

SIDEREAL TIMES

Austin Astronomical Society
keeping astronomy weird since 1969

MONTHLY MEETING

Friday, June 8, 2018
ETC 2.136 - UT Campus
Engineering Teaching Center
Dean Keeton and Speedway

NO PRACTICAL ASTRONOMY

7:30 PM
GENERAL ASSEMBLY

Member Presentations Planetarium night

-Domingo Rochin: Four comets visible over the next several months

-Anshuman Garga: The Orion Nebula

-Shubhanga Ballal: Messier 82 aka the Cigar Galaxy

-Terry Phillips: Messier 104 aka the Sombrero Galaxy

-Terry Phillips: The Mars Experience



Sidereal Times
Vol. 50 No. 6

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Sidereal Times is the official monthly publication of the Austin Astronomical Society.

PRESIDENT'S NOTES

By Tim Brown, President



Tim "Doc" Brown

This month marks the end of school for some, the beginning of summer and the start of the Executive Committee's 2018-2019 term. This year's committee is a mix of veterans and first-time committee members. We particularly welcome new members-at-large Pam Castillo and Jessica Cofrancesco and welcome the return of Jim Spigelmir.

Elective Positions

President	Tim Brown	president@austinastro.org
Vice President	Terry Phillips	vicepresident@austinastro.org
Secretary	John Cassidy	secretary@austinastro.org
Treasurer	Dana Leary	treasurer@austinastro.org
Communications Chair	Sean Leary	communications@austinastro.org
Outreach Chair	Joyce Lynch	outreach@austinastro.org
Equipment Chair	Brian Lippincott	equipment@austinastro.org
Member Services Chair	Vanessa Perez	memberservices@austinastro.org
Member at Large	Pamela Castillo	membersatlarge@austinastro.org
Member at Large	Jessica Cofrancesco	membersatlarge@austinastro.org
Member at Large	Frank Mikan	membersatlarge@austinastro.org
Member at Large	Domingo Rochin	membersatlarge@austinastro.org
Member at Large	Greg Rohde	membersatlarge@austinastro.org

Appointed Positions

Parliamentarian	Ron Carman	parliamentarian@austinastro.org
ALCOR (Astronomical League)	Tara Krzywonski	alcor@austinastro.org
Liaison (IDA)	John Cassidy	darkskies@austinastro.org
Sidereal Times Editor	Nathan Morgan	newsletter@austinastro.org
Webmaster	Maurice Nelson	webmaster@austinastro.org

I personally thank every volunteer who gives of her talents and time to keep AAS a strong and vital club for the encouragement and advancement of amateur

Banner: May, 2018 Image of the Month: Ross Abel, Xmas/Cone Nebula

PRESIDENT'S NOTES CONTINUED

astronomy. As many of you know, this is a challenging and exciting time for the club as we move toward a new and different future.

We are leaving COTE at the end of July. Thanks to Dawn Davies, Joi Chevalier, Brian Lippincott, Joyce and Jim Lynch and many others we have working arrangements with Inks Lake and Pedernales state parks for venues for our member and public star parties.

Every EC member needs your help and invites you to join in redefining AAS's future. Sometimes it's good to be forced to make changes. New opportunities open up.

The forced move from COE and Eagle Eye Observatory has re-kindled enthusiasm and will, I'm certain, lead to improvements in every aspect of the club's life. More fun and exciting new outreach opportunities.

So, join-in. Email us, call us, catch us at meetings and star parties. We always welcome fresh ideas and new participants.

Members Star Party @ Pedernales Falls State Park

Jun 9 @ 8:00 pm

Speaking of Star Parties, this Saturday night will be one of our first Members Star Parties at Pedernales State Park. Email Dawn for free park admission and join your fellow astronomers for a chance to hang out with your fellow club members under a starry sky. For details: <http://austinastro.org/>

Monthly Meeting Friday June 8, 7:30pm

We meet at Mechanical Engineering Building (ETC II), Rm 2.136 Engineering Teaching Center II - ETC

This month Terry Phillips is master-of-ceremonies for "Planetarium Night", five mini- presentations of favorite observational targets including an introduction to observing Mars during its close apparition this summer.

Thanks to all who have contributed to AAS's success and a welcome to those who will help steer the AAS into the future.

Clear Skies,
Tim

"For my part I know nothing with certainty, but the sight of stars makes me dream". (Vincent Van Gogh)

CALENDAR OF EVENTS

8 June 2018

No Practical Astronomy
General Assembly Meeting
7:30 PM
ETC 2.136 - UT Campus
Engineering Teaching Center
Dean Keeton and Speedway

16 June 2018

Pedernales Falls Park Star Party
7:00 PM - 11:30 PM
Pedernales Falls State Park

11-13 July 2018

Astronomical League Convention
2018
@ Hilton Hotel
and Convention Center

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AAS AFFILIATIONS



<http://darksky.org/>



<https://nightsky.jpl.nasa.gov>



<https://www.astroleague.org/>



<http://www.tsgc.utexas.edu/>

GENERAL ASSEMBLY MINUTES, APR. 2018

By Tim Brown

April 13, 2018

Welcome and New Member Introductions.

Quorum check.

Business meeting shortened in deference to speaker

Election for 2018-2019 Executive Committee Officers

Motion approved for slate of officers to be approved by acclimation. Motion passed.

President	Tim Brown	president@austinastro.org
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Member at Large	Greg Rohde	membersatlarge@austinastro.org
Member at Large	Jim Spigelmire	membersatlarge@austinastro.org

Our featured speaker was ISS Astronaut Don Pettit. Donald R. Pettit – “Just Goofing Around”
Next month, the general assembly will take place at St. Andrews School hosted by Frank Mikan.

Meeting adjourned.

AAS PLANETARIUM NIGHT

By Terry Philips

At our June general assembly meeting, we will not be having an invited speaker. We will be premiering a new feature presentation. We're calling this Planetarium Night. This will be a composite of short presentations by our club members of some of their favorite observing targets. Our goal is to share our knowledge about some of the coolest objects to be found in the current season and how to locate them. We'll use Stellarium to show the best strategies for star hopping to the targets, and we'll demonstrate what you can expect to see through various telescopes.

The following members will present at our first Planetarium night:

Domingo Rochin: Four comets visible over the next several months

Anshuman Garga: The Orion Nebula

Shubhanga Ballal: Messier 82 aka the Cigar Galaxy

Terry Phillips: Messier 104 aka the Sombrero Galaxy

Terry Phillips: The Mars Experience Part 1

This July we once again climax the 15 year cycle which brings Mars and Earth's orbits to their closest conjunction. Mars is already blazing in the late evening sky. As it moves closer to conjunction in the early evening sky it will continue to brighten until it outshines Jupiter. The next 3 months will provide the best opportunity to observe Mars for the next 15 years. In the Mars Experience Part 1 we'll discuss Mars' orbit and where to find it in the night sky. The Mars Experience Part 2 will be presented at the July meeting. We have the good fortune to have a speaker with more than 30 years of Martian observations under his belt. Tim Kenyon will present his detailed sketches of not only the 2003, but also the 1988 apparition of Mars after which he will talk to us about tips and strategies for observing Mars and how to make the most of the current apparition.



COMMUNICATIONS REPORT, JUNE 2018

By Sean Leary, Communications Chair

For the Executive Committee meeting in June 2018

1. Website:

- a. Sidereal Times banner and link for May
- b. Sidereal Times page update for May
- c. Image of the Month banner, link, and image for May
- d. AUTS page redirect (case insensitive), banner, and link. updated comms handbook
- e. Update Executive Committee page with new board

2. Email blasts:

N/A

3. Facebook

N/A

4. Comms

- a. Added 2018-2019 EC shared page
- b. Added new EC board members permissions to access shared page
- c. Sent invites to email accounts for new EC members
- d. Updated WildApricot website admins (Tim, Dana, Sean, Maurice)

Website traffic for the past month

How many people are visiting the site?

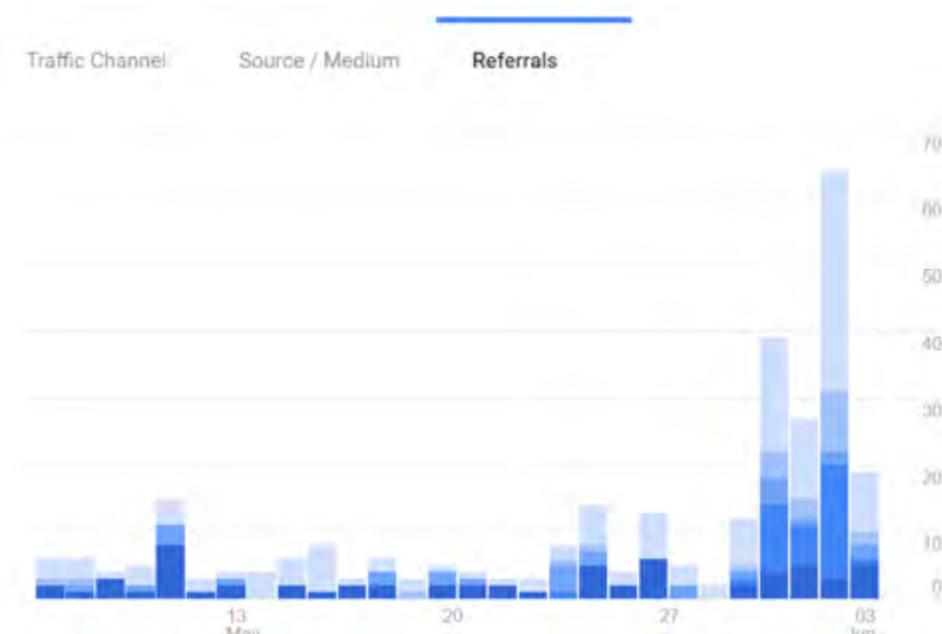


What pages do they visit?

Page	Pageviews	Page Value
/	1,152	\$0.00
/index.php/events/austin-under-the-stars/	602	\$0.00
/index.php/events/	91	\$0.00
/JoinAAS	78	\$0.00
/Sys/Profile	73	\$0.00
/index.php/events/aas...anyon-of-the-eagles/	55	\$0.00
/index.php/about-aas-2/	48	\$0.00
/index.php/sidereal-times/	44	\$0.00
/index.php/membership/	43	\$0.00
/index.php/monthly-meeting/	33	\$0.00

Last 28 days ▾ [PAGES REPORT](#) >

Who is sending us traffic?



Agenda:

Please respond to email invites



TREASURER'S REPORT, MAY 2018

By Mark Lyon, Treasurer

May 2018 Treasurer's Report

Deposits:

Dues payments		
Checks	\$0.00	
Paypal	\$800.00	
Dues payments totals		\$800.00

Interest earned-checking	\$1.02	
Interest earned-CD	\$0.25	
Interest earned-CD	\$0.25	
Total interest earned		\$1.52

Donations	\$0.00	
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Total Other Income		\$0.00
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Deposit Totals May 1st through May 31st, 2018		\$801.52
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Expenses:

COE Internet Expense	\$69.35	
COE Telephone	\$76.86	
Storage space rental	\$65.00	
Astronomy League Dues	\$1,895.00	
Meeting Expense	\$85.73	
Outreach	\$36.77	

Expense Totals May 1st through May 31st, 2018		\$2,228.50
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Bank Balances:

University Federal Credit Union Donations Savings	\$557.41	
Paypal Account	\$512.21	
University Federal Credit Union Checking	\$22,362.78	
University Federal Credit Union C.D.	\$5,814.99	
University Federal Credit Union C.D.	\$5,795.84	
University Federal Credit Union Scholarship	\$465.61	

Total Cash		\$35,508.84
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AAS members on 5/31/2018:	542
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Total AAS Memberships as of 5/31/2018:	385
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OUTREACH OPPORTUNITIES, JUNE 2018

We have several outreach events scheduled for June, and I hope many of you will volunteer to help. Dawn Davies, who has been serving as Interim Outreach Chair, has done an excellent job of setting up the event and publicizing it to the public. Your participation is needed!

Other events this month are:

- **Saturday, June 16, 7:00-11:30pm**--Pedernales Fall State Park This is our public star party for the month of June. More details are available on our website. www.austinaastro.org
- **Tuesday, June 26, 8:00-10:00pm**--Teravista HOA, 1000 Wildflower Park Drive, Georgetown We went here several years ago, and many enthusiastic visitors showed up.

Please contact Joyce Lynch to volunteer or ask questions: outreach@austinaastro.org

Joyce Lynch, 2018-19 Outreach Chair

AAS FRIENDS



<http://canyonoftheeagles.com/>



<https://www.parts-people.com/>

AUSTIN UNDER THE STARS "AUTS"

By Dawn Davies and Joyce Lynch



Each year AAS has the pleasure of co-hosting Austin Under the Stars with the help of Frank Mikan and St. Stephen's Episcopal School. This partnership has been going strong for twenty-one years, since 1997. AUTS started the year we landed Pathfinder on the surface of Mars. It was the year comet Hale-Bopp had its closest approach to Earth. In that same year parts of the world experienced a total solar eclipse and a total lunar eclipse. There were many more discoveries and astronomical happenings

that year, but suffice to say, the excitement in the field of astronomy hasn't ceased since. It is because of these scientific breakthroughs and findings that this hobby, we all love dearly, attracts so many. Due to the constant detections of new



phenomena in the cosmos and the development of faster and better systems we as amateurs have, literally and figuratively, the universe at our fingertips. And thanks to this growth and the awe factor of it all, there is a reason to have an event like AUTS.

Over the years, our numbers have grown in membership and event attendees. We have come to be able to offer more to guests in the forms of activities, information, and observations. Of course none of this could ever happen without the amazing space gifted to us



each year by St. Stephen's; a mowed, level, large field for which to set up upon. And even with a location, such an event wouldn't be possible without the dozens of members that show up with their copious amounts of equipment and free time to cater to the whims of the public; young and young at heart. This year, like most in the past, we brought to the

Austin area the stars to gaze upon outdoors and within. Young astronomers made their way around the field, checking off a list in the hopes of getting an astronomy themed prize and learning a bit more along the way. Rockets were launched, the sun observed safely, astronomy themed literature was recited and Ooos and Ahhs were heard ad nauseum.

Over 400 guests were treated to an evening of stellar wonder, and over 1/3 of that number were the astronomers and scientists of tomorrow. We were graced by a public presence that resides locally, statewide, nationally and internationally. Our assembly showed up in force with a marvelous display of technology and an even greater element of knowhow. This event is a group effort on every scale and I could not be more proud to be a part of said group. Thank you everyone for making this summer's AUTS a great one to be remembered.





JUNE OBSERVING TARGETS

By Brian Cuthbertson

Oddly enough, this month's intro has nothing to do with this month's targets. Rather, it concerns a 1969 diary entry I rediscovered that describes my very first observing outing with the Austin Astronomical Society. Back in the fall of 1969 I was a freshman physics student in my first semester at UT Austin. I was up from Houston, where I'd been an active member of the Houston Astronomical Society (HAS) for several years during high school.

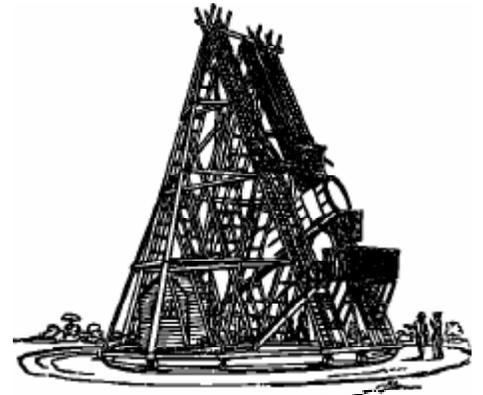
As it turned out, 1969 was a momentous year for reasons other than just my move to UT. Apollo 11 had made the first manned moon landing that summer, and the AAS was also founded. I wasn't a founding member, but in October I did meet AAS president James Wertz at the UT Physics building and picked up some material on the club. There were some AAS meetings later that fall off campus, but I was too busy as a student to attend.

Finally though, on Saturday December 13th, I and Tom Lum - a fellow UT student and HAS member - caught a ride with two AAS members out to the AAS star party at the abandoned Park Springs Church, about 3 miles SE of Manor, just east of Austin on 290. There were quite a few observers out there, including another fellow HAS member, Mike McCants, who brought his 10-inch reflector.

The Geminid meteor shower was that night. So after some telescope observing, we began meteor observing. By midnight all the AAS members had left. But Tom, Mike and I - the 3 HAS members - stayed out until 3am, and counted a total of 407 Geminids. Then Mike drove Tom & me back to UT, and we got a sandwich at an all-night restaurant at 4:30am. I finally got back to my dorm and to bed by 5:30.

That was my first AAS outing. The AAS would eventually move its observing site from Park Springs to the old NIKE missile base acquired by UT, southwest of Austin on Bee Caves Road. I hosted

many a star party there, both for AAS members and UT astronomy classes. And years later of course, the AAS moved its observing site further out to Canyon of the Eagles. Now, since the AAS is again on the hunt for another site, my diary entry suggested that maybe this tidbit of history was in order. It's time again to find other dark skies, and enjoy!



William Herschel's telescope. From a drawing in 'The Imperial History of England, comprising the entire work of D. Hume,' David Hume, 1891. Credit: openclipart.org

Mu Draconis rating EASY long-period binary in Draco RA 17h 05.20 Dec +54d 28.2' (2000) Magnitude 4.9

Located about 6 degrees west of the head of Draco (as formed by the four stars Beta, Gamma, Nu and Xi Draco) Mu is a long-period binary star, first seen by William Herschel in 1779. Its period is still uncertain; published values range from 650 to 4000 years. However the last periastron (closest approach) occurred in 1934 when the apparent separation of the two stars was just over 2", corresponding to a projected separation of about 70 A.U. at its roughly 90 light-year distance.

The two members of the system have nearly equal magnitude (5.7 and 5.8), both being F7 dwarfs. There's also evidence for a third star in the system with a period of about 3 years and mass half that of the Sun.

JUNE OBSERVING TARGETS, CONTINUED

Mu is also known by its older Arabic name Alrakis, which means “the Trotting Camel” or “the Dancer”. Because of this, science fiction writer Frank Herbert chose Arrakis as the name of the primary planet in his famous “Dune” novel series.

R Corona Borealis rating MEDIUM
odd irregular variable star
RA 15h 48.6m Dec +28d 9.8' (2000)
Magnitude range 6-15

Here’s a quirky target. R CrB is located inside the crown of Corona Borealis, just over 4 degrees ENE of 2.2-magnitude Alpha CrB or Alphecca. Discovered by Pigott in 1795, R is thought to be an old, Population II, F-type giant star far outside the disk of the Milky Way, with an atmosphere that’s 2/3 carbon vapor.

R is also the prototype of a small class of variable stars called “R Coronae Borealis variables” consisting of 30-odd members. These stars live normally at their maximum magnitude, but occasionally over some weeks fade irregularly to 7-15th magnitude for periods of months. For this reason, R CrB stars are sometimes called “reverse novae”.

The fade-outs are thought to result from carbon soot condensing in the star’s atmosphere. After a few weeks or months, this obscuring material dissipates in a stellar wind and the star returns to its normal brightness. So remember: if you look for R and it’s not there, you’ll know something is going on; one of the few cases in amateur astronomy where NOT finding something is cause for excitement!

NGC 6229 rating: HARD
globular cluster in Hercules
RA 16h 47.0m Dec +47d 31.7' (2000)
Magnitude 9.4 dia. 2'

Located in northern Hercules not far south of its border with Draco, NCG 6229 is NOT the most sought-out globular cluster in Hercules. M13, and to a lesser extent M92, are more popular globular tourist stops for Hercules hunters. But since those 2 have already been covered here before, NGC 6229 gets the spotlight this time.

The globular was discovered by William Herschel on May 12, 1787. Herschel took it as a planetary nebula. And later, in 1819, it was mistaken for a comet. Dryer’s 19th century NGC finally listed it as a globular cluster. The early confusion about NGC 6229 becomes understandable due to the cluster’s huge distance of about 100,000 light years, in the outer halo of the Milky Way. That distance puts it roughly 4 times farther away than M13 at 25,000 light years, and M92 at 27,000 light years. It’s also about 8 times fainter than M92, and 16 times fainter than M13.

At such a large distance, NGC 6229 appears at high magnification in a 10-inch scope as a 50 arc second glow with a weak granular texture, located just east of two 8th magnitude stars. In a 12-inch class scope, the cluster is a small circular 2’ diameter glow, still granular throughout. Its brightest stars weigh in at magnitude 15.5.

MEMBERSHIP CARDS NOW IN YOUR PROFILES

At last, Wild Apricot, our membership database vendor, has made available to its customers membership card templates. Now, under your AAS membership profile you will see a mockup of a card with your name, Membership ID and membership expiration date. You are offered two options for displaying your card: one which is suitable for displaying from a smartphone, and another printable PDF which you can cut and laminate to your heart's delight.



WELCOME NEW MEMBERS!

Bick, Debbie
Caraccio, Joe
Cassis, Sami
Dax, McClain
Hoffman, Paul
Hoffman, Trew

Jordan, Craig
Raffaeli, Frank
Schulz, Truman
Sickler, Aarom
Taylor, Josh
Travis, Salas Cox



THIRTY MINUTES TO CATCH A COMET

By Domingo Rochin

You would think that a well-planned observation night would have more time allowance than just 30 minutes to find your target, and that may be so what happen; I wasn't really prepared. But I am an amateur astronomer, and learning how to get it right takes time to gather knowledge and practice. That night my learning experience, the adventure, and most of all, the chase was well worth it. Spoiler alert: I fail to see my comet.

Comet PANSTARRS C/2016 M1 has been well announced since early this year. Hence, it was discovered on June 22, 2016 by the Panoramic **S**urvey **T**elescope **A**nd **R**apid **R**esponse **S**ystem. Due to be in the range of "small" telescopes by May 4th of 2018 with a magnitude of 10.5; best viewing time would be between 2 and 3 AM. I have been keeping track of its publishing's since early January. So I had gather star charts, orbital ephemerides, and recent blogs from amateur astronomers. It was supposed to be a slam dunk. On the night of May 26-27, 2018 it was expected to be shining at 9.2 magnitude with a degree of condensation of 3 (10 being stellar, and zero completely diffuse) and a coma of 4 arc minutes, between Saturn and Mars, and within 1 degree of Pluto; in Sagittarius –by the handle of the Tea Pot. Now how more easily can it get! To top it off, I use the 25" Dob in the Eagle Eye observatory at Canyon of the Eagles.

What went wrong?

Well, my original observation night was set

for May 5th, but it was cloudy. So I reset for May 12th. Again, bad weather. Now, it's worth noting that these dates are Saturdays. Again, as amateur astronomer most of my "free" time comes on a weekend. Call it a defect of our hobby if you will; but I have to work with what I got. Then work kept me home on May 19th. By this time I am getting anxious because it is getting critical. On one hand the moon is inching closer to the late hours of the night at which it would blind my viewing. At the same time the comet is falling down toward the horizon.

A break in the weather –by all means! Saturday May 26th, Memorial holiday. Forecast is clear skies. Cool nights in the 70's. I reserved time to use our 25" telescope. I contacted my friend Terry Phillips to join me –really, to have a trusted mentor at my side. I also contacted my friend Vanessa Perez and invited her to join and bring her family. My wife Evelyn joined me as well.

The night before I view the sky from my back yard to get worm up to surveying the area of the sky where my comet would be found. It look dark enough. But that was because there were some far away clouds in the western horizon blocking the moon. I guess I couldn't see this because of neighbor's houses. So, my first oversight: not paying attention to where will the moon be at the time of viewing. Which leads to my second error: not using the tools available –Stellarium software for example- to do the work for me. Even a quick view in TheSkyLive.com web site would have revealed the conflict.

I arrived early at the observatory, mainly to get refresh my memory on using the 25" scope controls. Terry and Vanessa were attending the Star party at Inks Lake and would join later. The comet rise time was 23:47 and transit was 5:00 AM with maximum altitude of 40.6°. Observable between 2 and 5. However, I know now that the moon set time was 5:15 AM and so we fought all night against a bright shining moon light. On top of that, actual magnitude of the comet was 11.4 not 9.2!

When Terry arrived the first thing he said was "you won't be able to see the comet with that moon shine". I had my hopes high that the 25" would be able to see through moon light. Saturn peak up around 10 PM, followed an hour later by Mars. And Pluto at magnitude 15+ somewhere in-between. Still waited after 2 AM to start searching, and searching, and nothing! Made several spiral searches and still nothing. Comets, like the rainbow, are best seen from a distance. That is, too much magnification and you might be seeing right through it. So we tried 32 mm wide field eyepiece, nothing! Terry made a Local alignment using π -Sagittarius. We could see Pluto –or at least what we believe should be Pluto based on the accuracy of the scope targeting. Yet the comet, which should have been in the field of view or at least just outside of it, was not visible. We examined a few candidate "stars" that could be the comet minus its tail. In particular I kept finding a bluish star where I believe the comet should be. But Terry was able to get a sharp focus of it and that convinced me that it would not be my comet since a condensation of 3 means it would be quite

diffuse.

Last resort: wait for the moon to set; at 5:15 on the button. Now we realize that it would take us all the way to day-break. Waiting for the moon to set is worse than waiting for traffic on I-35 to move. The experience was eerie. Before, moon light allow us to see our surroundings. But is a matter of a few minutes it got very dark. Like someone had turn off the lights! –

Oh yea! Let's go baby!

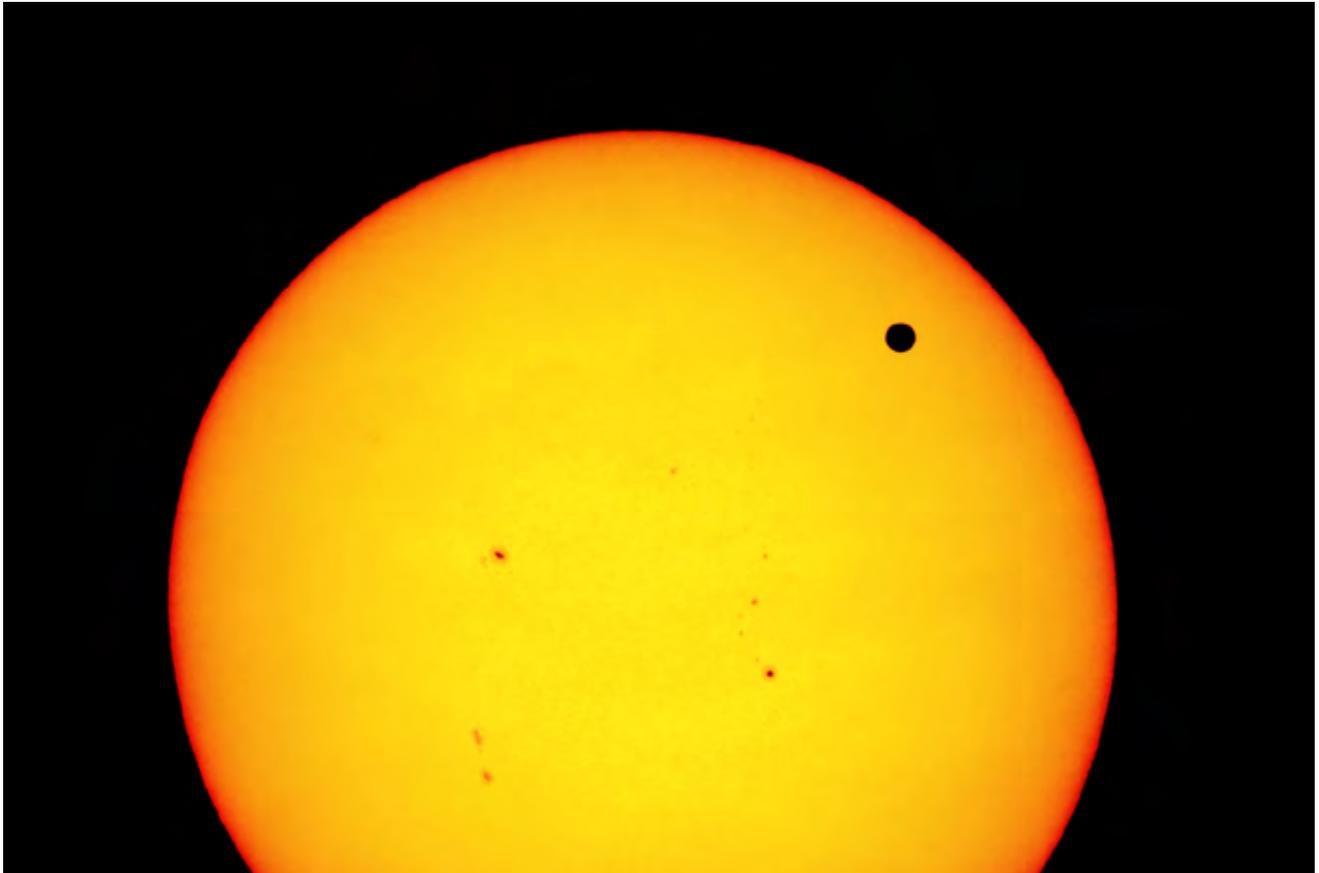
Scope was already tracking and nothing...

We made narrow and wide spiral sweeps. And nothing. And the clock is ticking. Day-break light at 5:45 –that is just 30 minutes to find and view! The sun won't peak until 7 or so. But the day-break light at 5:45 is just as bad as the full-moon. I was viewing through the eyepiece seeing stars disappear. I had to let go. My words to Terry from up in the latter were –I lost this one.

It's been said that true failure is to not even try. So, we didn't fail, we missed the opportunity. I still believe that we so it, just didn't recognize it because the tail wasn't visible. Terry summarized our episode with "I told you so". But he stayed with me even though he suspected it would be futile. However, right away he pointed out that there would be a second opportunity –weather permitting- after June 7th. I recently looked at the charts –and yes, the moon too- and it looks like Saturday night, June 9-10 will be a good window of opportunity to view the comet; and this time we should have at least two hours before the moon rises.

IMAGE OF THE MONTH

Congratulations to
RATHIJIT BANERJEE, VENUS TRANSIT 2012



by Rathijit Banerjee

Transit of Venus 2012

Here is a “throw back” to 6 years ago, June 5, 2012: The last Venus transit of this century (and our lifetime). This rare phenomenon happens when Venus passes in front of our Sun. The next transit will not happen until 2117!

This image was captured from Austin using a Celestron 8” SCT, a Thousand Oaks solar filter, and a Canon T1i DSLR camera.

MEMBERS' GALLERY

by Robert Pettengill

Early Morning Moon

I slept through my alarm, I'd planned to capture the Moon and Mars together. I did wake early enough to catch this lovely waning gibbous moon in a crystal clear sky this morning at 6:45 am local time in Austin. Taken from my front walk through the Redbud tree.

2018-05-06 11:45 UT.

Sony a6300

Vivitar 200mm prime lens.

Exposed at f11 for 1/640 sec

ISO 1600.

Best 16 of 50 images stacked processed in Autostakkert 3 & Lynkeos final crop and exposure in Photoshop



by Nathan Morgan

NGC 1893

OTA: Willaim Optics F81GT 81mm F6.6

Mount: Orion Atlas

Camera: Starlight Xpress sx814

Guided by: Lodestar x2 with orion OAG

Astrodon 3nm SII: 22x1800" -15C

Astrodon OIII 5nm: 18x1800" -15C

Astrodon OIII 5nm: 6x1200" -25C

Baader Ha 7nm 2": 30x1200" -15C

Integration: 32.0 hours

Software: PixInsight, SGP, PHD2



JOINING AAS OR RENEWING MEMBERSHIP

To join or renew your membership to AAS, please visit: <http://austinastro.org/index.php/why-should-you-be-a-member/> There are five membership levels to choose from:

Household Bundle (up to 6 members) \$40.00 (USD)

Renewal: Every one year, starting from join date

No recurring payments. For members of a household living at the same address.

Junior \$15.00 (USD)

Renewal: Every one year, starting from join date

No recurring payments. For members up to age 18.

Students \$15.00 (USD)

Renewal: Every one year, starting from join date

No recurring payments. For members age 18 and older.

Regular \$25.00 (USD)

Renewal: Every one year, starting from join date

No recurring payments. For individual members.

Seniors \$15.00 (USD)

Renewal: Every one year, starting from join date

No recurring payments. For members 65 years of age or older.



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Joseph Macry writes a weekly column for Manor Community News: "This Week in Astronomy". You can read the online edition here: <http://manorcommunitynews.com/>