SIRIUS ASTRONOMER

www.ocastronomers.org

The Newsletter of the Orange County Astronomers

December 2021 Free to members, subscriptions $12 for 12 issues **Volume 48, Number 12**

This is the Orion nebula (M42) and immediate neighbor the Running Man nebula (NGC1977) taken by Alan Lang using ASI 1600M camera, SkyWatcher 100 Espirit refractor from his backyard in Long Beach in January 2021. The picture combines RGB, H-alpha and Oiii images.

Because of the COVID-19 crisis and ongoing efforts to reduce exposure to the virus:
. **Most but not all in-person club events are cancelled**
. **Use of the Anza site is discouraged**

Please read more about how OC Astronomers has modified its activities on page 2.

Upcoming Events - free and open to the public

Beginner's class	Friday, 3 December at 7:30 to 9:30 PM This is session 4 of the class. It covers the science behind the telescope. Class materials can be downloaded from OCA website.	ONLINE
Club Meeting	Friday, 10 December at 7:30 to 9:30 PM "What's Up?": John Garrett from TVA Main speaker: Dr. Carlo Rovelli from Aix-Marseille University whose talk will be "White Holes"	ONLINE
Open Spiral Bar	Saturday, 11 December at 10:00 to 11:30 PM Want to socialize? Grab your images, experiences, questions, or none and see your fellow Orange County Astronomers face-to-face.	ONLINE

Please consult the calendar on the OCA website to RSVP (required)

Electronic Voting Available Again This Year

By John E Hoot, Trustee

Again this year we are not going to be able to hold our annual election in person at our January meeting. We are offering two different voting options for the club's board of directors and officers. You will find a mail in ballot in this month's newsletter. Additionally, members with an email address in their club profile will receive emails with personalized voting ID's, confidential credentials and instructions that will allow you to vote electronically and anonymously on a cell phone, tablet or PC at a web site hosted by "Election Runner", a company we have hired to administer our 2022 elections.

https://electionrunner.com/

We want to encourage you to vote. It is easy and free to vote electronically. This is our club, your votes show that you support the trustees and officers who volunteer their time and effort to make OCA the fine organization we all enjoy.

Response to COVID-19 Crisis

COVID-19 continues to affect all our activities. Some in-person club events remain cancelled while others are beginning to occur or are in the process of being scheduled. Cancellation periods for specific events are detailed below. Please see the President's Message for additional information.

Any use of the club's Anza site by members is at their own risk as we have no way of cleaning or sanitizing the site to CDC standards. If you must go to the site, be sure to clean and sanitize surfaces you have contact with and make sure it is cleaner when you leave than it was when you arrived. You must bring cleaning supplies and sanitizer with you as it is not provided at the site. Be sure to take any trash that you generate or find on the site out with you, and please maintain social distancing if anyone else is out there.

If you have any questions, feel free to contact board members or post them to the email groups or through social media. We will do our best to respond, but please bear with us if there is a delay as we all have other responsibilities as well.

We hope you and your families and friends all remain safe and healthy, and best wishes to all of you!

Summary of Cancellations of OCA In-Person Events

Due to the ongoing COVID-19 crisis, all in-person club events are cancelled through at least the following periods:

General Meetings	Cancelled until further notice; please try our virtual meetings instead.
Anza Star Parties	May start up again in January. Expect further updates on this.
Orange County Star Party	Cancelled until allowed by Orange County Parks, discussions are underway.
Outreaches	Have resumed in person.
Beginners Astronomy Class	Held only as Zoom meetings. Please contact Dave Pearson to attend.
SIG Meetings	Astrophysics SIG has resumed meeting in person. AstroImaging remains cancelled indefinitely, depending in part on availability of facilities and when meetings could go forward safely.

Please check the website, email groups and social media for updates.

From the Editor

Sirius wants photograph submissions from club members

Please send pictures to me along with a brief description of the subject, where the image was taken, and the equipment used. For projects made, send an email with a brief description and the editor will work with you to produce an article.

Ideas for Future articles

The newsletter includes articles from members or about subjects suggested by our members. We seek ideas and writers to cover them. To contribute an article or work with the editor to produce one, please contact me at newsletter@ocastronomers.org .

Due dates for submission of articles, pictures and advertisements

Issue		Due date
January	>>	22 December
February		22 January
March		19 February
April		19 March

President's Message

By Barbara Toy

Welcome to December, with its lengthening nights, culminating in the Winter Solstice on the 21st, the longest night of the year at our latitude in Southern California. Watching the sun set before 5:00 now that we're no longer on Daylight Savings Time is a bit unnerving – and it seems common in winter (particularly when it's cold) to feel that you've put in a long, full night of observing and the night should be about over, only to discover when you check your watch that it's actually only about 10:00 pm… Of course, as our November speaker, Alan Dyer from beautiful and much more northerly Canada reminded us, there are a lot of places where the nights are much longer and a LOT colder (his -20 to -30 degrees Celsius translates to -4 to -22 degrees Fahrenheit, which is mighty cold on either scale, particularly if you're out there viewing the sky, which generally is not an aerobic activity).

If you missed his talk on auroras, which was excellent, you can catch it on the video on our YouTube channel. Not all of our speakers allow us to post their talks but Alan kindly did allow it, and it's worth checking out if you have any interest in auroras at all. The link is on our website.

And, if you're doing any observing (or imaging) in winter – it's always a lot more fun if you're comfortable. Even temperatures in the 50s (Fahrenheit) can be uncomfortably chilly when you're standing around if you don't have warm enough clothing. We're in the season of hats, gloves, coats, thermal underwear, etc. (at least when the Santa Ana winds aren't warming things up too much), and it's good to bring multiple layers and a much warmer array of options than you think you'll ever need when you head out for a night under the stars – there are times you'll definitely need them, particularly as we get into January and February.

On a Much Sadder Topic – Farewell to Anne Oostdyk

When I joined the club in early 2000, it had already been around for over 30 years. There have been a lot of members who remained actively involved from those early days, and others who had been active but had to limit their participation or drop out entirely due to life's changes. One privilege I've had during my years in the club has been getting to know some of those formerly active members.

Charlie Oostdyk's wife, Anne, has been one of them, and I've always hoped that we would see her get more involved in club activities again herself. She's from an astronomy family in Northern California and Charlie has given me this account of how they got to know each other, which also gives a flavor of amateur astronomy in the 1980s:

"Anne and her father Dave did outreach in the 80's with the Friends of MIRA (Monterey Institute for Research in Astronomy). Dave continued his outreaches in the 90's with the Sonoma County Astronomical Society after moving from La Honda to Santa Rosa. Anne and I met and were introduced to each other at Ames Research Center during the final field trip of the 1984 ASP (Astronomical Society of the Pacific) meeting by Cliff and Jackie Holmes (Cliff was a founder of RTMC). We missed each other at the 85 and 86 ASP meetings and weren't able to spend any time together at the 87 meeting because Anne was helping a wheelchair bound friend from the Bay Area attend the meeting and I was commuting from home. Finally at the 88 ASP meeting in Victoria, BC we met again and ended up spending most all the conference together. After many hours on the phone and weekends in the Bay Area or OC we got married in Atherton (near Palo Alto) in March 89. Dave Denbow, former OCA treasurer who had relocated to San Jose, was my best man. And I will always have extreme gratitude to my friends in the OCA who warmly welcomed Anne into her new OCA family and later suggested the additional middle name of Hubble for Chuck since he was born the day the HST was launched."

Well, you might say that Charlie and Anne were star-crossed lovers in the best possible way, sharing a love of astronomy along with their deep love for each other. Charlie sent me the front page of the April, 1989 issue of the Sirius Astronomer commemorating their marriage, and I hope there's room for a copy in this issue – I love the image (hand-drawn by John Sanford) of them hand-in-hand, looking out at the wonders of the universe together.

Life gives unexpected challenges and their first child, Chuck, presented one of them. He needed extra care, and what could have been a short maternal detour from pursuing her astronomical interests became a much longer hiatus. Later there were further complications because of her own health issues. She developed significant problems walking that probably made the idea of dealing with the stairs or the long walk from the elevator to the auditorium for our general meetings at Chapman University somewhat overwhelming. At any rate, though Charlie and I (and others, I'm sure) encouraged her to start coming to the general meetings again in recent years, she hadn't feel up to that challenge – at least not yet.

SIRIUS ASTRONOMER

NEWSLETTER OF THE ORANGE COUNTY ASTRONOMERS

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April 1989 Volume XVII, No.4

APRIL'S OCA MEETING WILL TAKE PLACE ON THE SECOND FRIDAY AFTER ALL. THE 7:30 PM MEETING WILL BE ON THE 14TH. THE FREE AND OPEN MEETING WILL FEATURE A TALK BY BILL HALL ON "A SHOTGUN APPROACH TO ASTRO-PHOTOGRAPHY: HOW TO DO IT AND WHY NOT TO". MEETING ROUNDS OUT WITH A WHAT'S UP SEGMENT, REFRESHMENTS, AND OPEN SLIDE TIME AS WELL AS A PRIZE DRAWING. SEE YOU THERE!

THE APRIL STAR PARTIES AT OUR ANZA OBSERVATORY-SITE WILL TAKE PLACE ON THE 1ST AND THE 8TH. MEMBERS WILL BE WELCOME TO COME AND USE THE CLUB TELESCOPES AT THE OBSERVATORY (22" KUHN AND C-11). THE SILVERADO SITE CLOSE-IN GATHERING WILL BE ON THE 1ST, AND THAT SITE IS ALWAYS ACCESSABLE BY GETTING THE KEY FOR THE IRVINE CO GATE (639-8446).

COMING UP IS THE SCIENCE DAY AT CHAPMAN COLLEGE. THE OCA PUTS UP ITS LIGHT-WEIGHT DIPLAY AND PROVIDES A SOLAR TELESCOPE DURING THE 11 A.M. TO 3 P.M. EVENT. WE NEED VOL-UNTEERS FOR THIS EVENT THIS YEAR. IT'S A CHANCE TO MEET AND RECRUIT MEMBERS FROM THE MANY HISCHOOL AGE SCIENCE ENTHUSIASTS WHO WILL BE THERE. (JOHN S.IS not GOING TO DO IT THIS YEAR!) DATE IS APRIL 22.

No. 345 18 March 1989

International Astronomical Union
Announcement Card

Western Hemisphere Clearing House for Astronomical Information
Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA. 02138

Telex: 3452693 Fax: 345 672 9271 Cable: Smithsonianastro

Residents of the Berkeley, California area report observation of a previuously unreported close binary pair. Synoptic results by witnesses report a tremendous surge in brightness after relative obscurity. Two orbiting bodies have been named by Commission 23 of the I.A.U. : Charlie and Anne. Star disappeared shortly after first sighting but was seen almost daily thereafter. Further observations urgently needed in all spectral bands. Coordinates approximate Warner and Fairview Streets, Costa Mesa, CA. The Dostdyk Object(s) may be resolvable in .020mm blue or red band of spectrum. Maybe even infrared. A probable target for the Hubble Spacey Telescope. Expected to be of long duration.

Orbit, period of revolution, inclination to be kept confidential until confirmed by experimentation (under way by C. and A.)

John Sanford, Director
Orange County Astronomers
Observatory, Martha Avenue
Orange Branch

Typing and composition by Floppy Disk
Under the authority vested in me I now

Artist's Conception by Director
Pronounce you. "U".

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I enjoy a good conversation and Charlie has a wealth of experiences and information to talk about. There have been many Friday evenings after the general meetings when we'd be chatting in the parking lot and lose track of the time until Anne called to find out when Charlie might be heading home with her dinner. Sometimes she and I would conduct a conversation through Charlie, sometimes he'd give me his phone for more direct communication, but I don't remember her ever expressing irritation over her husband or her dinner being waylaid even though it might be well past midnight by then. It was always a pleasure to talk to her, whether from the parking lot or otherwise, and it always seemed she had an optimism in her voice and outlook regardless of what might be going on that gave hope for good outcomes and better days ahead.

Sadly, Anne passed away unexpectedly in her sleep on October 29. All of us who had the pleasure of knowing her will miss her – I know I will, and that this is an immeasurable loss to Charlie and their children. They do have my deepest sympathy.

On Other Updates…
The ballot for OCA's election for the 2022 Board is finalized, and I'm told that there was no last-minute rush of candidates looking to add their names. That's unfortunate, but at least we have a full slate of candidates – and maybe some of you folks who have great ideas for the club could sort of mull things over and put your names in next fall, when we'll be looking to elect the 2023 Board.

As to the election itself, having the electronic option last year was very successful, and we'll be having that again this year, and probably on into the future. We'll accept paper ballots as well, which will be sent out as usual in the December Sirius Astronomer and will also be available on the website; the deadline for submitting a ballot (only one per member, regardless of how you vote) is midnight on the day of the January meeting. We don't expect that we'll be able to meet at Chapman yet in January, so we won't be able to collect ballots there – hopefully we'll be back in person well before the January 2023 meeting, so we'll have that option then.

As to the general meetings, we still don't know when we'll be able to start having them again at Chapman University. As I write this, they still aren't scheduling events for non-Chapman groups and their website says that they are still trying to minimize the number of people on campus. We're continuing to monitor the situation and will post information on any changes in all the usual locations – so please check your location of choice periodically.

The Astrophysics SIG has resumed its meetings at the Heritage Museum of Orange County and we've been advised of a change in leadership. Bob Sharshan, who has chaired the group very capably for quite a few years now, is stepping down, and Mark Price and Steve Marten will be jointly chairing the group in his place. Contact information will be posted on the website and on the back of the Sirius Astronomer, and please contact them for details on upcoming meetings; depending on what is going on, RSVPs may be needed to attend. Bob will be missed from the position he's handled so well, but I'm glad that Mark and Steve will be working to keep the group going and look forward to working with them. And, if you've never attended an Astrophysics meetings, you should try it – they're like the best of seminars, with good information on interesting topics, good company and no exams.

Final Thoughts…
Thinking back on the last few months, Charlie has had an incredible series of challenges, including Anne having to go into a care facility, his broken ankle (simply because he wanted to get the Sirius Astronomer to the Post Office), the death of the family's pet cat (who loved hearing Anne's voice over the telephone when she couldn't be there in person), and now the loss of Anne herself. I'm humbled and grateful that with all of that and his other responsibilities, he's still been able to take care of club business, including getting bills paid and getting the paper copies of the Sirius Astronomer addressed and to the Post Office so they could be mailed out.

Thank you, Charlie – for myself, for the Board, and for the club. I'm so sorry for all the misfortune this year has brought you and your family. If there's anything we can do to lighten your load, I hope you will let us know.

AstroSpace Update

December 2021
Astronomy and space news summarized by Don Lynn from NASA and other sources

Mars Helicopter – As reported here last month, the Mars helicopter Ingenuity failed to lift off in a test of spinning its rotors faster to compensate for the thinning Martian atmosphere, caused by carbon dioxide freezing out seasonally into the polar caps. Controllers determined that preflight automatic tests had detected too much vibration and had canceled the flight. They were able to overcome the vibration and a successful flight was made on October 24, rising just 16 feet, as planned, in the now thinner Martian air. Ingenuity has been tested at high enough rotor spin rates that it should be able to fly throughout the season of thinnest air.

Hubble Resumes Observing – In late October, a computer onboard the Hubble Space Telescope detected that communications between computers and instruments were losing messages, so all instruments were placed in safe mode, awaiting ground controllers to troubleshoot the problem. All instruments were tested and were found to be operating correctly other than for communicating. Controllers used the NICMOS instrument to test communications, and were able to operate it correctly. This instrument was used for testing since it has not been used since 2010 when a more capable instrument was installed and therefore test use presented little risk. After that, the Advanced Camera for Surveys (ACS) was tried and found to be communicating correctly. So ACS was placed back in service and observing programs using it were resumed. Controllers are planning new software that will work around any similar loss of messages as were seen in October.

Jupiter Discoveries – Juno's microwave radiometer is able to penetrate through Jupiter's cloud tops. So, a new study combined radiometer data with images of the cloud tops to better understand how the storms and cloud bands work in 3 dimensions. New findings include: cyclones are warmer at their tops, while anticyclones (which rotate the opposite direction) are cooler at their tops. These rotating storms extend much deeper than expected, to 60 mile depths, except the Great Red Spot, which extends 200 miles deep. This is below where the sunlight warms the atmosphere. The depth and density of the Great Red Spot is sufficient to make a detectable gravity anomaly, so this will be looked for during future close passes of Juno to the Spot. The belts and zones, respectively dark and light bands, were already known to reach depths of about 2000 miles. The new study showed that the belts and zones have a sharp temperature change at about 40 miles deep.

Gravitational Waves – The team of scientists from the LIGO and VIRGO gravitational wave detectors has released the results of the observation run from November 2019 to March 2020. Detections consisted of 32 pairs of black holes merging and 3 collisions of black holes and neutron stars. Since the discovery of gravitational waves in 2015, there have now been 90 events. Most of the new events occurred billions of light-years away.

Exoplanet Atmosphere – Scientists using the Gemini South telescope in Chile have measured the amount of water and carbon monoxide in the atmosphere of an exoplanet about 340 light-years away. The planet, known as WASP-77Ab, is a hot Jupiter, that is, roughly Jupiter size but orbiting much closer to its star, causing the planet temperature to be quite high, above 2000 °F. The team plans to continue similar observations to measure the atmospheres of other exoplanets.

Circumbinary Planet – A new method of discovering circumbinary exoplanets has been demonstrated. Circumbinary is defined as a planet that orbits around both members of a binary star. The most common method of finding exoplanets is to observe the dimming of a star when its planet passes in front of it (transits). To distinguish a planet from other causes of dimming requires that the period between dimmings repeats, which requires at least 3 transits to be observed. But for circumbinary planets, it is more complicated, because transits each of the 2 stars must be distinguished from each other, as well as transits of each star by the other. Also, the orbits of circumbinary planets tend to have longer periods because the planets orbit outside both stars. This requires observation for very long periods to catch 3 transit events of each star. The TESS planet-finding space telescope is in an orbit that synchronizes with our Moon, so can only point in any given direction for a lunar month, not long enough to see 3 transits of most circumbinary planets. The new discovery technique matches just one transit of each of the pair of stars with the exoplanet's orbit. The method found the first circumbinary planet in TESS data. The planet is designated TIC 172900988. Only a couple of dozen circumbinary planets are known.

Probable Planet in Another Galaxy – X-ray binaries can be either a black hole or a neutron star that is having material dumped on it by a companion star. The result is that a very hot accretion disk forms, which emits X-rays. Some of these objects have been found in nearby galaxies, not just in our Milky Way. Theoretically astronomers should be able to see the dimming from planet that orbit such objects and happen to pass in front of (transit) them. Planets that transit ordinary stars in other galaxies are just too difficult to see with current technology. The reason that transits of X-ray binaries should be detectable at much larger distances than transits of stars is that the X-ray source is much smaller than a star, so that the planet could block all the light, not just a small fraction. Now it appears that the first planet transiting an X-ray binary in another galaxy has been seen. In a search of Chandra and XMM-Newton X-ray space telescope data, the apparent planet transit was found in the galaxy M51 observing an X-ray binary known as M51-ULS-1. The X-rays were blocked for a few hours. Much work was done to eliminate other possible explanations for the loss of X-rays. The apparent planet would be the size of Saturn, orbiting the binary pair in about 70 years. Unfortunately, this long period means that the transit cannot be confirmed until that 70-year period has elapsed. The hunt will continue for other planets transiting X-ray binaries.

Planet Collision – Dust and gas found about the nearby (95 light-years distant) star HD 172555 appears to be the remnants of a collision of 2 planets. The gas is part of the atmosphere of the larger of the colliders, which is estimated to be about Earth-size. This is the first detection of atmosphere that was stripped off a planet by collision. The crash probably took place at least 200,000 years ago. The star is fairly young at about 23 million years. It is thought that planet collisions are common in the early times of planet system formation. The dust is the wrong composition and grain size to be debris from stellar formation, but matches that expected for collision debris. The gas was detected with ALMA, a radiotelescope array in Chile.

Black Hole Discovered – Astronomers using the Very Large Telescope in Chile have discovered a stellar-mass black hole in a large open cluster in the Large Magellanic Cloud, a nearby galaxy. It has about 11 times the mass of our Sun. It was found by its gravitational influence on a star orbiting it. All other stellar-mass black holes known outside our galaxy have been found because they give off X-rays from hot material falling into them, or because they give off gravitational waves when they merge with another black hole or neutron star. Most stellar-mass black holes do not emit X-rays or gravitational waves, so this discovery method may find black holes that could not otherwise be found. The newly found black hole is the first one found in a young star cluster, this one being only about 100 million years old.

MeerKAT Survey – A team of astronomers has released the images from a survey of galaxy clusters made with the MeerKAT radiotelescope array in South Africa. The survey covered 115 galaxy clusters. Electrons moving near the speed of light around magnetic fields in galaxy clusters emit the radio waves that MeerKAT sees. Newly found radio emission regions in the survey should keep radio astronomers busy for years.

Warped Accretion Disk – A team of astrophysicists has found that some of the variations in brightness of a black hole known as MAXI J1820+070 are caused by a warp in the surrounding accretion disk. The black hole has a small companion star that is dumping material onto the accretion disk. As the parts of the system circle, particularly the warp in the disk, the light output varies. The system is 9600 light-years away, one of the closest known black holes. The mass of the black hole is at least 8 times that of our Sun. Much of the brightness data used was from the AAVSO, an organization that collects brightness measurements mainly from amateur astronomers.

Lunar Landing Schedule – NASA has announced a new schedule for Artemis III, the mission to next land people on the Moon. The date has moved from 2024 to 2025. Reasons given for the change include that the previous schedule was too optimistic, that schedule had not allowed for some challenging technical developments, insufficient funds authorized by Congress, and a recently settled lawsuit. That suit claimed that NASA had improperly awarded the contract to build the lunar lander. The court decision was that the contract had been properly awarded but settling the suit delayed progress toward Artemis III by about 7 months. Artemis I will test the Moon rocket without crew, and Artemis II will fly a crew around the Moon without landing.

Space Debris – Russia conducted a test of an anti-satellite weapon on November 15 that created a cloud of space debris. NASA and others have condemned the test for the danger that the debris presents to satellites, including the International Space Station (ISS) and the Chinese space station. Astronauts aboard ISS closed hatches between modules and retreated to safe places when the debris cloud passed nearby and, fortunately, no collisions resulted.

Adopt-A-Scope Opportunities

Adopt-A-Scope Program News by John Hoot

The year is coming to an end, and it is time for another round of telescope adoptions. Below are listed the telescopes that we have available for members to adopt along with a brief description. If you want to give one of these lonely scopes a new home contact me via the email address below. I can answer questions on accessories, appropriate uses, and condition of most scopes on the list.

Scopes are available on a first come, first served basis. Reserved scopes for this round of adoptions can be picked up on 11 December 2021 between 10:00 AM and 2:30 PM at the club's storage facility:

South Coast Self Storage
3480 W Warner Ave,
Santa Ana, CA 92704

You are welcome to examine the scope fully before accepting it. If you cannot be at our facility at the appointed time, we can make arrangements for pickup at our mutual convenience.

If you adopt a scope and find you and it are not compatible within your first 6 months together, you may return it to us in good order and we will refund your money less a $15 handling fee. Adoptions are limited to one per member per year.

OCA Adopt-a-Scope Inventory
Next Scope Pickup Date : 12/11/2021

INV#	Type	Size	Mfg	Model	Accessories/Notes	Price
1	Mac	3.5"	Meade	ETX90	90mm f15 Maksotov Alt/Az Goto table top fork mounted telecope. Runs off batteries or 12VDC	$75.00
16	SCT	10"	Meade	LX200 Classic	10" LX200 Classic Alt/Az GOTO telescope. 2024mm Flocal length, with tripod. Suitible for astrophotography with the addition of an equatorial wedge (not included)	$359.00
17	SCT	8"	Celestron	Blk C8	With Encoders	$200.00
22	Reflector	4.5"	Celestron	NexStar	Alt/Az Goto	$60.00
24	Reflector	4.5"	Meade	4504	A 4.5 inch Newtonian reflector mont on Goto German Mount with tripod. An OK visual instrument. Not suitable for astrophotography	$50.00
29	Schmidt-Cas	8"	Celeston	NexStar 8	Alt/Az Goto	$200.00
33	Schmidt-Cas	10"	Meade	LX90-AFCF	Alt/Az Goto	$250.00
35	Newtonian	4.5"	Meade	DS-2114	4.5" newtonian reflector or an Alt/Az single fork mount Goto telescope with tripod. It operated of 8 D cells, or 12VDC	$60.00
45	Refractor	4"	Tashihaki	106FSQ	Motoroized German Mount/ position encoders broken. AstroImaging	$2,200.00
54	Newtonian	5"	Orion	Atlas 5" Goto	8" f6 Newtonian OTA on Orion GOTO German equatorial mount with tripod	$200.00
56	Newtonian	6"	Celestron	???	6" newtonian reflector on a manual GEM Mount with tripod	$45.00
53	SCT	4.5"	Celestron	NexStar 114GT	4.5" Newtonian reflector or a single fork mount Goto telescope with tripod. It operated of 8 D cells, or 12VDC	$60.00
63	SCT	8"	Meade	2080	Fork Mount , quartz Drive, No Tripod/wedge	$150.00
68	Schmidt Newtonia	10"	Meade	LXD55	f5.0 Scope on GOTO eqatorial mount with tripod and PC control cables	$300.00
70	Schmidt Newtonia	140mm	Celestron	Comet Catcher	f3.6 Wide Field Telescope	$120.00
72	SCT	8"	Celestron	Orange Tube	Fork Mount, digital setting circles, quartz drive, w/ wedge and tripod	$250.00
73	Mac	3.5"	Meade	ETX90	90mm f15 Maksotov Alt/Az Goto table top fork mounted telecope. Runs off batteries or 12VDC, Dec Clutch permanetly locked.	$60.00
74	Schmidt Cassegr	9.25"	Celestron	Adv GT	Goto German Equatorial mount with tripod	$400.00
75	Schmidt Cassegr	11"	Celestron	CGEM 1100	11" Fastar compatible OTA on CGEM II Goto Mount w/ GPS and Auto Alig, Wheel Bars and accessories. Brand New !	$1,200.00
76	Maksatove	90mm	Celestron	OTA Only	f11 Can be used as spotting scope, camera lens or OTA	$45.00
77	Achromat Refraa	80mm	Meade	GEM	80mm f15 refractor with manuall German Equatorial Mount	$40.00
78	Newtonian	4.5"	Busshnell	GEM	Newtonian Telescope on manual German Equatorial Mount	$40.00
79	Archromat Refra	60mm	Unknown	GEM	60mm Refractor on manual German Equatorial Mount	$25.00

Email: Scopes@ssccorp.com

Another Look

Dave Phelps, November 2021
(Editor's note: This was written for our November issue but deferred for lack of space.)

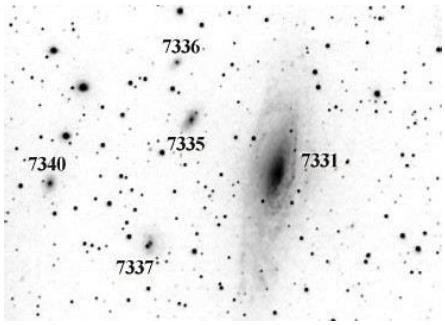
Go outside in the evening during the first week in November and look up. Our old friend Cepheus is still high overhead next to his Queen Cassiopeia. Their daughter Andromeda is near at hand still chained to the rock while Perseus is racing towards Pegasus, the winged horse, to save her from the sea monster, Cetus. The Milky Way spans east to west from Perseus to Aquila, while the Pleiades and Hyades have slipped up over the horizon.

From north to south we also have Lacerta, the circlet of Pisces and NGC 253 in Sculptor. Alas, we have no mythology to associate with Sculptor, maybe because it's a southern constellation, difficult to see from Paris. Lacaille named it for an artist's studio. NGC 253 is a large bright galaxy that you should be able to see even in decent binoculars. It's magnitude 8 and big at almost 1/3rd of a degree.

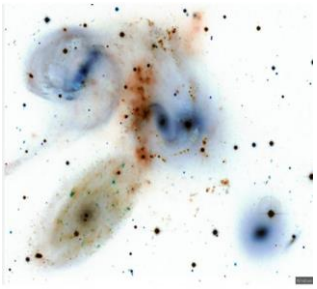
Just south, check out NGC 289, featured in a recent APOD. NGC 289 is smaller and fainter, but close. It is also a steppingstone to the Sculptor dwarf; further south and much fainter and as big as a full moon it is as faint as Pluto. you will need a very good southern horizon and a big telescope to catch it. In Idyllwild at just about a mile elevation we had a very good negative southern horizon which allowed us to go down into Fornax and even Piscis Austirinus. Unfortunately, the lights have all but taken that star party place away.

Close overhead is the Andromeda galaxy, M31. Big and bright, visible to the naked eye and quite nice in your 7x50's. I have spent hours tracing spiral arms, the core, the lanes and its satellite galaxies M32 and M110. Its full dimensions, Per Burnham, are 160' by 40' and 5th magnitude. In M31 is NGC 206, a dense knot of stars embedded in one of the arms not too far from the edge. Also, not too far, in the rift near NGC 206 is one of the Cepheids used to calculate its distance. I have tried to identify particular Cepheids in M31 but charts, equipment and skill failed me.

Follow Alpha Andromedae to Beta Pegasi to Eta Pegasi. That's how I star hopped to NGC 7331, a really nice galaxy somewhat resolvable and easily visible at 9th magnitude. NGC 7331 has its own family of galaxies that weren't mentioned much so I'm don't recall ever having seen any of them, especially since they are in the 14th to 15th magnitude range. Their designations are NGC 7335, NGC 7336, and NGC 7337. There are also a few outliers as the negative image shows. They are going on my bucket list. And no, I will not call it the Deer Lick Group.



I used NGC 7331 as a steppingstone to Pegasus' most famous object(s): Stephan's Quintet. Do not expect to see it in your 12" Newtonian like the Professional image at right. Stephen's Quintet is pretty small about 4'x4' per side and faint at nearly 15th magnitude. Hard to see but well worth the effort if you have a larger telescope. One reference gives a distance of 40 million light years. None of the companions are brighter than 13th magnitude. I saw individual galaxies in the 17.5" but too faint for my drawing skills. Under high power you will see two or three distinct shapes. At least two are interacting and there may be more gravitationally bound. The cluster is very compact and astronomers have been debating the actual number of associated galaxies since the beginning of time. We probably won't know for sure until USS Enterprise (NCC 1701) goes out there to look.
Image by: NASA/CXC/CfA/E. O'Sullivan/ Canada-France-Hawaii-Telescope/Coelum

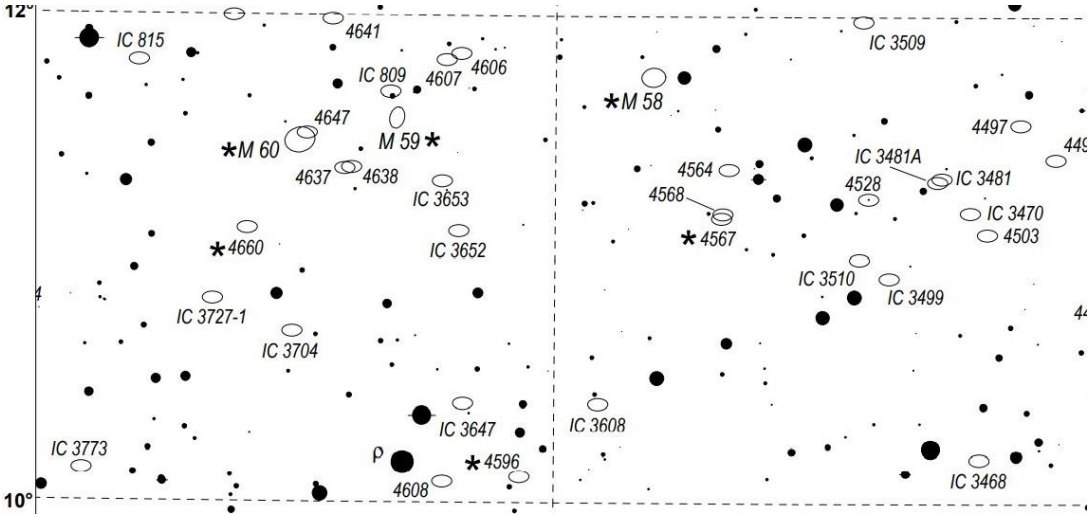


Another nice galaxy in Pegasus is NGC 7741. It was a goal for me because it is a bright distinct barred spiral. It's about 4 by 4 minutes, so maybe a little small for your 8 inch. I don't remember ever actually resolving the bar and arms. NGC 7741 is a few degrees south and just minutes east of Alpheratz, Alpha Andromeda. You will find it with a chart, some star hopping and a little sweeping. While there, in the vicinity are two Abell galaxy clusters, Abell 2634 and Abell 2666.

There is not much to say about Aries. Gamma is a double and Alpha is 2nd magnitude. Alpha's name is Hamal, the Head of the Sheep and Gamma's is Mesarthim. Gamma's components are nearly identical magnitudes and can be seen in a smaller telescope. I used it to star hop into Pisces, a constellation worthy of its own column. Still, about 200 years BCE, a fellow by the name of Hipparchus called it the "First point of Aries" because the sun, at that time, was in Aries at the Spring Equinox. A history lesson in the sky.

This Month's Challenge
This is going to be a fun challenge this month, suitable for just about any size telescope. You will be scanning both the Coma Berenices galaxy cluster and the Virgo galaxy cluster. Use Arcturus to find your place in the sky and sweep east towards Leo to find the Coma Berenices galaxies right near the North Galactic Pole. While there be sure to look for NGC 4559, NGC 4565, M64 and M53.

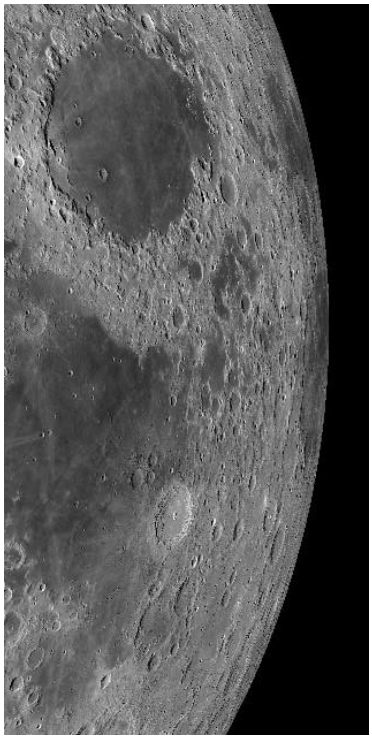
Just south is the Virgo Cluster, a real beauty. Look for M87, M89, M 58, M59, M60 and a half dozen or more Messiers. Now your problem here is an embarrassment of riches. This part of the sky is crammed with galaxies and sprinkled with stars, see how many you can identify. Now for the challenge. Find M58, M59 and M60. On a nearly right angle made up of M58 and Rho Virginis at the corner of the base of the triangle you will find NGC's 4567 and 4568. These are the Siamese Twins, famous interacting galaxies about 11th magnitude. They will be a real feather in your cap.



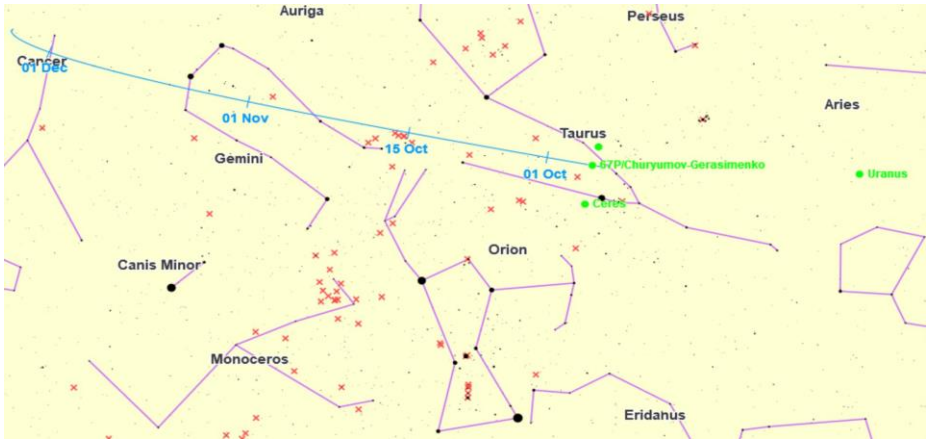
This column is not a What's Up but a What's Was. That being said, I have always loved the moon and enjoyed searching for comets.

So, we have a lunar eclipse on November 19th UT (18th at 10:00 pm PST) during the full "Beaver" moon. They are calling it a penumbral eclipse and I didn't understand why since the charts looked total. A closer look, however, and you will see that the moon is only 97% eclipsed. Wow. That will be spectacular visually with that thin crescent of light on a dark disk maybe illuminated by earth-shine or maybe a brick red. Totality at 0102. Thanks to timeanddate.com

On Nov. 3rd the lunar libration should be favorable for Mare Crisium, Mare Undarum, Mare Sputum and the craters Langrenius and Petavius. Check the attached image. If you're up late, or early, three days after full moon, these same features will be highlighted from 180 degrees east or west depending on your telescope. Thanks to cyberspace for the image.



67P/Churyumov-Gerasimenko: So, comet C-G should be less than 10th magnitude, maybe even a bright as 8 or 9th. It has a 6.5 year or so orbit which made it attractive for a visit from the Rosetta spacecraft. Visually the comet will be closest about 6:00 pm Nov. 12. Look for it near Castor and Pollax.
Thanks to In-the-Sky.org for the finder chart.



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- Orion StarShoot AutoGuider further reduced price $ 200

For Sale contact Jerry L Floyd jlfloyd720@gmail.com 562-252-5666
- ZWO Electronic Filter Wheel, 7x36mm $ 600
- Includes set of ZWO brand 36mm LRGB, S2, H-Alpha, O3 narrowband (7 nm) filters

This item was originally purchased in May 2020. It has been used a few times (with a ZWO ASI1600MM camera) but is in virtually new condition. I am selling it because I replaced it with a filter wheel that accommodates my 7 1.25" Astrodon filters.

The cost of the items as purchased new from a vendor such as OPT would be $299 for the filter wheel, $199 for the LRGB filter set, and $479 for the SHO filter set, a total of $977.

I am willing to deliver in person to the OCA Anza site or other Southern California locations.

For Sale contact Stephen Lauro colormaker13@gmail.com 1-714-393-5467 cell
- Meade LS-8 in excellent condition $ 2100
- AutoStar 3 handbox controller
- Upgraded Stellarvue 7x50 finder scope
- Meade electronic micro-focuser
- Has the most recent firmware: version 1.6e

I am asking $2100 but will accept a reasonable offer.

For Sale contact David Cook 1-949-689-0853
- Celestron wedge #93658 for Nexstar SE5/SE6/SE8 telescopes Free

The original cost of this wedge was about $400. This wedge has been superseded with an updated version #93665 for a list price about $500, also for the SE6/8 telescope mounts. This wedge was for a Celestron SE8i, which I gave to my grandson, but he uses it in a strictly azimuth mode.

Upper Pads Warming Hut at Anza

Clean-up is occurring for the warming hut located on the upper pads area of the OCA Anza site. There are CRT monitors, a very old PC, mouse-eaten seat pads, fuel cans for Coleman stoves and some older astrometric references that may be disposed of. Anybody having items stored in that shed is encouraged to contact David Fischer (949-831-1163 or newsletter@ocastronomers.org) to ensure that those items are not categorized as trash.

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