THE MERIDIAN

Newsletter of the Quad Cities Astronomical Society
www.qcas.org

FEBRUARY 2017

QCAS Mission Statement:
To stimulate an interest in the science of astronomy in the Quad Cities Area, to nurture an ongoing desire by Quad Cities Astronomical Society members to study the cosmos and to provide members of our community opportunities to experience the beauty and joy of Astronomy.

Presidents Greeting

Welcome to February (almost)! ..and thanks to all who attended the January meeting… those of you not in attendance missed a great presentation by PAC President, Alan Sheidler…

I kinda hate rushin' into the next month already, but for me, I'm hoping to leave the dreary January skies we've had behind. We have a lot of Solar practice to do, and re-learnin' our gear for those late nights is now in order.

This news letter is quite long, so in the future, since we talked about Board meeting events at the Society meeting, and they are listed in the Meridian under the Society meeting 'Old Business' section, I don't see the point in saying it all again under the Board minutes section… I'll still put in the Board agenda though…

That being said, I hope to see you at the February meeting…

Clear Skies!
Jeff

Last Society Meeting Minutes

Date/Time Location
6:30 PM on Monday, January 16th
The Bettendorf Library

Attendance
Jeff Struve, Alan Sheidler, George Bailey, Mike Ombrello, Ian Spangenberg, Robert Mitchell, Ken Boquist, Craig Cox, Steve VanHyfte, Dave Ruddy, Matt Neilssen

Presentations
We reviewed pictures of the items taken from the block house and to be offered to club members.

Ken Boquist and Mike Ombrello gave brief updates on their imaging at Sherman Park. We viewed and discussed pictures of the Orion, Flame, and Horsehead Nebulae that Mike took.

Karl Adlon discussed his writing for the Meridian a public night "In the Sky" agenda to help organize what is shown to visitors at our open houses.

Jeff Struve mentioned the passing of astronaut Eugene Cernan earlier that day.

George Bailey briefed us on his acquisition of a new Explore Scientific mount and 102mm refractor. He also purchased a Quark.

Ian Spangenberg discussed a number of items he received on behalf of Pleasant Valley High School from George Bailey. The items included eyepieces and an astronomy camera.

Alan Sheidler gave the main presentation and led the discussion on Gravitational Waves. The presentation included a few short video clips, one presenting an audio representation as to what the various types of waves would look and sound like. Thanx Alan!

Treasurers Report
Matt was unavailable until the end of the meeting to present the Treasurer's Report, so that is included here>

The bank balance as of 1/16/17 was $3,928.31

Review of Minutes
The December Minutes as per the January Meridian passed.

Old Business
Jeff Struve announced that Dana Taylor has agreed to accept the position of Director-at-Large, and Matt Neilssen has agreed to accept the position of Outreach Chair. The Outreach Committee will be renamed as the Public Relations Committee. Dave Ruddy advised that he would be happy to work on the Messier Marathon Committee.

Jeff Struve announced that he and Matt Neilssen have finished the review of about half of the Bylaws. After they have completed the review, the Bylaws will be reviewed by the Board at which time final changes will be made. This final document will be presented to the Society for their review, and after 30 days, will be voted on for acceptance.

We continue to disperse items previously stored in the block house. The following is how things have been disposed of to the date of this writing:

- Old heaters have been discarded and a new one purchased.
- The caretaker was the owner of the satellite dish and he advised that it could be disposed of.
- We found the astronomy book owned by the county, and it will be returned.
- Ken Boquist has picked up the Criterion rig
- Joh Baker has picked up the Cave Astrola rig
- Jim Rutenbeck has claimed the 80mm F15 refractor and the 60mm finder scope
- Matt Neilssen claimed the mirror grinding paraphernalia.
- Ian Spangenberg picked up the home made 6" reflector and mount along with the gray Jaegers refractor.

January 28th is our first 2017 public night, however, we do not expect anyone to show up as we were not able to advertise it on our web site yet. A few of the Board members will take that opportunity to take a few items back to the block house (including the new heater and red lights for the interior), remove the club scopes from the roll off roof building and put them back into the block house. Jeff will also be bringing back the home made 6" refractor that goes with the wood tripod.

Matt Neilssen was able to contact the caretaker at Sherman Park and discuss the problem with the moles. He has been seeding the area with red pepper, which seems not to have helped in this case. He will be investigating styles of traps and will give that a shot. Matt was also able to obtain a copy of our lease… Great work Matt!

Jeff Struve and Matt Neilssen will be meeting with members of PAC at the Putnam Museum on 1/31 to discuss participation in their next astronomy related family night.

New Business

- We need to talk to the caretaker at Menke Observatory about the club's access to the facility.
- We need to further discuss logistics of attending the Solar Exposition in St. Louis
- We need to review the Sherman Park lease for details such as how many public nights we are to offer per year and if there are any specifics on whether or not we can drive on and/or park on the observation field.
- Discuss selling our heavy fiberglass step ladder and replacing it with an aluminum ladder for use in the roll off roof building.
- Discuss participating in the QC Science Fair as per an email received on 1/17

Other
Karl touched on his previous email in regards to the Comet Campaign Calls for Amateur Imagers email sent out in December. You'll find more information here:

http://www.skyandtelescope.com/observing/worldwide-4p-comet-campaign-needs-your-photos/?utm_source=newsletter&utmcampaign=sky-myanl-161202_SKY_HP_eNL_161202&utm_medium=email
(WHEW!)

Dr. Robert Mitchell discussed the St. Louis Eclipse Task Force Solar Expo that will be held in St. Louis on June 17th 2017. He will be attending, and a number of other members expressed interest in also attending. An informational pdf will be attached in the email containing this issue of the Meridian or visit www.EclipseExpo.org for more information.

Next Society Meeting

Date/Time Location
6:30 PM on Monday, February 20th
Bettendorf Library – Check the bulletin board for which room…

February Presentation
For our February 20th meeting, George Bailey will give an explosive presentation on his time in the USAF at the Titan II ICBM missile field… Don't miss it!

Last Board Meeting Minutes

Date/Time Location
6:30 PM on Thursday, January 12th
The Village Inn on Elmore and 53rd in Davenport, IA

Attendance
Jeff Struve - Present
Craig Cox - Present
Robert Mitchell - Present
Matt Neilssen - Present

Agenda

Primary Topics

- Block House Inventory
  - Jim Rutenbeck donated a white light solar filter for the 20". If we don't want it, he'd like it back. We decided to keep it.
  - Craig Cox claimed the 10" Cave Astrola. John Baker wants it if Craig changes his mind. Jim Rutenbeck wants it if John changes his mind.
  - Jim Rutenbeck claimed the long white 80mm f15 OTA and the 60mm finder scope or one of the 70mm finder scopes. He says we should keep one for the 20" scope.
  - Ken Boquist picked up the Criterion scope/mount
  - Dana Taylor says that the satellite disk belongs to the caretaker that lives on site in the house.
  - Jeff Struve located the book that Ken Boquist says belongs to the county. He also found some paint materials that we can take back for the applicable club member owner to pick up.
  - We need to take an inventory of what we are keeping.

Ken and his Criterion

Ian and the scopes he's picked up for PVHS

John and his Cave Astrola

- 2017 Event calendar
  - Advertisement/Public Notification
    - QCAS Web Site, QCAS Facebook, Davenport Parks and Rec Web Site will be our primary means of advertisement.
  - Public Nights
    - Jeff spoke with Karl Adlon about creating a tour of the sky for the nights we are having public nights.
    - For public to shut off lights and park in the side lot… make 2 signs.
    - Build trifold with info, membership form, astronomy courtesy.
    - Jan 28th we can use to sort thru roll off roof building stuff…
  - Messier Marathon
    - Ask Dave Ruddy to help/organize
    - 1-3 nights based on amount of volunteers and weather
    - Invite 2016 EISP attendees, QCAS, PAC, CAA, TCAA
    - Have power, beverages and munchies
    - Make list of objects in order of appearance
    - Advance registration – Free event
    - Send confirmation email
  - Putnam Museum
    - On 1/31 at 3:15 PM Jeff Struve and Matt Neilssen will meet with members of PAC at the Putnam Museum to discuss the Putnam's desire to have an Astronomy Expo event to be held on Friday, April 21. We'll see what is wanted and then decide as to how/if we can help.
    - Maybe just show pics and talk to folks… maybe broadcast sun and moon on screen…
    - Let PAC take the lead and QCAS can support them
  - Astronomy Day
    - Day time event – Solar viewing in downtown Davenport, pass out brochure for that evening at Sherman Park
    - Invite PAC to attend both events

- Meteor Shower Party
  - Jeff made contact with Rebecca Christoffel, who emailed a survey on behalf of the Wapsi Environmental Center on how the QCAS used Menke, and she forwarded our request to Dave Murcia who provided links to pdf's regarding rules and an application form to use Scott County Park. He also forwarded our email to Scott County Park Manager Dave Ong… It looks like a lot of red tape to use the park. Maybe we should look at Camp Abe Lincoln or other privately owned facility that would work.
  - Continue to check out Scott County Park
  - Craig and Jeff to secure location.
  - Radio, TV, Newspaper advertising if possible.
  - Food wagon ok.
  - Slide show for back up if cloudy… music ok… advertise for public to check the web for cancellation notice
- Solar Eclipse
  - Dr. Mitchell is lead
  - Reimburse Dale Hendricks for room reservations
  - Robert sent out an application form for a Solar Eclipse Expo meeting in June to be held in St. Louis
  - Robert will ck with SAU for trip funding
  - Set up Atlas with Mallincam and 80X300 zoom lens and SplitCam for Broadcast.
  - How much memory is needed to store the whole event as video?
  - Have Solar and Interview cameras and slide show to broadcast… Dale will preside at the Putnam, SAU personnel will preside at SAU
- EISP
  - Same as 2016
  - Encourage a swap meet
  - No bunk house
  - Review surveys to further modify the event

- Facilities
  - We still need our lease agreement
  - Gopher tunnels – we can notify the care taker this spring
  - We need to fix the red light inside the block house – Matt will pick up new bulbs
  - We should dispose of all old heaters for safety concerns and buy and maintain a new one – Matt will pick up new heater and Craig will pick up the timer
  - We need to store club scopes back in the block house for member access – We can do this during the Jan Public night.
  - Can people park on the observation field… can they drive on to unload/load? – We need to check the lease

- Dues/Membership
  - Jeff modified the application forms – Maybe instead, just use the modified trifold, info/calendar/courtesy/membership form.
  - Let's start using the membership cards as receipts
  - We will talk about fees when we review Bylaws

- Bank account
  - Jeff dropped of the $25 Calsyn memorial check to Saint Ambrose… should we contact the family about this? We need to send a card, advice of the donation, and give an honorary membership.
  - Jeff filled out an online form for Jim Rutenbeck to confirm his 36 hours of volunteer work to 3M… we should be getting $250.00. We need more folks to do this… maybe a membership drive aimed at folks that work at institutions with donation programs?

- Bylaws Rewrite
  - Discuss the standing committees
  - Review the Mission Statement
  - Have a single QCAS contact for all outreach endeavors. This can be the committee chair.
  - Jeff and Matt will review and edit the Bylaws. The rewrite will be reviewed and edited by the Board. The final draft will be sent to the membership for review. The Society will vote on acceptance at the Society Meeting that is at least 30 days post the sending to the Society

- Misc
  - Jeff asked Dale to send the membership card template to Matt and the business card template to Robert
  - George Bailey has donated a Barlow, an ep, a Next Image camera, and a few books to PVHS.
  - See if we can move our Society Meetings to SAU – Dr. Mitchell.
  - Discuss a High School Ambassador Program
  - Club Projects
    - Learn PixInsight
    - Build a Poncet Mount for the club dob
    - Convert the 20" scope into a truss system

- Web/FB
  - Investigate club ownership of www.qcas.org
  - Investigate building a new website on WordPress
  - Delete 2 of the 3 FB pages

Next Board Meeting

Date/Time Location
Unless otherwise noted, Board Meetings will be held on the 1st Monday of the month at 6:30 PM at the Village Inn Restaurant on Elmore and 53rd in Davenport, IA. Please notify Jeff Struve if you plan on attending so seating arrangements can be made. Ordering from the menu is Dutch treat.

Agenda

Primary Topics

- Discuss upcoming events
  - Messier Marathon – Dave Ruddy
  - Astronomy Day – Jeff Struve
  - Putnam Museum – Matt Neilssen
  - Solar Events – Robert Mitchell
  - Meteor Shower Party – Craig Cox
- Website – Mike Ombrello
- Bylaws – Jeff Struve and Matt Neilssen

Secondary Topics

- Society meeting relocation
- PixInsight meetings

Member Spotlight

by Ian Spangenberg

Science found me. I really didn't go and seek it out. I kind of fell into it. In high school, I was an officer in the National Honor Society, a news writer and news copy editor on the newspaper, and co-captain of the soccer team. I worked at Dairy Queen throughout high school, and I was so good at it that I ended up winning Best Cone in Southwest Iowa two years in a row. I can still take anyone down in a good old fashioned cone off. But, I always felt like I was slouching through space and time, just another one of Earth's natural satellites, who year by year slowly steals energy and angular momentum.

I was good at science classes, but they never seemed to engage me. Growing up, I had very few interactions with astronomy other than the usual looking upwards from time to time. I guess I was angsty, feeling that anything I did would only hasten the day the universe succumbs to entropic heat death. I guess I just didn't know what I was going to do – I didn't have a direction, because I didn't know what I liked.

You know how in life there are these moments that are so magical that they become a story that you tell to people over and over again. You can remember the moments so vividly, the smells, the sounds, they seem almost unreal after a while. There are two moments in my life which I can point to directly which are, for lack of a better word, magical.

After high school, I had no idea what I wanted to do. So, I decided to attend community college first: smaller class sizes, cheaper price, get the gen eds out of the way while I figure out what I was going to do. I was taking all sorts of elective classes: history (maybe I like history?), intro to psychology (maybe I want to be a psychologist), a writing class (nope, that wasn't me). Then, I took physics. My physics teacher in high school wasn't very effective. He was post-retired, on that kick where you retire from Nebraska to collect retirement but teach in Iowa to still collect a paycheck. To be honest, he wasn't very enthusiastic and definitely didn't excite me about the field. It was your basic physics course where we learned the equations and solved problems. I didn't like it very much.

A few weeks into my community college physics course, we were studying projectile motion, and the professor introduced this problem: the Physics Burglar problem. You see there was this guy, who for completely moral reasons, was going to steal a painting from a vault at the very top of a tall skyscraper building. His escape plan involved jumping off of the art vault building and landing on the next building over. He decided to use a cannon, and, you know, cannons on the black market aren't always in the best shape. So, his cannon was stuck at 37 degrees above the horizontal. So, he had to calculate at what velocity to shoot out of the cannon to make his daring escape.

I was hooked – this problem opened my eyes to physics. It dazzled me. It showed me that all the math I had been learning was useful – I could do something with it. Learning was cool, and physics was amazing. After that, all I wanted to do was physics. I wanted to see what other interesting calculations and predictions I could make. What other art could I steal for moral reasons? I still teach the Physics Burglar problem in my AP Physics 1 class.

Years go by – I'm now a full-fledged physics and astronomy major at the University of Iowa. I'm working in a lab in the physics and astronomy department working on x-ray photometry and spectroscopy. As an undergrad, I am helping to design, test, and fly x-ray diffraction spectroscopes. If you are going to do x-ray astronomy, you have to get above the atmosphere, of course. So, our work goes on sounding rockets blasted off from White Sands. My work is going into the research which will ultimately become the International X-ray Observatory (which has since been canceled, unfortunately).

The work is amazing, and I get to say I am a rocket scientist – which is way more effective at getting dates than saying I work in x-ray spectroscopy. But, we only launch every 16 months or so and most of my time is spent sitting at a computer doing data analysis and number crunching. I looked over at the PI, the Ph.D. professor who is my boss – he is literally doing the same thing. And I am depressed – I love astronomy and physics, but the thought of doing this very thing forever is mind numbing.

The whole time I am in undergrad, I am also a tutor. I help underclassmen with their physics and astronomy homework and studies. It is a great job, and I actually truly enjoy it. Now, I don't know how much you guys know about rocketry, but you can't just launch these things from like Van Allen Hall's roof. You have to go to a military base out in the desert or the tundra, and the launch happens far away from civilization in case anything goes wrong. The military puts specialized explosives on your rocket to detonate at the first sign of tipping – they don't want a literal explosive rocket filled with fuel going anywhere near cities. So, if it tips or wobbles too far off course, a launch commander will give the sign and there goes 16 months of work in a wonderful explosion. Now, I wasn't there, because getting the required military base credentials isn't worth it for someone who wouldn't be a permanent staff member. But, I can tell you what my PI told me later: Was it a pretty sight, yes. Probably the most expensive fireworks show I've ever seen. But I think I'm going to take a few weeks off.

The day after I heard, I was tutoring some freshman in college physics. I'd seen him a couple of times before. Nice enough kid, kind of quiet, but was just fumbles with the calculator. Couldn't push the intended button if you paid him. Not dumb or bad at physics, just always seemed to find the logarithm key when he was supposed to be taking the sine of an angle. Kind of like going to the grocery store for some chicken and coming back with chicken bouillon. It is weird how you remember those things. Obviously, I was kind of down that day, and I probably wasn't my usual perky helpful self. Toward the end of the session, he was packing up and off-handedly mentioned, "You know, you are really good at this tutoring thing. You ever think of going into teaching? My dad teaches high school biology, and you remind me of him. Anyway, thanks see ya."

Well, I applied to the College of Education and the rest, as they say, is history. In 2013, I graduated from Iowa with a B.A. in Physics, a B.S. in Science Education with a physics emphasis with honors, a teaching license, and more symbols and letters after my license than I can count. Now I teach AP Physics 1 and AP Physics 2, am the founder and mentor of the PV Astronomy Club, and I am getting into do my own amateur astronomy…slowly. I am finishing up my Master's in Science Education with a physics emphasis through UNI this spring.

The thing about physics and science in general is that you don't "rock out to it," you soak, you savor, you drink it in and let the layers of the universe and the nature of reality slowly reveal itself. Heck, in the first semester of AP Physics 1, we really only learn about and use 4 equations – 3 of which essentially show the same relationship. I like teaching because I like physics and astronomy. There is nothing better than helping others to understand the world around them. I get to do science on a daily basis, and I get to investigate my own world in the process. I think it was Feynman who said, "Those who look for answers are the ones who love the mystery the most." And I really like it when a good mystery finds me.

Submitted Articles

Notes to Self

by Karl Adlon

1 -Do your best.
2 -Your best is not necessarily the best possible.

Let's start with #2. Everyone is limited by what is available to them. Take astrophotography as an example. "Best possible" isn't shooting in a light pollution "yellow zone" at 700 ft. above sea level (Dixon, IA). But if that is where you have to shoot (or not shoot at all) then do your best there.

And that brings us to #1. Here's a picture you may have seen before that I took of the Veil Nebula. I'm pretty happy with it, except . . . maybe I could have framed it better. I should have aimed a little more to the right and maybe turned the camera a little bit counterclockwise.

It is not one of *those*, because I don't do New Year's resolutions.

Vulnerable Netgear router models

Netgear has acknowledged vulnerability and is testing their products. Here is a list of router models that have been confirmed to contain the flaw:

R6250
R6400
R6700
R7000
R7100LG
R7300
R7900
R8000

If you own any of the routers on this list, we recommend that you stop using them immediately until Netgear comes out with a firmware update that fixes the flaw. Netgear said they are working on a firmware update that will fix the command injection vulnerability and will release it as quickly as possible.

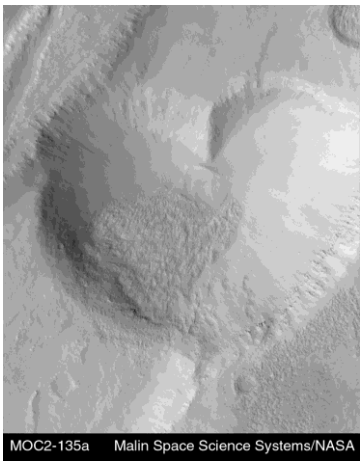
In the meantime, the company is providing a beta version of this firmware release for a few of the affected models. It says the beta firmware has not been tested in full and might not work for all users. It's offering the beta firmware as a temporary solution, but Netgear strongly recommends that all users download the production version of the firmware as soon as it's available.

There is currently a beta firmware version for three of the vulnerable router models. To download the beta firmware, visit the firmware release page for your model and follow the instructions. Here is a list of the models with links to their temporary fix:
R6400
R7000
R8000

Beta firmware versions for the other affected models is being worked on and will be released when available. Netgear is also testing its other router models for this flaw and if any others are discovered, they will be added to the list. Click here to check the Netgear page for updates.

Happy Cosmic Valentine's Day!

By Phil Plait



On Feb. 14, 2000 —yes, on Valentine's Day—the space mission called Near-Earth Asteroid Rendezvous (or NEAR) entered into orbit around the asteroid named 433 Eros. This spud-shaped rock is 34 x 11 x 11 kilometers (21 x 7 x 7 miles) in size, and sometimes approaches near the Earth (though we're in no danger of it hitting us).

As NEAR approached Eros, it snapped this shot of a feature at one end (I inset a zoomed-in picture on the lower right). It's actually three separate craters, lit by the Sun in just such a way as to resemble … well, you know.

And while it's a funny coincidence that NEAR went into orbit on Valentine's Day, it may be an even better one that Eros itself is named after the Greek god of love. Well, um, *physical* love, but you get the meaning.

John H Glenn Jr. 1921-2016

(CNN) John Glenn, the first American to orbit the Earth and a longtime US senator, died Thursday, December 8th according to the Ohio State University. He was 95.

John Herschel Glenn Jr. made history in 1962 when he completed a three-orbit flight in a cramped space capsule dubbed Friendship 7. He later served for nearly a quarter century as a US senator. In 1998, he returned to space at age 77, becoming the oldest person to ever do so.

Born in the small eastern Ohio town of Cambridge on July 18, 1921, Glenn recounted an idyllic childhood where "patriotism filled the air."

"Love of country was a given. Defense of its ideals was an obligation," Glenn wrote in his memoir. "The opportunity to join in its quests and explorations was a challenge not only to fulfill a sacred duty but to join a joyous adventure."

Glenn developed a fascination with flying at an early age. When he was 8 years old, he and his father went for a ride in an open-cockpit biplane, two years after Charles Lindbergh made his transatlantic flight. That adventure sealed his destiny as a pilot.

He also developed an early love for childhood playmate Anna Margaret Castor. By the time they got to high school, they were sweethearts. Both

were in Muskingum College in New Concord, his mother's alma mater, when Japanese forces attacked Pearl Harbor on December 7, 1941. A short time later, Glenn enrolled in the Naval Aviation Cadet Program and graduated the following March. He joined the Marine Corps in early 1943 and wed his childhood sweetheart on April 6 of that year.

Glenn flew 149 combat missions in World War II and the Korean War. In the final nine days of the Korean War, Glenn shot down three MiG fighter jets along the Yalu River. His military service earned him numerous awards, including six Distinguished Flying Crosses.

After Korea, Glenn became a test pilot for naval and Marine aircraft and, in 1957, set the transcontinental air speed record. He flew a Vought F-8 Crusader from Los Angeles to New York in three hours and 23 minutes -- the first transcontinental flight to average supersonic speed.

With that feat, Glenn became known as one of the top test pilots in the United States and a natural candidate for the country's emerging space program.

He eagerly volunteered when NASA requested pilots for its suborbital and orbital programs, and in 1959 he and six others -- Alan Shepard, Gus Grissom, Scott Carpenter, Wally Schirra, Gordon Cooper and Deke Slayton -- were selected as the first astronauts, known as the "Mercury 7." Glenn was the last living member of the group.

On February 20, 1962, Glenn rode an Atlas rocket into history as the first American to orbit the Earth. He was the third American in space, behind Shepard and Grissom -- whose missions aboard smaller Redstone rockets were short suborbital flights. The Soviet Union by that time had sent two cosmonauts, Yuri Gagarin and Gherman Titov, on orbital flights.

After making three orbits in four hours and 55 minutes, Glenn landed in the waters off Grand Turk Island in the Atlantic Ocean, 800 miles southeast of Bermuda, where he and his Friendship 7 were retrieved by the destroyer USS Noa.

Glenn recalled in a Life magazine article a strange phenomenon that occurred during the mission: "There, spread out as far as I could see were literally thousands of tiny luminous objects that glowed in the black sky like fireflies. I was riding slowly through them, and the sensation was like walking backwards through a pasture where someone had waved a wand and made all the fireflies stop right where they were and glow steadily."

Because of an indicator light showing that the Mercury capsule's heat shield was partly detached, mission controllers decided to bring Glenn home early and told him not to jettison his aft retro rockets, which allowed him to maneuver the craft in space. Because the retropack was strapped to the heat shield, it was thought it would provide an extra measure of security.

It would later be learned that the heat shield wasn't damaged, but the fiery re-entry was made more spectacular by the scorching retropack in Earth's upper atmosphere. Glenn's first words when he stepped aboard the deck of the USS Noa were, "Boy, that was a real fireball of a ride!"

Later in life, Glenn poked fun at the risk.

"We used to joke about it in the past when people would say, 'What do you think on the launch pad?' " he said in a 1998 CNN interview.

"And the standard answer was, 'How do you think you'd feel if you knew you were on top of 2 million parts built by the lowest bidder on a government contract?' "

Glenn -- along with fellow Mercury 7 astronauts Grissom and Shepard -- was awarded the Congressional Space Medal of Honor in 1978 by then-President Jimmy Carter.

More than 20 years after their historic missions, the team was immortalized in the 1983 movie "The Right Stuff." Glenn -- portrayed by Ed Harris -- didn't care much for the film, saying, "I thought it was dramatic enough without Hollywood doing its number on it."

At age 77, a year after retiring from the Senate, Glenn accepted an invitation from NASA to rejoin the space program as a member of space shuttle Discovery on a nine-day mission to study the aging process, which mirrors what astronauts experience during long durations in space.

On October 29, 1998, Glenn became the oldest human ever to venture into space, and his flight proved once again that he was a man who embraced a challenge.

For most men and women, fame is fleeting and greatness is short-lived. For John Herschel Glenn Jr., it lasted a lifetime.

Eugene Cernan, last man on the moon, dies

By Emanuella Grinberg, CNN

Eugene A. Cernan, the last astronaut to leave his footprints on the surface of the moon, died on Monday, January 16th, NASA said Monday. The retired United States Navy Captain was 82.

His family confirmed the news in a statement Monday, saying that he died following "ongoing health issues."

"Even at the age of 82, Gene was passionate about sharing his desire to see the continued human exploration of space and encouraged our nation's leaders and young people to not let him remain the last man to walk on the Moon."

Cernan earned several distinctions in his 13 years with NASA. He was the second American and one of two men to have flown to the moon on two occasions. But he's best remembered as commander of Apollo 17, the last mission to the moon in December of 1972.

Born in Chicago, Illinois, on March 14, 1934, Cernan received a Bachelor of Science degree in Electrical Engineering in 1956 from Purdue University, where he received his commission through the Navy ROTC Program. He entered flight training upon graduation and went on to earn a Master of Science degree in Aeronautical Engineering from the US Naval Postgraduate School in Monterey, California.

He was one of fourteen astronauts selected by NASA in October 1963 for the Apollo program, created to send humans to the moon. Like others in the program, Cernan also participated in Gemini missions, NASA's second human spaceflight program, developed to support Apollo missions.

On his first space flight, Cernan became the second American to walk in space during the Gemini IX mission in 1966, led by command pilot Thomas Stafford.

On his second sojourn in May 1969, he was pilot of Apollo 10's lunar module, the first comprehensive lunar-orbital qualification and verification flight test of an Apollo lunar module.

He made his third space flight as spacecraft commander of Apollo 17, the last scheduled manned mission to the moon for the US, in December 1972.

With the support of lunar module pilot Harrison H. Schmitt, Cernan established a base of operations in the moon's Taurus-Littrow valley and made a home there for the mission for three days. From the landing base, they completed three excursions to nearby craters and the Taurus mountains. The mission launched on December 6, 1972 and returned two weeks later. It established several new records for manned space flight, including longest manned lunar landing flight (301 hours, 51 minutes), and longest lunar surface extravehicular activities (22 hours, 6 minutes).

Cernan is survived by his wife, Jan Nanna Cernan, a daughter and two stepdaughters, and nine grandchildren.

CNN's Khushbu Shah contributed to this report.

Gallery

Flame and Horse Head Nebulae – Mike Ombrello

Orion Nebula – Mike Ombrello

Last Month in QCAS

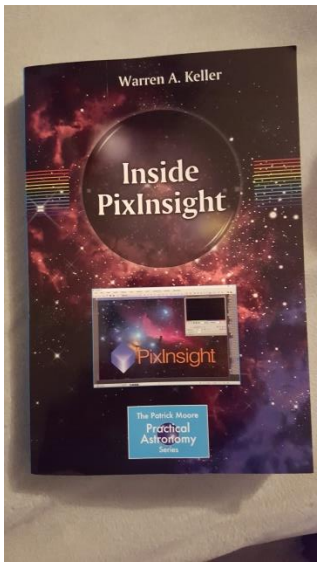
Television and Movies

For Sale – Wanted

For Sale

– Orion 90mm short tube refractor. 500 mm focal length. Equipped with 1.25 inch focuser, 45 degree diagonal, 26mm Sirius Plossl ep, 6x30mm finder and tube rings that are larger than the tube. There is a plate on the bottom of the tube assembly with 1/4 inch x 20 threaded hole for mounting to a camera tripod. Excellent condition. Price $100.00 Contact Jim Rutenbeck at JRutenbeck@frontier.com

– Baader Planetarium Hyperion 8-24mm Mark III Zoom Eyepiece with original box, great shape, needs cleaning (I'm afraid to clean my eyepieces as I don't want to risk damaging the glass). Great for quality outreach as you don't have to change eyepieces and it is easy to view through. Price $175.00 Contact Jeff Struve at PwrHsePro@aol.com



– 2 new "Inside PixInsight" books by Warren Keller are available. Contact Jeff Struve at PwrHsePro@aol.com

– Vixen SLV 6mm eyepiece. Price $75.00 Contact Jeff Struve at PwrHsePro@aol.com

– Vixen NLV 20mm eyepiece. Price $65.00 Contact Jeff Struve at PwrHsePro@aol.com

Editor's Note:

Please help improve the substance of our newsletter by submitting articles and pictures for publication. Variety is the spice of life… be spicey!

Types of articles that would really be interesting could include What's In the Sky This Month, equipment reviews, experiences you've had in astronomy, sketches you've drawn, trips you've taken to observatories or star parties, a high level overview of your favorite astronomer, movie, book or article reviews, list astronomy gear that you want to buy or sell, and of course pictures you've taken and how they were done…

If each member submitted 1 article per year we could have an incredibly varied and interesting newsletter… that is my challenge to you!

Also…. Drop an email, text, or make a phone call or two… members want to get together outside of normal club events to discuss and work on our hobby!

Jeff

PS… A special thank you to Alan Sheidler for his great presentation, Ian Spangenberg for being in the Spotlight, and Karl Adlon for his notes and what's In the Sky!

Ever go out to the Observatory and then *try to think of things to look at; especially after you have seen the usual suspects?*

These are suggestions of objects to try.
Sky conditions will dictate what you can see.
Generally, double stars are not included.
Nor are bright satellites / Iridium flares.

Normally, there will be about a dozen or more objects listed, but all things considered, I'm giving only a handful of objects that are difficult or may be unknown to you.

2017 January 28 – The first Open House of 2017

Sunset	5:14 PM
Civil Twilight Ends:	5:44 PM
Astronomical Twilight ends	6:50 PM
Moon	New; not visible

Twilight

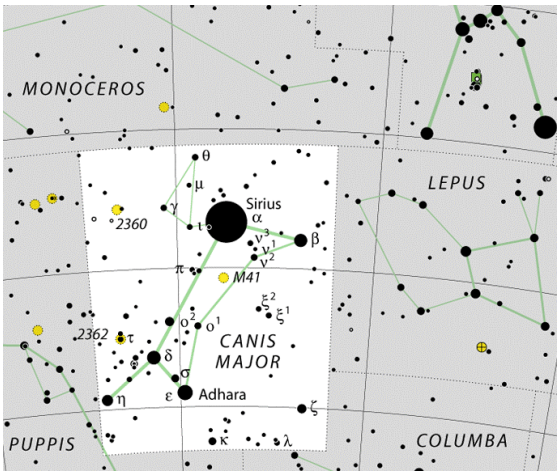
- Venus is 42% illuminated ; [*dist = 52.2 million miles*]
- Mars is about 5 degrees above and left of Venus; [*dist = 170 million miles*]

Early Evening (7 PM or later)

- Pleaides – low power (Open Cluster) ; [*dist = 444 light-years*] – when you look at the Seven Sisters tonight, January 28, will you remember the 7 astronauts of the final Challenger crew?
- Hyades – binoculars or very low power (Open Cluster) ; [*dist = 150 light-years*]
- Orion Nebula; [*dist = 1344 light-years*]
- Betelgeuse and Rigel – compare their colors; [*dist = 500 + 863 light-years, respectively*]
- The "Winter Alberio" in Canis Major; h 3945; SAO: 173349, RA: 07h 16.6m; Dec: – 23° 19' ; [*dist = 6273 light-years*]

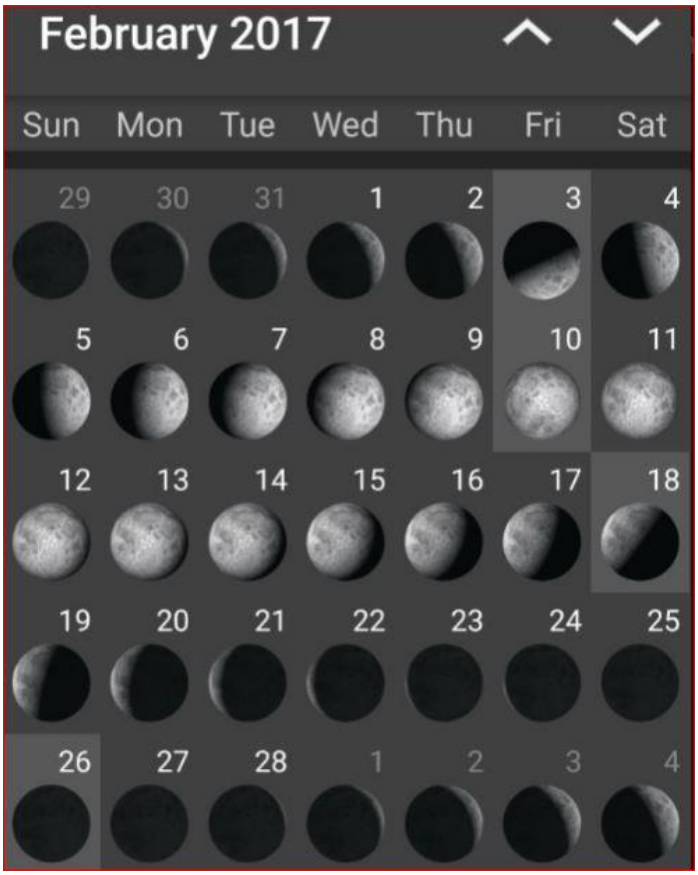
When Dark

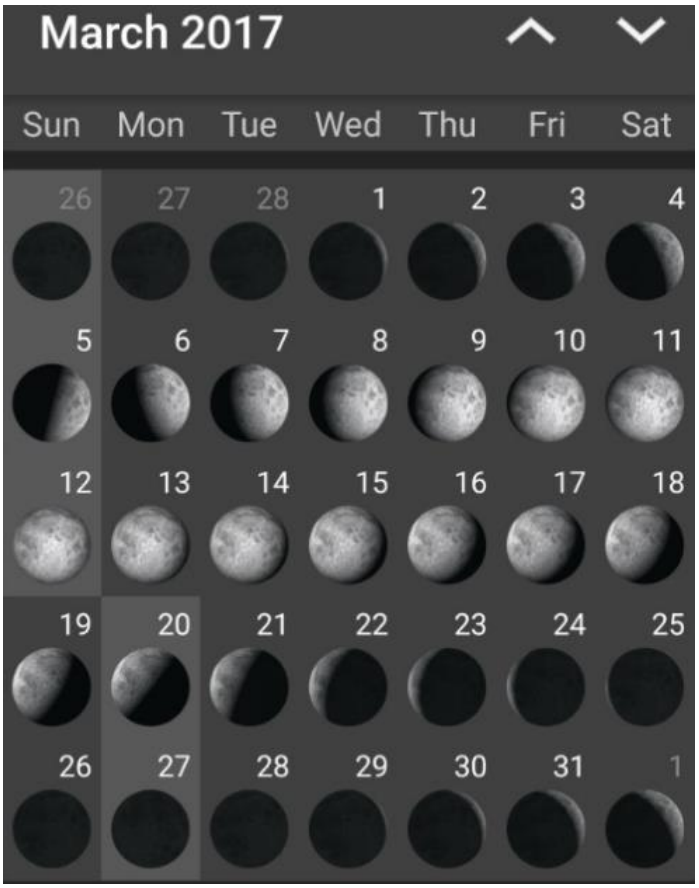
- M74 / NGC 628 – perhaps the most difficult Messier galaxy, especially when doing the Marathon in March, so see it now. Try the 20" scope. ; [*dist = 30 million light-years*]
- Double star Struve 817 in Orion – located about 1/3 degree south of Betelgeuse. Mag 8.7 and 8.9. ; [*dist = 860 light-years*]
- C64 / NGC 2362: Open Cluster in Canis Major with central 4th Mag star; be sure to use averted vision after finding it ; [*dist = 4893 light-years*]
- Constellation Canis Major – Are you done looking at the stars of Orion? Especially if skies to the south are dark, then have a look at the big dog (he won't bite). I think the beauty of this constellation is often overlooked.



Calendar of Events

2017
01/16/17 – Society Meeting
01/28/17 – Open House at the Jens-Wendt Observatory
02/20/17 – Society Meeting
02/25/17 – Open House at the Jens-Wendt Observatory
03/20/17 – Society Meeting
03/24-26/17 – Messier Marathon at Menke Observatory
03/18/17 – Open House at the Jens-Wendt Observatory
04/17/17 – Society Meeting
04/29/17 – Astronomy Day
04/29/17 – Open House at the Jens-Wendt Observatory
05/13/17 – Menke Observatory Public Open House
05/15/17 – Society Meeting
05/27/17 – Open House at the Jens-Wendt Observatory
06/03/17 – Menke Observatory Public Open House
06/19/17 – Society Meeting
06/24/17 – Open House at the Jens-Wendt Observatory
07/15/17 – Menke Observatory Public Open House
07/17/17 – Society Meeting
07/29/17 – Open House at the Jens-Wendt Observatory
08/12/17 – SAU/QCAS Public viewing of the Perseid Meteor Shower
08/21/17 – Solar Eclipse
08/21/17 – Society Meeting
08/26/17 – Open House at the Jens-Wendt Observatory
09/18/17 – Society Meeting
09/22-24/17 – Eastern Iowa Star Party
09/23/17 – Menke Observatory Public Open House
09/30/17 – Open House at the Jens-Wendt Observatory
10/16/17 – Society Meeting
10/28/17 – Open House at the Jens-Wendt Observatory
11/18/17 – Open House at the Jens-Wendt Observatory?
11/20/17 – Society Meeting – Annual Dinner
12/16/17 – Open House at the Jens-Wendt Observatory?
12/18/17 – Society Meeting





QCAS Correspondence:

Please contact the society at: P.O. Box 3706, Davenport, IA, 52808.

Members are welcome and encouraged to submit articles for The Meridian. Submit any and all interesting items (via e-mail) to: PwrHsePro@aol.com and/or MitchellRobertC@sau.edu

QCAS Officers and Contacts:

Officers		
President:	Jeff Struve	PwrHsePro@aol.com
Vice-Pres:	Craig Cox	AdmiralCox2000@yahoo.com
Secretary:	Dr. Robert Mitchell	MitchellRobertC@sau.edu
Treasurer:	Matt Neilssen	Matt.Neilssen@gmail.com
Director:	Dana Taylor	Dana@NelsonTaylor.com
Chairpersons		
Facilities:	Dana Taylor	Dana@NelsonTaylor.com
Meridian Editor	Jeff Struve	PwrHsePro@aol.com
Outreach:	Matt Neilssen	Matt.Neilssen@gmail.com
Programming	Jim Rutenbeck	JRutenbeck@frontier.com
Web Master:	Dana Taylor	Dana@NelsonTaylor.com