Monthly Meeting May 11th at 7:00 PM, at HOME
(Monthly meetings are on 2nd Mondays, routinely at Highland Road Park Observatory).

PRESENTATION: (Meeting to be held via Zoom Webinar, due to current COVID-19 Quarantine)
Our speaker will be Greg Andrews, on Dark Matter. He is a former president of the Shreveport-Bossier Astronomical Society and the Planetarium Manager at Sci-Port Discovery Center in Shreveport.

What's In This Issue?

President’s Message
Secretary's Summary
Outreach Report
Asteroid and Comet News
Light Pollution Committee Report
Globe at Night

Messages from the HRPO
Science Academy
Solar Viewing
Friday Night Lecture Series
Stem Expansion
Plus Night
American Radio Relay League

Observing Notes:  Hydra – The Water Snaker & Mythology

Like this newsletter?  See PAST ISSUES online back to 2009
Visit us on Facebook – Baton Rouge Astronomical Society
President’s Message

And that was April. Despite adverse conditions at times, we had some absolutely stunningly clear nights over the past couple of weeks so I hope everybody found some time to go out and do a little observing or imaging. With a little bit of luck, we can get a few more of these evenings after our quarantine is over so we can get in a little more scope time before the mosquitoes muster their numbers. Unfortunately, April saw the loss of two very promising comets, but we were introduced to a new Comet in Swan, which early indications suggest could be a pretty nice early evening comet. Most of the pictures I’ve seen of it show a very nice tail, too, which is something that Atlas and T2 didn’t really have. But, time will tell. It’s been a long time since we had a nice bright comet and I think we’re due.

The April meeting was a little bit different but I think most people thought it was a pretty good program and that it more or less went fairly well. With the shelter order having been extended for another couple of weeks, we’ve decided that we’ll just try the ZOOM format for the May meeting and hope that by June we’ll be back at the observatory—keep tuned to see if that can work out. The invites for the May meeting will go out the day before, so if you haven’t received it by then or need help logging in, check with Ben. This month’s speaker should be a pretty good one, and it will focus on Dark Matter.

For a while now, we’ve been talking about creating some digital record of our general meetings and posting them online, and now that we’ve set up our very own BRAS YouTube channel, this seems the perfect place to upload this content. I think that going forward, we’ll try to record and post our meetings so that the people who can’t make it out in person will still get a chance to join us.

So far, it looks like club events in May, at least for the first half, have been cancelled. Astronomy Day nationwide, and at HRPO is postponed by the AL to the fall. The raffle for the 8” Dobsonian has been moved to the night of Spooky Spectrum in October, so don’t think you’ve missed your chance to get an awesome scope for the cost of a $5 ticket and a little bit of luck. I’m not sure when tickets will go on sale, so again, stay tuned.

So far, we haven’t figured out when our next members only night at the observatory will be, but we are still trying to schedule an event for spring. At last check, Chris seems a little weary of crowding people into the dome, so this event may be limited to just people who want to set up scopes outside. We’ll figure this out at the meeting next week, and let everybody know what the plan is. There also seems to be some exciting plans being worked out on how to safely do outreach at the observatory before the end of the summer, but we’re going to have to let Chris fill us in on the details there.

I hope everybody is keeping well, and I hope to see many of you at the meeting on the 11th.

Submitted by Scott Cadwallader, President 2020

ALCon 2020 Postponement

As of 4/3/2020, ALCon 2020 has been postponed to August 4-7, 2021, as ALCon 2021.
Secretary's Summary of April Meeting

The April meeting was held via Zoom on 4/15/2020, as our city was in quarantine due to Covid 19. Still, 22 people attended the meeting, and we covered a lot of territory:

Announcements:

John Nagle: Texas Star Party is cancelled for 2020

Scott C: Going to keep outreach going while not putting anyone in danger.
HRPO is closed for the next two weeks
There are two comets breaking up currently
IAD is iffy, per the governor’s comments, (since been cancelled)
Asteroid Day is the next big event.
We should be able to stream public meetings in the future

Coy W. attested that SkySafari is a very good app (free version) for finding constellations and other natural sky phenomena

Chris D. says there is a ¼ moon now and moonrise is not until 1 a.m.

Thomas asked if the Trophy House nametags are ready for us?

Coy W. introduces Dave Prosper of NSN, who presented many details about NSN’s accomplishments. For example, NSN is 400+ clubs strong; they have held 56,000 events since 2004, and so forth.

Meeting adjourned at 8:39 p.m.

Submitted by Thomas Halligan, Secretary

2020 Officers:

President: Scott Cadwallader
Vice-President: Coy Wagoner
Secretary: Thomas Halligan
Treasurer: Trey Anding
BRAS Liaison for BREC: Chris Kersey
BRAS Liaison for LSU: Greg Guzik

Committees/Coordinators:
AL Awards
Merrill Hess
Light Pollution:
John Nagle
Newsletter:
Michele Fry
Observing:
John Nagle
Outreach:
Ben Toman
Public Information
Krista Reed
Webmaster:
Frederick Barnett

Upcoming BRAS Meetings:

NSN Training Kit Session, Postponed
Monthly Business Meeting: 7:00 p.m., Wednesday, May 6; via Zoom webinar
Light Pollution Committee Meeting: 6:15 Wednesday, May 6 (before the business meeting, via Webinar (TBA)
Monthly Member Meeting: 7:00 Monday, May 11; via webinar due to COVID-19 quarantencing.
Star Party at Chris Desselles’ house, postponed
MOON (Members Only Observing Night), TBA
Hi Everyone,

Well, you may think there’s not much Outreach to report this month due to all of us being on Covid lockdown, but that would be WRONG-O!!!!. Because I am happy to announce……………………….

We finally started a BRAS YouTube channel and are livestreaming and making videos for teachers and families.

https://www.youtube.com/channel/UCS3Xkk1t7C9IRnB8GKr9MQ

Here’s how it happened.
I often do a livestream via our BRAS Facebook page when we have our monthly Sidewalk Astronomy event at Perkins Rowe. Since it was a beautiful, clear night on Tuesday, March 31st (when one of our events would have been held), I decided to go ahead with a livestream from my front yard. The Moon in phase is always impressive and it’s VERY impressive to those that aren't used to seeing it magnified through a telescope. I use a simple mount to attach my smart phone to a telescope eyepiece and then it's just a matter of working the focus and dialing in the exposure setting to have a great look at the Moon. (In fact, with a polarizing filter, I was even able to show off Venus for a little bit.)

A grade school teacher friend of mine in Michigan happened to tune in to the livestream. She later sent me a message asking if I would do a video for her school's students about the Moon as something they could use to supplement their distance learning curriculum. Of course, I HAD to do it! That’s what started a ball rolling for the club to establish a BRAS YouTube channel (something that we've been meaning to do for a long time) and there are now two videos up there.

Where do the Stars Go During The Day
Let’s Learn About The Moon

They are pretty basic knowledge videos, but fun. The highlight in both is actually having some real-time footage looking through a telescope at some of the things described in the mini talk beforehand. The videos are published as "For Kids" and are of course, all ages appropriate. Also, because of the "For Kids" designation, comments are automatically turned OFF. This works well in two ways. 1. It saves us from having to monitor the comment section for inappropriate comments from the general public. 2. I don't have to deal with criticism from internet trolls!

From my Living Room
Now is a great time to start dipping your toes in the pool of Outreach. I've already seen several other members sharing videos, livestreams and pictures via their social media. You can do the same thing. If you have a telescope and a camera (phone or other), this is the time to announce to your friends, family and co-workers that you love astronomy! Whether you do a livestream, or just take a quick snap of the Moon and text/email it to a friend or family member, that's a form of Outreach. We get to look at something like the Moon whenever we want so we sometimes take that for granted. But our friends/family that don't have scopes (or know anything about them) don't have that opportunity. Think about sharing some of your love for astronomy with them. You never know, you may just start the ball rolling for THEM!

**We get to look at something like the Moon whenever we want, so sometimes we take it for granted. But others who don’t have scopes don’t have that opportunity.**

Check out the two videos on our YouTube channel, and please SUBSCRIBE. I'm already thinking of new topics that would be great for educational outreach, and also for some that would be great for those new to astronomy. I'm not sure yet how we might add videos from other members, but that will be coming up for discussion soon.

I can't wait to get back in public, though, and see that WOW! moment firsthand when you show someone an awesome object in our night sky.

Clear Skies,
Ben Toman

******************************************************************

Comparing the size of the sun to the planets.

Looking through the tube at the Moon by Day, from my front yard.
BRAS Light Pollution Committee Report

This committee meets at 6:15, same day as the 7:00 BRAS Business Meeting
(normally on Wednesday before the Monthly Meeting)
Everyone is welcome to join in..

There was no LPC meeting in April due to the Corona Virus

Submitted by John R. Nagle

Globe At Night

The target for this month’s Globe at Night program is Leo from May 14th through the 23rd.
If you would like to participate in this citizen science program, you can find instructions at
https://www.globeatnight.org

Here is a handy 2020 GlobeatNight Post card, in case you are out and about at night.

P.S. The “Loss of the Night” app can be used for information and for reporting your observations
Flying “Rocks” and “Dirty Snowballs”:

Asteroid and Comet News

May 2020

Volume 2, Issue 5.

Comet ATLAS (C/2019 Y4) has fragmented.

The comet many were hoping would put on a great show has fragmented and has faded.

Two new images from Hubble show the doomed comet C/2019 Y4 (ATLAS). Taken on April 20 and 23, 2020, they provide the sharpest views yet of the comet’s solid icy nucleus breaking apart into as many as 30 pieces that are each roughly the size of a house.

The comet was discovered on Dec. 29, 2019, by the ATLAS (Asteroid Terrestrial-impact Last Alert System) robotic astronomical survey system based in Hawaii. The comet’s fragmentation was confirmed by amateur astronomer Jose de Queiroz, who was able to photograph around three pieces of the comet on April 11. With its crisp resolution, Hubble has a front-row seat to look for more pieces. And astronomers weren’t disappointed with what it saw.

Scientists know that the comet’s nucleus — the fountainhead of the glamorous tail — is a fragile cluster of ices and dust. However, astronomers don’t know why some comets break apart like exploding aerial fireworks shells. Could the warming influence of the Sun cause a comet to become unglued as it enters the inner solar system? Or could the icy nucleus spin up as it shoots out jets of warming gases, causing it to fly apart?

The disintegrating comet was approximately 91 million miles (146 million kilometers) from Earth when the latest Hubble observations were taken. If any of it survives, the comet will make its closest approach to Earth on May 23 at a distance of about 72 million miles (116 million kilometers). Eight days later it will skirt past the Sun at 25 million miles (40 million kilometers).

Credit: NASA, ESA, D. Jewitt (UCLA), and Q. Ye (University of Maryland)

More go.nasa.gov/3aQXggO

https://www.flickr.com/photos/gsfc/49832598833/
**JPL Close Approach Data** from Mar 31, 2020 to Apr 28, 2020 Distance Nominal < 1 Lunar Distance

<table>
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<th>Object</th>
<th>Close-Approach (CA) Date</th>
<th>CA Distance Nominal LD (au)</th>
<th>H (mag)</th>
<th>Estimated Diameter</th>
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<td>(2020 FB7)</td>
<td>2020-Mar-31</td>
<td>0.20 (0.00052)</td>
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<td>0.18 (0.00046)</td>
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<td>0.21 (0.00054)</td>
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<td>13 m - 28 m</td>
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<tr>
<td>(2020 HO)</td>
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<td>0.75 (0.00193)</td>
<td>28.8</td>
<td>4.6 m - 10 m</td>
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<td>6.4 m - 14 m</td>
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<td>0.11 (0.00029)</td>
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<td>3.9 m - 8.8 m</td>
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As of 2020-05-01 there is
930,248 discovered asteroids (MPC) ([https://www.minorplanetcenter.net/](https://www.minorplanetcenter.net/))
545,135 have been numbered ([https://minorplanetcenter.net/iau/lists/NumberedMPs.html](https://minorplanetcenter.net/iau/lists/NumberedMPs.html))
22,822 discovered Near-Earth Objects (MPC) ([https://www.minorplanetcenter.net/](https://www.minorplanetcenter.net/))
4,155 discovered Comets ([https://www.minorplanetcenter.net/](https://www.minorplanetcenter.net/))
1,021 objects listed on JPL’s Sentry: Earth Impact Monitoring (JPL) ([https://cneos.jpl.nasa.gov/sentry/](https://cneos.jpl.nasa.gov/sentry/))
2,467 objects have been removed from Sentry(JPL) ([https://cneos.jpl.nasa.gov/sentry/removed.html](https://cneos.jpl.nasa.gov/sentry/removed.html))
For more information read Jon Giorgini’s "Understanding Risk Pages" ([http://www.hohmanntransfer.com/by/giorgjon.htm](http://www.hohmanntransfer.com/by/giorgjon.htm)) (i.e. “A risk-page listing is not a prediction of impact”)

The following objects were removed from NASA JPL’s Sentry: Earth Impact Monitoring list from 2020-02-26 to 2020-03-31

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<td>2020 HQ6</td>
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<td>2020 HV5</td>
<td>2020-04-28 14:52:16</td>
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<td>2020 HZ4</td>
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<td>2020 HE</td>
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Useful Links:

- Guide to Minor Body Astrometry ([https://www.minorplanetcenter.net/iau/info/Astrometry.html](https://www.minorplanetcenter.net/iau/info/Astrometry.html))
- New- And Old-Style Minor Planet Designations ([https://www.minorplanetcenter.net/iau/info/OldDesDoc.html](https://www.minorplanetcenter.net/iau/info/OldDesDoc.html))

The Tracking News


Accessible NEAs


Recent Entries in the BRAS Forum

_Below are selected additions to the BRAS Forum. There are also nine active polls. The Forum has reached 6500 posts._

A Statement of **Gratitude**
The **NASA Worm** Returns
More **Binocular Suggestions** for Those Staying at Home?
**Great Martian Opposition** Underway
**Venus and Pleiades** Meet in Stunning Conjunction
**Juno Mission** Extended into 2021
Thirtieth Anniversary of **Mount St. Helens** Spurs Memory
**Starlink** Continues to Pose Problems
Evening Strollers Treated to **Venus’ Greatest Evening Brilliance**
Will Virus Outbreak Alter **Artemis Timeline**?
NASA Seeks **New Astronauts**
First Full Moon of Spring was **Supermoon**!
**Asteroid 3 Juno** Reaches Opposition
**2020 HJ6** Swinging By Earth
Antarctic Witnesses **Lunar Occultation of Pluto**
**Comet ATLAS** Crumbles
Predict **Vega**’s Rising Location
**Betelgeuse** Back to Normal?
More Refined **Diameter of Milky Way** Announced
**Lunar Gateway** to be “Studio Apartment” for Moon Explorers
MESSAGEs FROM HRPO

Highland Road Park Observatory

ALERT: There will be no on-site programming at HRPO before 16 May. (International Astronomy Day has been canceled.) The remaining schedule is dependent on the rate of virus infection cases between now and 15 May, and of the response to that rate from various levels of government. Any programs that take place may have temporary rules in place regarding spacing between strangers.

SCIENCE ACADEMY
from 10am to 12pm
for ages eight to twelve / $5 or $6 per child depending on Parish
16 May: Meteor Showers   Cadets will learn where meteorites originate, and how to see meteor streaks fly through the atmosphere.
30 May: The Artemis Program   We’re going back to the Moon! Cadets will find out why we’ve stayed away so long, and get a sneak preview of the astonishing Gateway that will serve as the “studio apartment” for future lunar landscape explorers.

SOLAR VIEWING
Saturday 16 May from 12pm to 2pm.
For all ages. No admission fee. 200GS Tour at 1pm.
(Solar Viewers, $2 each. Add-on Activity: $2.50.)
The hobby of astronomy immediately brings to mind thoughts of darkened backyards and dimly-lit nighttime activities at HRPO. But patrons also have the option of visiting during daylight hours to see our parent star. Weather permitting, once monthly HRPO personnel offers three views of the Sun...

12pm to 12:30pm - indirect projection onto white viewing surface // Patrons get a sense of the speed of Earth’s rotation as they see the Sun’s image slide on or off the projection device. [Learning Technologies Sunspotter]
12:15pm to 1:15pm - safely-filtered optical light sent through standard telescope // This option allows patrons to spy sunspots both small and large. [Orion 10" Skyquest Dobsonian Reflector]
12:30pm to 2:00pm - hydrogen-alpha light // Flares and prominences are seen easily in this wavelength. [Coronado Solar Max II 90mm]
FRIDAY NIGHT LECTURE SERIES
from 7:30pm to 8:30pm
for ages fourteen and older / no admission fee

22 May: Apollo 13  “Okay, Houston, we’ve had a problem here.” That chilling statement was transmitted through space from the brave crew to Mission Control. It soon became clear to Commander James Lovell, Command Module Pilot Jack Swigert and Lunar Module Pilot Fred Haise that they had not only “lost the moon” but were also in a very precarious situation. It was the determination, creativity and ingenuity of the crew and NASA personnel that held sway, transforming a potential tragedy into a triumph of intelligence, engineering and quick thinking. HRPO Center Supervisor Tom Northrop’s Apollo anniversary lectures continue with this harrowing and exciting entry!

29 May: Meteor Showers  HRPO Program Aide Judah Santiago covers the major nighttime periods for meteor hunting, and provides guidance for perform the activity as leisure or for citizen science.

STEM Expansion
Saturday 23 May from 3:30pm to 7:30pm. For ages twelve to sixteen. $15/$18 per kid.
Hour One: Medical Benefits of Space Studies
Hour Two: Compton Gamma Ray Observatory (Data, Model Building)
Hour Three: Electronics Learning Lab (Console Sections/Part Insertions)
Hour Four: Unearth and Tech Connect Games
This program offers advanced topics, topic extensions and all-new games and activities to an older crowd. Certificates will be earned, and a section of archived experiments, some not seen in over fifteen years (and some never performed on site) take place.

Plus Night
Saturday 30 May from 7pm to 10pm
for all ages / no admission fee
During Plus nights sky viewing starts a half-hour earlier and extra features are available to the public...
*The well-known marshmallow roast commences at the campfire ring behind the building, lasting at least one hour and ending no later than 9:30pm. (The campfire, like the sky viewing, is weather-dependent.)
*Four to eight of HRPO’s collection of over fifty physical science demonstrations will be on hand to perplex and amaze. Which demos will it be?
*An unaided eye sky tour takes place, showing the public major features of the sky for that month. The tour takes place at 8pm during Standard Time, and at 9pm during Daylight Time.
*Filters are inserted into the viewing mechanisms, to show patrons “hidden” details of the Moon, Mars and Jupiter (when they are available).
*Reveal your age, and be shown any “birth stars” in the sky at that time.
American Radio Relay League Field Day

Saturday 27 June from 2pm to 10pm

No admission fee. For ages eight and older.

Subject to change due to virus outbreak and response.

The Baton Rouge Amateur Radio Club will take part in an exciting nationwide emergency exercise. Temporary stations will be set up at HRPO as BRARC joins similar clubs across the continent in an exciting emergency exercise. Some clubs use strictly battery power and solar power. Some clubs use low power outputs (five watts or less) to make contact with other stations all over North America. Field Day is a twenty-four-hour endurance session of skill and suspense.

The Amateur Radio Service, founded decades ago, is the original “social medium!” Ten of thousands of licensed hams—including high schoolers, college kids, parents and grandparents—communicate day after day from coast to coast.

What can people do in the Amateur Radio Service?
- Talk around the world without the Internet or cell phones.
- Send a message to another country using less electricity than a nightlight.
- Transmit your communication in code—Morse code!
- Speak to astronauts on the International Space Station.

What can adults do in the Amateur Radio Service?
- Earn various awards.
- Have more peace of mind knowing that, unlike the internet, federal law mandates sending identifying information during any communication.
- Increase the chances of their families having contact with the outside world during an emergency, simply by connecting radio equipment to a car battery.
- Collect weather and flight data from a launched balloon.

What can kids do in the Amateur Radio Service?
- Work toward specialized merit badges and patches.
- Steer radio-controlled cars and airplanes, or control robots, using ham-only frequencies.
- Keep a hand-held remote transceiver during camping trips.

Come learn more about amateur (or “ham”) radio at this fantastic annual event. Remember, if you like what you see at Field Day, there will be plenty of friendly “hams” around to tell you exactly what you need to do to obtain your own amateur radio license and start transmitting!
PROUD OF OUR Observatory????
LET OTHERS KNOW IT BY WEARING THE LATEST T-SHIRT.
Get your 2019 HRPO T-Shirt, all sizes, $7.00
Apollo 8 “Earthrise”

Call the Observatory to place your orders.
225-768-9948 or email observatory@brec.org

White and blue on black, the design (created by HRPO Education Curator Amy Brouillette and BREC’s Marketing Department) takes its inspiration from the legendary Apollo 8 “Earthrise” photo.

At the end of the night, before you close your eyes, be content with what you’ve done and be proud of who you are.
Note: For six years I have been writing these Observing Notes, featuring the 60 constellations we can see before midnight from Baton Rouge, that contain objects above magnitude 10. Beginning with the February 2019 newsletter, I began to recycle and update the constellations, but the Sky Happenings calendar and associated information are new each month.

Named Stars

**Alphard** (Alpha Hyd), from the Arabic “Al Fard al Shujā”, “The Solitary One in the Serpent”, or “Al Fakār al Shugā”, “The Backbone of the Serpent”, also called “Cor Hydrae”, “The Dragon’s Heart”, mag. 1.99, 09 27 35.25 -08 39 31.3, is an orange giant star that has a large barium content. The triple star 29 Hydrae lies ½° to the south. Also known as HD 81797, HIP 46390, Gould 140, and 30 Hydrae.

**Tsing Kew** (Beta Hyd), with Xi Hyd, is known as “The Green Hill” in China, mag. 4.29, 11 52 54.56 -33 54 29.3. Also known as HD 103192, HIP 57936, and Gould 301.

**Dah nab al Shujā** (Gamma Hyd), “The Snake’s Tail”, sometimes called “Cauda Hydra”, “Hydra’s Tail”, mag. 2.99, 13 18 55.25 -23 10 17.1, is a yellow giant star with an optical companion. The star has stopped fusing hydrogen, and might possess a dead helium core. As the core shrinks, the heat and pressure will cause the star to fire up and start fusing carbon and oxygen. Also known as HD 115659, HIP 64962, Gould 345, and 46 Hydrae.

**Lisan al Shudjā** (Delta Hyd), “The Tongue of the Snake”, mag. 4.14, 08 37 39.41 +05 42 13.7, is a white dwarf star. Also known as HD 73262, HIP 42313, Gould 36, and 4 Hydrae.

**Min al Az’al** (Epsilon Hyd), “Belonging To the Uninhabited Spot”, also called “Ashlesha”, mag. 3.38, 08 46 46.65 +06 25 08.1, is a five star system. The primary is a yellow-white giant star with a white sub-giant star orbiting so close that it is considered a spectroscopic binary star. A little further away is another binary pair of stars, and a little further than that pair is a dwarf star. Component A-magnitude 3.8; B-magnitude 4.7; C-magnitude 7.8; D-magnitude12.7. Separation of components A and C is 2.7”. Components A and B orbital period is 15.05 years, with component C having a period of 9.90 days. Also known as HD 74874, HIP 43109, Gould 59, and 11 Hydrae.

**Hydrobius** (Zeta Hyd), “The Water Dweller”, mag. 3.11, 08 55 23.68 +05 56 43.9, is an evolved giant star in the class between a giant and a bright giant star. Also known as HD 74874, HIP 43109, Gould 59, and 11 Hydrae.

**Ukdah** (Iota Hyd), or “Ping Sing”, “A Tranquil Star”, mag. 3.90, 09 39 51.33 -01 08 33.6. Also known as HD 83618, HIP 47431, Gould 170, and 35 Hydrae.

**Al Sharāsif** (Kappa Hyd), “The Ribs”, mag. 5.07, 09 40 18.38 -14 19 58.1. Also known as HD 83754, HIP 47452, Gould 173, and 38 Hydrae.

**Tsing Kew** (Xi Hyd), with Beta Hydrae, is known as “The Green Hill” in China, mag. 3.54,
Deep Sky:

NGC 5694

Deep Sky beyond magnitude 10 that is of some interest

NGC 3109

known as galaxy; small, bright, elongated nucleus. Also known as Nebula Also known as "outline of a human eye, with the central star at magnitude 12.3. Located 1.8

NGC 3242

Hydra II

An oval core and br
the southern sky. It shows strong emission lines, and its spiral arms are separated by narrow dust lanes. galaxy; two main arms; extremely bright nucleus (20" diameter). It is one of the brightest galaxies in the southern sky. It shows strong emission lines, and its spiral arms are separated by narrow dust lanes. An oval core and bright bar is encircled by an interesting spiral arm pattern. To find the galaxy, start at

M83

Mel 113

OCL 584

declination. Caroline Herschel corrected the mistake. Also known as Mel 85, Cr 179, H6-22, OCL 584, Lund 439, Raab 72, and CGCG 0811-056.

M68

NGC 4590

mag. 7.3, 12 39 28 -26 44 34, 9'x9' in size, is a globular cluster of over 100,000 stars (250+ giant stars); low concentration of stars; large, very rich, and very well resolved in a telescope. To find, locate Beta Corvii, then go 3° south-southeast to a bright 5.5 magnitude star (binary star B230, magnitude 5.5 and 12.0, separation of 1.3°, ADS 8612), then go 45° to the northeast of the star. A Mira type variable star, FL Hydrea, is 25° to the northeast of M68. Also known as Ben 51, Mel 113, EQ 1236-264, and CGCG 1236-264.

M83

NGC 5236

mag. 7.6, 13 37.1 -29 52, 11.2'x10.2' in size, is a very bright, large, and face-on galaxy; two main arms; extremely bright nucleus (20" diameter). It is one of the brightest galaxies in the southern sky. It shows strong emission lines, and its spiral arms are separated by narrow dust lanes. An oval core and bright bar is encircled by an interesting spiral arm pattern. To find the galaxy, start at Gamma Hydræ and go 6½' south and then 3¼ east to a magnitude 5.5 star – 40' to the northeast of it is M83. NGC 5061 is 3½ south of Gamma Hydræ along the line to M83. Also known as “The Southern Pinwheel Galaxy”, Ben 63, and Lac 1.6.

Hydra II

mag. 4.8, 12 21 42.1 -31 59 07, 1.7° in size, is a dwarf galaxy. Also known as A 732.

NGC 3242

mag. 7.8, 10 24 46.2 -18 38 34, 75" in size, is a planetary nebula that is very bright, slightly elongated; has a pale green ring; and looks like a bluish egg. The inner ring resembles the outline of a human eye, with the central star at magnitude 12.3. Located 1.8° south of Mu Hydræ. Also known as “The Ghost of Jupiter”, “CBS Eye”, “Jupiter’s Ghost”, “Eye Nebula”, “Diamond Nebula”, H4-27, C 59, Ben 45, ESO 568-05, and PK 261+32.1.

NGC 3621

mag. 8.9, 11 18.3 -32 48, 3.5'x1.4' in size, is a quite bright, very large, and elongated galaxy; knotty arms; small, bright, elongated nucleus. Also known as H1-241, and Ben 46.

NGC 3923

mag. 9.6, 11 51.0 -28 48, 6.0'x4.2' in size, is a bright, pretty large, and slightly elongated galaxy; small, bright, elongated nucleus. Also known as H1-299, and Ben 49.

NGC 3585

mag. 9.7, 11 13.3 -26 45, 2.9'x1.6' in size, is a bright, pretty large, elongated galaxy. Also known as H2-269.

NGC 3109

mag. 9.8, 10 03.1 -26 10, 21'x3.7' in size, is a faint, very large, and extremely elongated edge-on galaxy; a long, spindle-shaped galaxy whose ends appear to be squared off. NGC 3109 is interacting with the Antlia Dwarf Elliptical Galaxy in the Antlia constellation.

Deep Sky beyond magnitude 10 that is of some interest

NGC 5694

mag. 10.2, 14 39 36.5 -26 32 18, 4.3' in size, is a 12 billion year old star cluster. Also
known as Tombaugh’s Globular Cluster, C 66, H2-196, and CGCG 1436-263.
NGC 5153, mag. 1.8, 13 29 04 -29 43 31, 2.1’x1.4’ in size. Also known as ESO 444-045,
ESO 132507-2921.6, AM 1325-292, MCG-5-32-025, and Fly’s Wing.
K1-22, mag. 12.1, 11 26 43.8 -34 22 11, 3’ in size. Also known as the “Southern Owl Nebula”
Hydra 1, mag. 12.7, 10 36 54 -27 31 00, 168’ in size, 157 galaxies, part of the Hydra-Centaurus
Supercluster. Also known as AGC 1060, Hydra 1 Cluster, and Hydra Galaxy Cluster.
PK 303+40.1, mag. 12.7, 12 53.57 -22 52.3, 709” in size. Also known as Abell 35, Sh2-313,
PNG 303.6+40.0, and the “Bow Shock Nebula”.

Hydra A, mag. 14.8, 09 18 06 -12 05 45. Also known as 3C218, and MCG-2-24-007.
French 2, 10 07 -24 55, 39’ in size, is 11 stars in the shape of a camel. Also known as “The Camel”.
Al J1104.6-3157, 11 04 37 -31 57 30, 3.3’ in size, 8 stars in a poor but distinctive “C” shape. Asterism?
There are 888 deep sky objects in Hydra. The following is a list of the ones I know of:
226 NGC; 72 IC; 51 UGC; 9 UGCA; 53 CGCG; 148 MGC; 159 ESO; 16 PGC; 10 PK; 5 PNG; 6
Bennett; 9 Arp; 4 Abell; 5 HCG; 2 Klemola; 6 AGCS; 4 AGC; 2 A; 2 Mel, 2 Cr; 2 C; 1 Sand; 53
Herschel; 18 VV – 42 objects; 4 Radio Galaxies; 1 Quasar; 2 K1; 4 Al; 1 Ju; 1 MrWe; 1 WGA;
1 Sh2; 1 IRAS; 1 Pardanaud; 1 HE; 1 PKS; 1 [A084]; 1 Lac; 2 Slo; 3 AM; 1 French; 1 Elo; 1
Monti, 1 WHC; 1 WNO; and 4 MAC.

**Other Stars:**

27 Hydrea, mag. 4.8, 09 20 29.03 -09 33 20.3, is an evolved giant star in a triple star system, and has
an unconfirmed planet in orbit with a period of 9.3 years. The secondary star is a binary at magnitude
7, and its companion is at magnitude 11. Also known as HD 80586, HIP 45811, Gould 124, and
P Hydrea.
U Hydrea, mag. 4.89, 10 37 33.25 -13 23 04, is a red, variable carbon star with its magnitude varying
from 4.2 to 6.6 over a period of 115 days. Also known as HD 92055, HIP 52009, and Gould 240.
HD 122430, mag. 5.47, 14 02 22.8 -27 25 47.1, has one planet in orbit. Also known as HIP 68581, and
Gould 367.
272 G(gould), mag. 5.79, 11 09 53.38 -32 22 02.8. Also known as HD 97023, HIP 54561, and
HR 4339.
OY Hydrea, mag. 6.11, 09 59 06.32 -23 57 02.8, is a Be star. Also known as HD 86612, HIP 48943,
and Gould 188.
HD 96700, mag. 6.50, 11 07 54 -30 10 28, has two planets in orbit. Also known as HIP 54400, and
Gould 269.
HD 82943, mag. 6.54, 09 34 50.74 -12 07 46.4, has three planets in orbit. Also known as HIP 47007,
and Gould 164.
HD 90156, mag. 6.95, 10 23 55.27 -29 38 43.9, is a variable star with one planet in orbit. Also known
as HIP 50921.
V Hydrea, mag. 7.0, 10 51 37.26 -21 15 00, is a carbon star. It is one of the reddest stars in the night
sky. Classified as a semi-variable star, its visible magnitude varies from 7.0 to 11.5 over a period of 18
years, with a sub-period of 530 days. Also known as HIP 53085.
HD 86264, mag. 7.42, 09 56 57.84 -15 53 42.4, has one planet in orbit. Also known as HIP 48780.
HD 86958, mag. 7.46, 10 01 38 -17 19 59, has one planet in orbit. Also known as HIP 49129.
HD 72659, mag. 7.48, 08 34 03.19 -04 34 05.6, has one planet in orbit. Also known as HIP 42030.
HD 74156, mag. 7.62, 08 42 25.12 +04 34 41.2, has three planets in orbit and one un-confirmed planet
In orbit. Also known as HIP 42723.
HD 86226, mag. 7.93, 09 56 29.84 -24 05 57.8, has one planet in orbit. Also known as HIP 48739.
HD 128356, mag. 8.29, 14 37 05 -25 48 09, has one planet in orbit. Also known as HIP71481.
V478 Hydrea, mag. 8.20, 08 22 49.95 +01 51 33.6, has one planet in orbit. Also known as BD 70573.
HD 72892, mag. 8.83, 08 34 53.0 -14 27 24, has one planet in orbit. Also known as HIP 42098.
WASP-166, mag. 9.36, 09 39 30 -20 58 57, has one transiting planet in orbit.
Gliese 433, mag. 9.79, 11 35 26.95 -32 32 23.9, has one planet in orbit. Also known as HIP 56528. Stars beyond magnitude 10 that are of interest: There are 11 stars with 1 transiting planet each; one star with three transiting planets; and one star with one planet in orbit. Hydra also goes through the constellation Crater, using some of its stars. The following is a list of stars that are used by Hydra in Crater: 3,5,6,8,10,18,20,22,23,26, and 29 Crateris. There are 178 stars that I know of in Hydra. The following is a list of them: 31 Σ; 2 OΣ; 5 V; 13 A; 38β; 12 I; 23 h; 4 Kui; 7 B; 2 Arg; 3 S; 4 Howe; 2 Hu; 4 Ho; 6 Rst; 2 Hd; 3 Stn; 1 Hn; 1 HW; 1 Cor; 1 Bvd; 2 H III; 1 HV, 1 HN; 1 Δ; 1 λ; 2 Sh; 1 Wei; 1 Jc; 1 Sej; and 1 Stone.

Sky Happenings: May, 2020
(what follows pertains ONLY to the current month. Material above is good year after year.)

May 1st - Dusk: Venus blazes in the western twilight skies throughout the month.
May 4th - Mercury is in superior conjunction at 5 PM CDT.
May 5th - Morning: The Eta Aquarids peak in the early hours of the morning, The Moon is at perigee (223,478 miles or 359,654 km from Earth) at 10:03 PM CDT.
May 7th - Full Moon occurs at 5:45 AM CDT.
May 11th - Saturn is stationary at 4 AM CDT, Asteroid Pallas is stationary at 6 AM CDT.
May 12th - Dawn: The waning gibbous Moon, Jupiter, and Saturn form a triangle straddling the border between Sagittarius and Capricornus, The Moon passes 2° south of Jupiter at 5 AM CDT, The Moon passes 3° south of Saturn at 1 PM CDT.
May 13th - Venus is stationary at 5 AM CDT.
May 13/14 - Dawn: The thinning Moon leaves the gas giants and approaches Mars.
May 14th - Last Quarter Moon occurs at 9:03 AM CDT, Jupiter is stationary at 1 PM CDT, The Moon passes 3° south of Mars at 9 PM CDT.
May 15th - Dawn: The waning crescent Moon is about 4° to the lower left of Mars, Dusk: Venus presents a crescent that is a good opportunity to test eyesight.
May 16th - The Moon passes 4° south of Neptune at 10 AM CDT.
May 17th - Mercury passes 7° north of Aldebaran at 4 AM CDT.
May 18th - The Moon is at apogee (252,018 miles or 405,583 km from Earth) at 2:45 AM CDT.
May 20th - The Moon passes 4° south of Uranus at 11 AM CDT.
May 21st - Dusk: Venus and Mercury are in conjunction - 1° apart, low above the west-southwest horizon
May 22nd - Mercury passes 0.9° south of Venus at 3 AM CDT, New Moon occurs at 12:39 PM CDT.
May 23rd - Dusk: A very thin crescent Moon, just 1 day past new, is some 4° to the lower left of Venus. Look for Mercury to appear to the upper left of Venus as twilight deepens, The Moon passes 4° south of Venus at 10 PM CDT.
May 24th - The Moon passes 3° south of Mercury at 6 AM CDT, The Moon passes 0.6° north of asteroid Vesta at 10 AM CDT. All of North America except for the West Coast will experience an occultation, Dusk: The waxing Moon, Mercury, and Venus form a line roughly 12° long shortly after sunset. The viewing window is brief, so be sure to catch the sight before the trio sets.
May 26th - Evening: The growing crescent Moon is in Gemini, about 6° to the left of Pollux.
May 27th - Asteroid Juno is stationary at 9 AM CDT.
May 28th - There will be a double shadow transit on Jupiter starting at 3:48 AM CDT.
May 29th - First Quarter Moon occurs at 10:30 PM CDT.
June 1\textsuperscript{st} - Dusk: June opens with the waxing gibbous **Moon** in **Virgo**, with **Spica** some 6\degree to 7\degree below.
June 4\textsuperscript{th} - Evening: The almost-full **Moon** is about 7\degree above **Antares** in **Scorpio**.

**Planets:**

**Mercury** – **Mercury** passes through superior conjunction on May 4\textsuperscript{th}, and reaches a conjunction with **Venus** on May 21\textsuperscript{st}/22\textsuperscript{nd}. **Mercury** will be at magnitude -0.7, a 6\degree disk, and will be 69\% lit, while **Venus** will be at magnitude -4.4, a disk 53\degree wide, and only 6\% lit. On the 21\textsuperscript{st}, they will be only 1\degree apart one hour after sunset. **Mercury** will first become visible, after the conjunction with the **Sun** on the 4\textsuperscript{th}, in the evening twilight around May 11\textsuperscript{th}, as a magnitude -1.5 object in the west-northwest, well below **Venus**. Within days of the **Mercury** and Venus conjunction, **Venus** will descend out of view. But **Mercury** climbs higher along the ecliptic. On the 31\textsuperscript{st}, in the west-northwest, the planet will hover 8\degree high an hour after the **Sun** goes down, shining at magnitude 0.1.

**Venus** – **Venus** begins May with a sunset altitude of about 23\degree above the western horizon, and sets almost 3\frac{1}{2} hours after the **Sun**. But by the month’s end the interval dwindles to less than ½ hour. It will present a 24\% lit crescent disk spanning 39\degree when viewed with a telescope. As May starts, the magnitude 4.7 planet is situated a few degrees from the second magnitude star **Beta Taurii**, **El Nath**. The sunset altitude decreases to 23\degree on the 15\textsuperscript{th} to only 3\degree by the 31\textsuperscript{st}. Its brightness will drop from magnitude -4.6 to -4.2 during the month. Its disk, by the 16\textsuperscript{th}, has grown to 50\degree wide, but has a slender 10\% lit crescent. On the 22\textsuperscript{nd}, **Venus** and **Mercury** will be closest in the early morning. The best time for U.S. observers to target the pair will be on the evening of the 21\textsuperscript{st}, when they will stand slightly more than 1\degree apart. As the month ends, **Venus** will continue to descend deeper into twilights and its altitude falls as it nears its June inferior conjunction.

**Mars** – **Mars** rises a little before 3 AM local daylight time (LDT) as May opens, and about an hour sooner as the month closes. The planet will brighten from magnitude 0.4 to 0.0 and its disk will grow from 7.6\degree” to 9.2\degree in diameter. The planet shines about 1\degree north-northwest of magnitude 3.6 **Gamma Capricorni** (**Nashira**) on May 1\textsuperscript{st}, and about 1\degree north of magnitude 2.8 **Delta Capricorni** (**Algedi**) on the 4\textsuperscript{th}. On the 9\textsuperscript{th}, the planet will glide from **Capricornus** into **Aquarius** at magnitude 0.4. The best viewing of **Mars** is in the hour before dawn during May. On the 1\textsuperscript{st}, it stands 15\degree above the southeast horizon by 4:45 AM LDT, and climbs to 26\degree high at the same time on the 31\textsuperscript{st}. On May 11\textsuperscript{th}/12\textsuperscript{th}, the planet will be less than a moon’s width from **Iota Aquarii**. At month’s end, the planet will be at magnitude 0.0, and will be 2\degree south-southeast of **Lambda Aquarii**.

**Jupiter** – **Jupiter** rises close to 2 AM LDT on May 1\textsuperscript{st}, and by the 31\textsuperscript{st}, it is up by midnight LDT. The planet rises above the southeast horizon in **Sagittarius**, with **Saturn** rising 20 minutes later in **Capricornus**. **Jupiter** begins the month at magnitude -2.3, and brightens to -2.6 by May 31\textsuperscript{st}. The planet is stationary on May 14\textsuperscript{th}. On the 18\textsuperscript{th}, Jupiter and **Saturn** are 4.7\degree apart, with **Jupiter** being west-southwest of **Saturn**. This is called a “quasi-conjunction” (an event in which two objects don’t share the same right ascension or ecliptic longitude, yet reach a minimum separation of 5\degree or less from each other). The two planets will remain less than 5\degree apart all month. **Jupiter** is at its highest this month, with its apparent equatorial diameter growing from about 41” to 45”. Due to the planet’s southerly declination, it remains at a relatively low altitude for the rest of the year, reaching its highest elevation of about 30\degree above the southern horizon during morning twilight, when it is located in eastern **Sagittarius**. There are three double transits on **Jupiter** in May. On the 13\textsuperscript{th}, at 10:23 CDT, **Ganymede** starts its transit of **Jupiter**, and at 12:59 AM CDT on the 14\textsuperscript{th}, **Europa** starts its transit. **Ganymede** exits its transit at 1:43 AM CDT on the 14\textsuperscript{th}, with **Europa** exiting its transit at 3:45 AM CDT. On the 21\textsuperscript{st}, **Ganymede** starts transit at 2:03 AM CDT, with **Europa** starting transit at 3:23 AM CDT. **Ganymede** ends transit at 5:23 AM CDT, and **Europa** exits transit at 6:09 AM CDT. On the 28\textsuperscript{th}, there is a double shadow and double moon transit of **Jupiter**. **Ganymede**’s shadow starts transit at 1:36 AM CDT, and **Europa**’s shadow starts transit at 3:48 AM CDT. At 4:50 AM CDT, **Ganymede**’s shadow exits transit. At 5:38 AM CDT, **Ganymede** starts transit, with **Europa** starting transit at 5:45 AM CDT. At 6:37 AM CDT, **Europa**’s shadow exits transit. At 8:31 AM CDT, **Europa** exits transit, while **Ganymede** exits transit at 8:58 AM CDT.

**Saturn** – **Saturn** will sit just 5\degree east of **Jupiter** every evening in May. **Saturn**’s disk spans 18\degree, and the rings stretch to 40\degree wide by the end of May, with the minor axis of the rings just 14\degree – the north pole of the
planet will arc above the far ring’s edge. Saturn is stationary on the 11th. The planet will rise around 12:30 AM CDT as May begins, and around 10:30 CDT as the month ends. On the 18th, Jupiter and Saturn are just 4.7° apart, with Jupiter west-southwest of Saturn. Titan, Saturn’s largest and brightest moon, orbits the planet every 16 days. On the 5th and 21st, it will stand due south of the planet, and due north on the 13th and 29th. Titan is at magnitude 8.6, while the moons Tethys, Dione, and Rhea are between magnitudes 10 and 11, and they orbit the planet closer with shorter periods. The moon Iapetus shifts magnitude from 10 to 12 due to its bright and dark hemispheres. It will reach the middle of its range on the 11th, when it is at inferior conjunction (45° due south of the planet). The moon is brightest at western elongations, like the one it reaches on the 31st, when it will shine at magnitude 10.5 and stand about 9° due west of the planet.

Uranus – Uranus rises with the onset of twilight, but remains lost in the Sun’s glare for most of May, and only emerging at dawn in the final week of the month.

Neptune – Neptune rises a little before the start of morning astronomical twilight. The planet returns to the night sky by late May. On the 31st, it sits 8.6° east-northeast of Mars, and 3° east of the 4th magnitude star Phi Aquarii. The planet, at magnitude 7.9, is, an hour before morning twilight, just 15° high, and its low altitude makes it more difficult to spot later in the year.

Pluto – Pluto sits just 2.1° west of Jupiter throughout May, but at magnitude 14.7, you will need a large telescope and ideal viewing conditions to spot it without photographic equipment.

Moon – The Moon is a waxing gibbous a few degrees above Regulus at nightfall on May 1st. The waning gibbous Moon is a few degrees below Jupiter at dawn on the 12th. The last quarter Moon is several degrees to the right of Mars on the 14th. About 30 minutes after sunset on the 23rd, a very thin lunar crescent is less than 5° to the lower left of Venus, with Mercury a similar distance to the upper left of Venus.

Favorable Librations: Wilson Crater on May 5th; Haworth Crater on the 6th; Hale Crater on the 7th; and Lyot Crater on the 8th.

Greatest North declination on the 26th (+24.0°)
Greatest South declination on the 11th (-24.0°)

Libration in longitude – East limb most exposed on the 12th (+6.9°)
West limb most exposed on the 27th (-5.9°)
Libration in latitude – North limb most exposed on the 18th (+6.7°)
South limb most exposed on the 4th (-6.6°)

Asteroids – Asteroid 23 Thalia and 40 Harmonia, both with a diameter of about 67 miles, will take a lot more care and patience than usual to identify them, as they stand in front of many background stars, glowing at 10th magnitude. During the month, both asteroids are never closer than 2° in Virgo. According to the RASC Observer’s Manual, 2020 USA Edition, 40 Harmonia’s position is as follows: On May 1st – 14 05.92 -06 02.4, at magnitude 9.9. Harmonia’s position, by my estimates, are as follows: On May 1st – about 3.2° west of Iota Virginis; on the 6th – about 5° west and a little north of Iota Virginis; on the 11th – about a little less than 5° west and a little north of Iota Virginis, or about 4.8° due south of 90 Virginis; on the 16th – just under 6° west and a little north of Iota Virginis, or about 3.5° south and a little west of 90 Virginis; on the 21st – about 4° south-southwest of 90 Virginis; on the 26th – about 4.5° south-southwest of 90 Virginis; and on the 31st – about 4.7° southwest of 90 Virginis.

Asteroid 23 Thalia’s positions, by my estimates, are as follows: On May 1st – about 2.6° southwest of Upsilon Virginis, or just over 2° north-northwest of Iota Virginis; on the 6th – about 3½° southeast of Upsilon Virginis, or just under 3° northwest of Iota Virginis; on the 11th – about 3½° southeast of 90 Virginis, or 3.7° northwest of Iota Virginis; on the 16th – about 2.8° south-southeast of 90 Virginis; on the 21st – just under 3° south and a touch east of 90 Virginis; on the 26th – about 3.2° south and a touch west of 90 Virginis; and on the 31st – about 4½° southwest of 90 Virginis.


Asteroid 2 Pallas, according to RASC Observer’s Manual, 2020 USA Edition, Pallas, on May 21st, will be
located at 19 37.10 +19 38.6, at magnitude 9.9.

Asteroid 1 Ceres, according to the *RASC Observer’s Manual, 2020 USA Edition*, will be at the following locations: On May 1st – 22 27.06 -18 13.3, at magnitude 9.2; on the 11th – 22 38.22 -17 43.9, at magnitude 9.1; on the 21st – 22 48.28 -17 11.6, at magnitude 9.1; and on the 31st – 22 57.07 -17 11.6, at magnitude 9.0.

**Comets** – Comet PANSTARRS (C/2017 T2) and Comet C/2019 Y4 (Atlas), were both promising naked eye comets which have now been lost – Atlas has broken into over 2 dozen pieces. But there is a new promising naked eye comet. Comet C/2020 F8 (SWAN) – so far it has only been visible from the Southern Hemisphere – pictures from Australia and Tasmania show it at magnitude 5.5. The Northern Hemisphere should be able to see it soon.

**Meteor Showers** – The main meteor shower in May is the *Eta Aquarids*, one of the two showers associated with *Haley’s Comet* (the other shower is the *Orionids* in October). The *Aquarids* have a maximum observable rate of about 10 meteors per hour under perfectly dark skies. A bright Moon (a waxing gibbous) will be present during the peak on May 5th, so most urban locations will be lucky to spot 5 meteors per hour. The first few days of May after the Moon sets (at 3 AM LDT on May 2nd) is a good time to catch the few early shower members.

Minor Showers in May:
- The *Eta Lyrids*, May 6th -13th, peaks on the 10th, zenith hourly rate (zhr) of 3;
- The *Tau Herculids*, May 19th – June 14th, peaks on June 2nd, a variable zhr.

Weak Showers in May:
- The *Theta² Sagittariids*, May 10th – 15th, peaks on the 13th, zhr of less than 2;
- The *Daytime Arietids*, May 22nd – June 24th, peaks on June 7th, zhr less than 2;
- The June Mu Cassiopeids, May 18 – June 15th, peaks on June 15th, zhr less than 2.

**When to View the Planets:**

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<thead>
<tr>
<th>Evening Sky</th>
<th>Midnight</th>
<th>Morning Sky</th>
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<tbody>
<tr>
<td>Mercury</td>
<td>(northwest)</td>
<td>Mars</td>
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<td>Venus</td>
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**Dark Sky Viewing - Primary on May 23rd, Secondary on May 30th**
Hydra – The Water Snake

Hydra is the largest of the 88 constellations, winding a quarter of the way around the sky. Its head is south of the constellation of Cancer the Crab, while the tip of its tail lies between Libra the Scales and Centaurus the Centaur.

The Water Snake features two legends. First, and most familiar, the Hydra was a creature that Heracles fought and killed as the second of his famous labors. The Hydra was a multi-headed creature; the offspring of the monster Typhon and the half-woman, half serpent called Echidna. Hydra was thus the brother of the dragon that guarded the golden apples, commemorated in the constellation Draco, the Dragon. Hydra reputedly had nine heads, the middle one of which was immortal. Hydra lived in a swamp near the town of Lerna, from which it sallied forth over the surrounding plain, eating cattle and ravaging the countryside. Its breath and even the smell of its tracks were said to be so poisonous that anyone who breathed them died in agony.

Heracles rode up to the Hydra’s lair in his chariot and fired flaming arrows into the swamp to force the creature into the open, where he grappled with it. The Hydra wrapped itself around one of his legs; Heracles smashed at its heads with his club, but no sooner had one head been destroyed than two grew in its place. To add to Heracles worries, a huge crab scuttled out of the swamp (sent by Hera) and attacked his other foot, but Heracles stamped on the crab and crushed it. The crab is commemorated in the constellation Cancer the Crab (placed in the sky by Hera). Heracles called for help to his charioteer Iolaus, who burned the stump of each head as soon as it was struck off to prevent others from growing in its place. Finally, Heracles cut off the immortal head of the Hydra and buried it under a heavy rock by the roadside. Heracles slit open the body of the Hydra and dipped his arrows in its poisonous gall.

A second legend associates the water-snake with the constellation of Corvus the Crow and Crater the Cup that lies on its back. In the story, the crow was sent by Apollo to fetch water in the bowl, but the crow loitered to eat figs from a tree. When the crow eventually returned to Apollo, it blamed the water-snake for blocking the stream. Burt Apollo knew that the crow was lying, and punished him by placing him in the sky, where the water-snake eternally prevents him from drinking out of the bowl.