Temecula Valley Astronmer

The monthly newsletter of the Temecula Valley Astronomers November 2014

Events:

General Meeting : We will be meeting at the Temecula Library, 30600 Pauba Rd, Rm. B on Monday, November 3, 2014 at 7 pm.

Elections !!!

What's Up : Tim Deardorff

Presentation : Bob Buchheim - "*Some things you can do with the Night*".

For the latest on Star Parties, check the web page.

APOPD - The Helix Nebula from Blanco and Hubble - Image Credit: C. R. O'Dell, (Vanderbilt) et al. ESA, NOAO, NASA

WHAT'S INSIDE THIS MONTH:

Send newsletter submissions to Mark DiVecchio (markd@silogic.com) by the 20th of the month for the next month's issue.

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General information:
Subscription to the TVA is included in the annual $25 membership (regular members) donation ($9 student; $35 family).

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Cosmic Comments – November/2014
by President Mark Baker

Charity Never Faileth… this phrase has stuck in my brain a lot of late. We have seen ample signs of it in the TVA… from those serving in our Outreach efforts, from those that donate their skills to create and provide presentations, from those that donate their time in keeping the Club a viable entity, from those that bring refreshments… these are all acts of charity towards your fellow Club and community members. Now we have an opportunity to make a difference in the science we all enjoy and we receive even more and more offers in Charity… money, buildings, equipment, and so on!! Some might construe such as our reward for our sincere and heartfelt efforts… but whether you consider it due blessings, or just coincidence, I hope it is a growing trend for the TVA. And I for one believe you all deserve the best for the positive differences you make… Charity Never Faileth in action – word and deed!! Thank you.

Clear and Dark Skies, my friends…

Aloha'oe Mahina
by Chuck Dyson

My usual luck is to setup for an astrological event and then spend time with clouds, haze, 100% humidity, or wind and dust; however, in the early morning hours of October 8 I was greeted with some of the best seeing and transparency that I have had all year. So I sez to myself “Chuckie this could be an eclipse to remember”.

To observe the eclipse in some detail I setup my 22X85 Garrett binoculars as they show the whole Moon and considerable crater detail. My two observing goals for the night were the Moon (no brainer here) and Uranus and at only 1 1/2*from the Moon even I should be able to find it.

At 02:20 right on time the eclipse started and the shadow started creeping across the Moon, at this time of the night creeping is not conducive to staying awake so after several minutes of watching the moon turn dark gray and umber I decided to go after goal item number 2. With Uranus only 1 ½*from the Moon and knowing that stars twinkle and planets don’t finding that planet should be dead easy except that because the seeing was so good the stars were not twinkling; so, time for plan B and that is first “star” that’s blue-green gets to be Uranus, found it.

With Uranus just a dot in the binoculars I soon decided to look for other objects in the area, enter Otto Struve 18 a double with the stars being of equal magnitude and easily split with the binoculars on this night of such good seeing. A sweep of the area also revealed another double Pisces 80 and it too was also cleanly split with the binoculars.

Time to look at the Moon again and by now it was almost completely eclipsed and showing a good deal of orange color but not as intense as I have seen in the past I felt the color was more serosangainous (some red cells with a lot of fluid) than blood red; but no matter still a lovely sight.

As the Moon was now in full eclipse and the sky was dark and clear I decided to see what else was worth looking at. First victim NGC 457 the Owl Cluster, the eyes were very prominent and the stars in the body were visible as points of light with direct vision, very satisfying views. Second victim M35 and it was a veritable garden of stars on this night; however, I did not go after NGC 2158 as I have never been able to observe it in anything smaller than my 4 ½ in refractor in the past, chickened out.

My third victim for the night was M44 the beehive and the cluster stars filled most of the field of view of the binoculars and this time I did go south and down after M67 I found it but no stars were resolved just a milky patch of light was seen, good hunting. As long as I was headed back to the moon I decided to stop off and M41 to view another gob of stars and I was not disappointed, stars 'O' plenty and all sharp and bright in the eyepieces.

I now enjoyed just looking at the Moon without any optical aid and just taking in the sight of a lunar eclipse, when I do this and the Moon is near the horizon I get the distinct feeling that the Moon just an orange ball about 400 meters away. This feeling was what I got while looking at this Moon; I find it a very enjoyable and amusing illusion. About this time the first bit of the Moon started peeking out from Earth's shadow and I realized that I had not had much sleep and the family dog reminded me that we need to visit the front yard. So, it was time to put away the binoculars, walk the dog, and say Aloha'oe Mahina (farewell Moon) and get some sleep.

Cheers All
Chuck Dyson

Looking Up – November 2014
by Curtis Croulet

Daylight saving time ends on the morning of Sunday, November 2.

Full Moon is on November 6 at 2:23 pm; **Last Quarter Moon** is on November 14 at 7:16 am; **New Moon** is on November 22 at 4:32 pm; and **First Quarter Moon** is on November 29 at 2:06 am.

Mercury will be in the morning sky reaches greatest western elongation on November 1. This means it's in the morning sky. This is Mercury's best morning apparition of 2014.

Venus went through superior conjunction with the Sun on October 25. "Superior conjunction" means it's in line with the Sun and it's on the far side of the Sun, away from the Earth. As November begins, Venus will be in the evening sky, but it'll set very shortly after sunset. You'll probably need binoculars to see it, and you'll need a clear western horizon. The viewing situation of Venus doesn't improve much during November.

Mars is in Sagittarius now. It's too small for viewing in amateur telescopes. It slides past the

Pluto from November 9th through 12th. **Pluto** itself is dim as ever, at magnitude 14.2. You'll need to move quickly to catch it after sunset, and you'll need a big telescope.

Saturn sets shortly after sunset at the beginning of November (acknowledging that last month I said it was "gone" by this time). Conjunction with the Sun is November 18.

Jupiter is a morning object as November begins, rising around 1:00 am on November 1. But it rises as early as about 10 pm on November 30. Jupiter season is almost at hand.

Uranus is in Pisces and **Neptune** is in Aquarius, both perfectly placed for evening observing. November's most famous meteor shower, the **Leonids**, peak in midday on November 17. But the preceding and following mornings should be worth a look.

Let's look up.

Art's column mentions two of the best planetary nebulae: the Dumbbell Nebula (M27) in Vulpecula and the Ring Nebula (M57) in Lyra. These are among the most easily found and brightest of all deep-sky objects. Art gives excellent directions for finding them, but, really, you should have at hand a good star atlas. These days there are several star atlases of an excellence only imagined 60 years ago, when I was just starting in astronomy. Most of the best star atlases are the handy-work of Dutch uranographer Wil Tirion. A "uranographer" is someone who draws star maps. For casual backyard viewers, I can recommend *The Cambridge Star Atlas* by Wil Tirion. Due to its handy size, I always take my copy of this atlas to star parties, just in case I need a reminder of the location of some bright cluster or nebula. If you have a more detailed atlas, such as Tirion's *Sky Atlas 2000.0*, you'll see that the Milky Way is dotted with numerous planetary nebulae. Even more minutely-detailed atlases are available, such as *Uranometria 2000.0* (2 vols. plus a catalogue), again by Wil Tirion.

Many planetary nebulae can be seen in small telescopes. Years ago I observed many of the summer planetaries from suburban San Diego with an 8-inch reflector. Some of them are extremely tiny, and they look like stars, but many are large enough to show a small disk at low or medium magnifications. Cygnus is a particularly good hunting ground for planetary nebulae, and it's still high in our sky at sunset.

Getting back to the Ring Nebula (M57), as Art indicates, it's easy to see in a modest telescope. You can even see it in birding binoculars, in which the Ring looks like a star. But for CCD imaging, the Ring is challenging due to its small size. A big telescope with a long focal length

can do wonderful things with the Ring, but it's depressingly tiny in images shot through my TeleVue NP101is refractor (101mm aperture and 540mm focal length). M27 (the Dumbbell) is much larger than M57, but it's still pretty small.

The largest planetary nebula in the entire sky is the Helix Nebula, NGC 7293, in Aquarius. It's directly east of the boat-shaped pattern of Capricornus. I'm not quite sure why 7293 is often called the Helix. In photos it looks to me like a giant version of the Ring Nebula. The Helix is so much bigger than the Ring because it's much closer: 700 light years, whereas the Ring is about 2300 light years away. In birding binoculars, the Helix can be easily seen as a fuzzy patch when viewed in a dark sky. It's probably impossible to see from a light-polluted suburb. Also in Aquarius, north of Capricornus, is NGC 7009, the Saturn Nebula. In most amateur scopes it's a tiny, bright, bluish-green oval, but in a big telescope at high power it shows thin projections sticking out from its long axis, giving it a vague resemblance to the ringed planet. The term "planetary nebula" was coined by William Herschel after his discovery of the planet Uranus in 1781. To Herschel, many of these little, fuzzy stars looked somewhat like a planet. But planetary nebulae have no relationship at all to planets. The term "planetary nebula," universally used in astronomy, is a misnomer.

Planetary nebulae are shells of gas that have been expelled by dying stars. Very small stars slowly burn out. Massive stars become supernovae and then neutron stars. Medium-sized stars, such as our Sun, eventually become white dwarfs, but before they reach that stage, they expand and pulsate and lose control of their outer layers, which are thrown off as shells that we see as planetary nebula. Unlike many objects in the universe, which can endure for billions of years, planetary nebulae exist for only a few tens of thousands of years, their gasses gradually drifting off into space. The nebulae glow because their gasses are excited by radiation from the white dwarf stars in their centers. A useful observing accessory is an OIII ("oh-three") eyepiece filter, which passes only the light from doubly-ionized oxygen in the nebulae.

Clear skies.

Quiz Answer from the last Newsletter

We all know that the first dog in space was named Laika. Whatever happened to her, anyway?

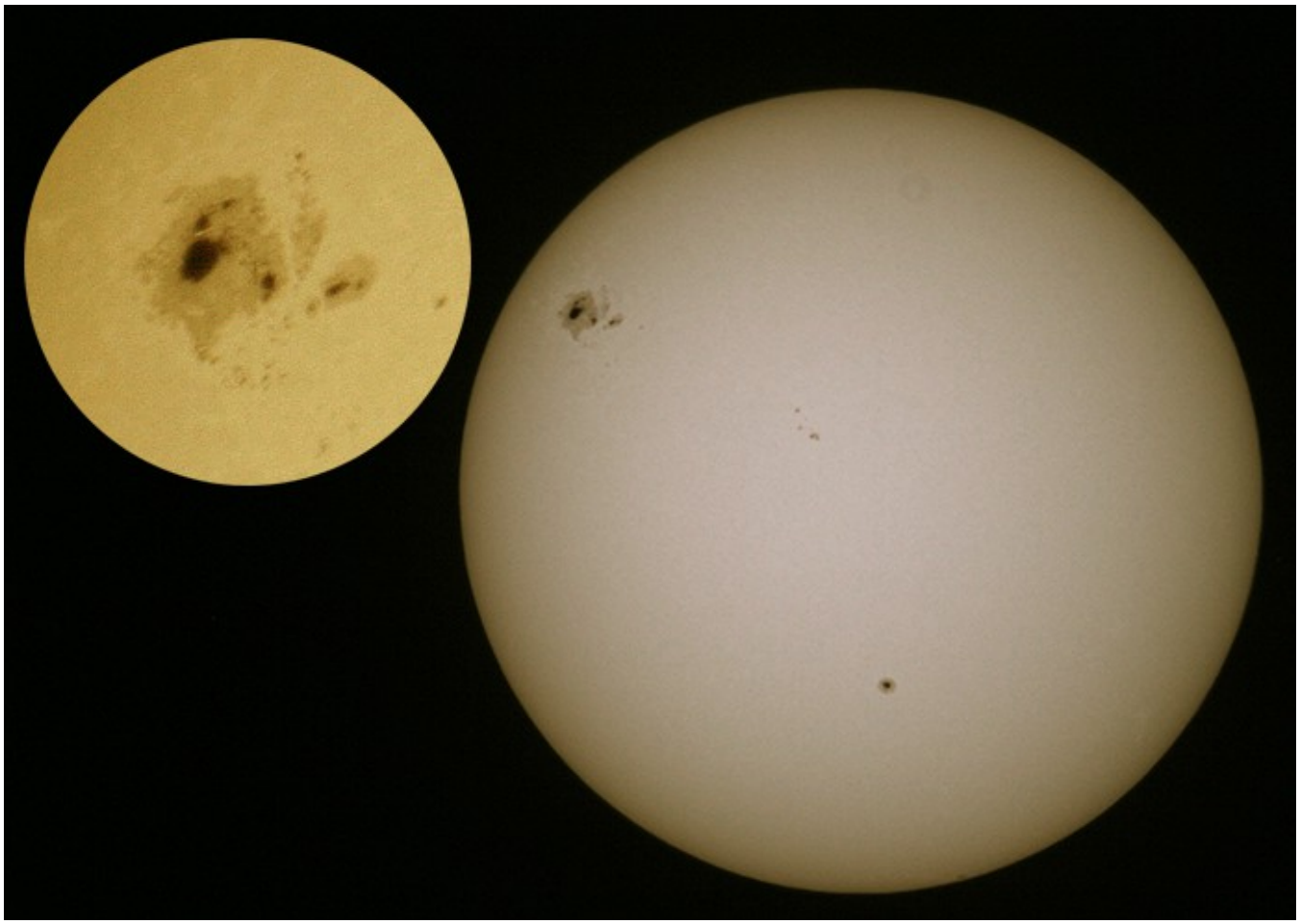
The Soviets never intended to retrieve Laika's capsule, which created a controversy outside the Soviet Union. At first it was believed that Laika simply perished from oxygen deprivation, but in 1998 it was reported that she died when the cabin overheated on the fourth day. In 2002 a Russian scientist reported that in 1957 it was "practically impossible to create a reliable temperature control system" for the cabin before the launch took place. In 1958 Laika's body

and Sputnik 2 disintegrated on re-entry. In 2008 a statue and plaque were set up in Laika's memory at the Russian space training base.

Quiz

When was the largest sunspot on record?

If you know the answer (without Googling it!) post it to <tva@mrh.org>.



19 Oct 2014 - Sunspots by John Garrett

23 Oct 2014 Eclipse by TVA Member Ray Stann (Nikon camera with solar filter)

Art's Night Out
Article 153 November 2014

Last month we were viewing several objects in the constellation Cygnus. Before I leave this area, I'd like us to find one other object that I left out. I am referring to the planetary nebula M-27. M-27 is also called the "Dumbbell Nebula". This object is located in the constellation Vulpecula, which is located just south of the star Albireo in the constellation Cygnus. Albireo I identified as the bottom star of the vertical beam of the "Cross" asterism in Cygnus. Albireo is the beautiful 'double star' that we located. The stars of Vulpecula are very close to the "Cross", only about 3-5 degrees south. As you look just south of Albireo, you will see two stars forming a line that runs east and west. The star on the west is Alpha and the star on the east is Star-15. Now look a few degrees south of Star-15 and you'll see another star called Star-14. This star forms triangle shape with Star-15 and Alpha. Just south of Star 14 you'll find M-27.

Through my 4.5" refractor from my front yard, this looks like a "not-so-perfect" ball of haze. I usually view most of the objects I tell you about using my 4.5" refractor with a 16mm eyepiece. This gives me about 45 power in viewing.

Once you have found M-27, look south again from there and you'll notice a couple of stars forming a straight line running east and west again. These stars are part of the constellation Sagitta. The star on the east side of this line of stars is Star Gamma. As you look to the west of Gamma, you'll see another star, Zeta. There are two more stars to the west of Zeta that are separated from each other and are the same distance away from Zeta. The northern star is Alpha and the southern star is Beta. These stars make up the most part of Sagitta. If you look half-way between Gamma and Zeta and south about 1 degree, you'll see another Messier object called M-71. M-71 is a small, faint globular cluster. Once again, I can see this from my front yard on a moonless, clear night, using my normal viewing set up.

Before we lose the Constellation Hercules, I'd like to take us there for a couple more of Messier objects. Hercules is located in our northwest sky area. Hercules has several stars making up the constellation; however, I'm going to locate only four for our viewing tonight. The four stars make up a "trapezoid" shape. Maybe I had better qualify this shape for you (in case the trapezoid is not the proper shape name). This is a rectangle with one end of two stars being farther apart than the opposite end two stars. In Hercules, the 'trapezoid' has the elongated part of the shape running north and south, with the two stars that are farther apart on the north side. Okay, look at the two stars forming the side of this trapezoid which is on the west side. The star facing north and west on this side is Star Eta. The star on this side that is facing south and west is Star Zeta. Look from Star Eta towards Zeta about 2 degrees. Here you should see a nice sparkling ball of stars called M-13. M-13 is a globular cluster that is one of the prettiest in our skies. As you get into dark sky areas and increase your viewing power to about 100 or more; you should be able to resolve (or see) hundreds of the thousands of stars that this cluster has. It is a very gorgeous sight.

For the next object in Hercules, look east of star Eta (the north/west facing star) about three degrees, and you should see another fairly bright star called Phi. Look north from these two stars and form an equal-sided triangle in your view. From that point, look east about 1 degree. In this area you should find M-92. M-92 is another globular cluster in Messier's list of objects. M-92 is much smaller to our sight and quite dimmer than M-13. However, it is still a nice Messier find.

For our next area of viewing, look about half-way between the constellation Hercules and Cygnus. Here you'll see a bright star; actually, it is the brightest star in that part of the sky. Surrounding this star are a few other visible stars forming the Lyra Constellation. The bright star is Star Vega. About six degrees south of Vega are two more stars running east and west. If you look to the east from the west most star, about 1/3 of the way, you should see a small hazy oval. This is the planetary nebula M-57 or the "Ring Nebula". Most planetary nebulae are fairly small to our viewing eye and are blue or green in color. This M-57 nebula has captured the attention of numerous photographers and imagers. If you have the opportunity to

view this in a dark-sky area, as you increase in viewing power, you can see a star in the middle of the nebula. This is a good judge of the quality of your scope.

Lastly, look to the north-east of Vega about two degrees. Here you'll see two faint stars if you have 45 power or a little greater. You'll need to be in a fairly dark sky area for our next view. If you can see the two stars, which are part of a double-star system, increase your power to find a star that is part of each of the two you had just found. This is known as "The Double-Double" binary system of stars in Lyra. These really are best viewed in dark-sky areas like Anza.

Hope you have several great viewing nights ahead. Until next time, Art