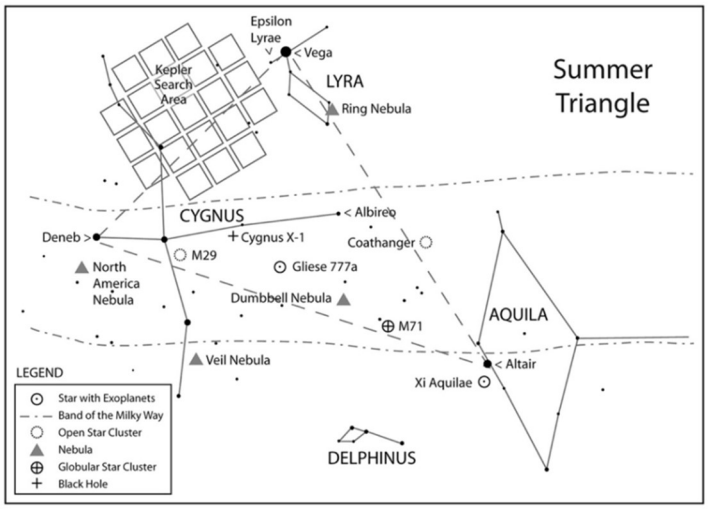
The bright three points of the Summer Triangle are among the first stars you can see after sunset: Deneb, Vega, and Altair. The Summer Triangle is called an asterism, as it's not an official constellation, but still a striking group of stars. However, the Triangle is the key to spotting multiple constellations! Its three stars are themselves the brightest in their respective constellations: Deneb, in Cygnus the Swan; Vega, in Lyra the Harp; and Altair, in Aquila the Eagle. That alone would be impressive, but the Summer Triangle also contains two small constellations inside its lines, Vulpecula the Fox and Sagitta the Arrow. There is even another small constellation just outside its borders: diminutive Delphinus the Dolphin. The Summer Triangle is huge!

The equinox occurs on September 23, officially ushering in autumn for folks in the Northern Hemisphere and bringing with it longer nights and shorter days, a change many stargazers appreciate. Right before sunrise on the 23rd, look for Deneb - the Summer Triangle's last visible point - flickering right above the western horizon, almost as if saying goodbye to summer.

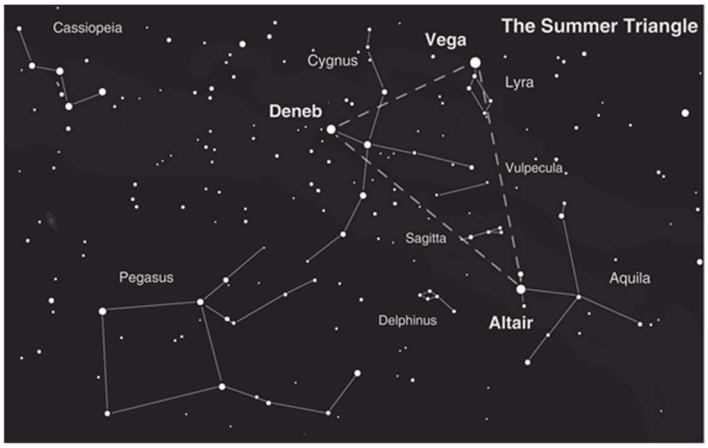
The Summer Triangle region is home to many important astronomical discoveries. Cygnus X-1, the first confirmed black hole, was initially detected here by x-ray equipment on board a sounding rocket launched in 1964. NASA's Kepler Mission, which revolutionized our understanding of exoplanets, discovered thousands of planet candidates within its initial field of view in Cygnus. The Dumbbell Nebula (M27), the first planetary nebula discovered, was spotted by Charles Messier in the diminutive constellation Vulpecula way back in 1764!

Planet watchers can easily find Jupiter and Saturn shining in the south after sunset, with Jupiter to the right and brighter than Saturn. At the beginning of September, Jupiter sets shortly after midnight, with Saturn following a couple of hours later, around 2:00am. By month's end the gas giant duo are setting noticeably earlier: Jupiter sets right before 10:30pm, with Saturn following just after midnight. Thankfully for planet watchers, earlier fall sunsets help these giant worlds remain in view for a bit longer. The terrestrial planets, Mars, Venus, and Mercury, remain hidden in the Sun's glare for the entire month.

Discover the latest in space science from the NASA missions studying our universe at nasa.gov



Caption: Once you spot the Summer Triangle, you can explore the cosmic treasures found in this busy region of the Milky Way. Make sure to "Take a Trip Around the Triangle" before it sets this fall! Find the full handout at bit.ly/TriangleTrip



Caption: This wider view of the area around the Summer Triangle includes another nearby asterism: the Great Square of Pegasus.

Pictures from HAC Members

C2018 N2 ASASSN by David Roemer

C2018 W2 Africano by David Roemer

Comet 260P McNaught by David Roemer

First Light after Upgrades at Craig Anderson's Observatory RISS-Remote – M27

Want Ads

FOR SALE: A nearly unused ZWO 1600 with CFW and filters, and an ASA 12" Astrograph

Contact Max Mirot

FOR SALE: Nikon camera gear and lenses

Nikon D750 w/24-120 lens, five batteries, stock charger, Nikon mc-dc-2 remote cable release, box, manual, lens and body caps $1500
Nikon 80-400 zoom, lens caps, soft case $1275
Nikon 70-200 f/4, lens caps $900
Nikon 50mm f/1.8 G, 85mm f/1.8 G, lens caps $385 set
Tamron 15-30, lens caps, $775
Nikon D7200, Nikon 18-140 lens, Nikon 18-300 lens, Nikon mc-dc-2 cable release, two batteries, stock charger, manual, $1100 as a set

Contact Mike J. Shade at mshade@q.com

Club Officers and Contacts

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For more information on products and contact information, their websites are:

Farpoint Astronomy http://www.farpointastro.com/

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HAC Sep/Oct Calendar of Events

SU	MO	TU	WE	TH	FR	SA
1 Sep	**2** 	**3**	**4**	**5** **8:10 PM** **Patterson Public Night 7PM**	**6** Jupiter 2° S of Moon	**7**
8 Saturn.04° N of moon Pluto 0.08° S of moon	**9**	**10** Neptune opposition	**11**	**12**	**13** **9:33PM** **HAC Meeting Student Union**	**14**
15	**16**	**17**	**18** Saturn is stationary	**19**	**20**	**21** **7:41PM**
22	**23** Autumnal Equinox 12:50AM	**24**	**25**	**26**	**27**	**28** **11:26 AM** Mercury/Spica 1.4°
29	**30**	**1 Oct** School field trip to Patterson 9:30AM	**2**	**3** Patterson Public Night 6:30 PM	**4**	**5** **9:47AM** **Dine Under the Stars 6-9PM**
6	**7**	**8** Draconid meteors	**9** Draconid meteors	**10**	**11**	**12**
13 **2:08PM**	**14**	**15**	**16** School field trip to Patterson 9:30AM	**17**	**18** **HAC Meeting Student Union**	**19** **Kartchner Star Party noon-9**
20	**21** Orionid meteors	**22** **5:39AM** Orionid meteors	**23**	**24**	**25**	**26**
27 **8:38PM**	**28** Uranus Opposition	**29**	**30**	**31** 	**Nov 1**	

All event times MST. Join **HacAstro** to keep up to date with all of the Huachuca Astronomy Club events
Send an email to: HACAstro+subscribe@groups.io