



## Events:

**General Meeting : Monday, May 4, 2015 at the Temecula Library, 30600 Pauba Rd, Rm. B at 7 pm.**

**Tim Deardorff with his What's Up in the night sky and Curtis Croulet presents the "Illustrated history of the building of Palomar Observatory". Curtis is a Master Docent at the Observatory.**

**For the latest on Star Parties, check the [web page](#).**



*[APOD](#): Ring Galaxy AM 0644-741 from Hubble*

*Image Credit: Hubble Heritage Team ([AURA](#) / [STScI](#)), [J. Higdon](#) ([Cornell](#)) [ESA](#), [NASA](#)*

## WHAT'S INSIDE THIS MONTH:

### Cosmic Comments

by President Mark Baker

### Looking Up

by Curtis Croulet

### Art's Night Out

by Art Cobb

### Art's Night Out Reloaded (May 2004)

by Art Cobb

### For Sale or Trade

Send newsletter submissions to Mark DiVecchio ([markd@silogic.com](mailto:markd@silogic.com)) by the 20<sup>th</sup> 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).

President: Mark Baker 951-691-0101

([shknbk13@hotmail.com](mailto:shknbk13@hotmail.com))

Vice President & [Facebook](#): Tim Deardorff 951-775-1036

([tim-deardorff@yahoo.com](mailto:tim-deardorff@yahoo.com))

Outreach: John Garrett 951-609-3021

([garrjohn@gmail.com](mailto:garrjohn@gmail.com))

Treasurer: Curtis Croulet ([calypte@verizon.net](mailto:calypte@verizon.net))

Secretary: Deborah Cheong ([geedeb@gmail.com](mailto:geedeb@gmail.com))

Club Librarian: Bob Leffler 951-541-5400

([bojleffler@msn.com](mailto:bojleffler@msn.com))

Star Party Coordinator: Deborah Cheong ([geedeb@gmail.com](mailto:geedeb@gmail.com))

Address renewals or other correspondence to:

Temecula Valley Astronomers

PO Box 1292

Murrieta, CA 92564

Mailing List: [tvastronomers@googlegroups.com](mailto:tvastronomers@googlegroups.com)

Website: <http://www.temeculavalleyastronomers.com/>



## Cosmic Comments – May/2015 by President Mark Baker

Here is an excerpt from last years' commentary... and it is upsetting to me that our Observatory complex isn't completed – yet!!! I have pushed on with added fervor and hopefully taken the steps to allow us to start putting it together in a very short time...so be ready!! Other than that, the following is still relevant and apropos...

“There is so much going on these days that I often find my mind drifting megaMiles and Billions of years from home. Which would be okay if I was still pursuing the same cosmological dreams I did in my youth... but I am not!!

These days, I find my reward in associating with professionally amateur Astronomers and interacting within the communities surrounding me. So I apologize if I got distracted... my mission going forward is to help find that spark that stimulates minds, young and old, to seek out even a small understanding of the celestial glories around us. And hopefully it is one of personal and particular intrigue...

Now with the opportunity to provide a Regional Observatory near at hand, I hope to get back to focusing on things of true import... NEO and Planetary studies. There is still so much to do in our own backyard and we amateurs are the ones that will, and have to, do it. And by making telescopes and imaging equipment available to the interested and dedicated, I hope to see many contributions made in the upcoming years from our humble facility.

Hopefully, many of my TVA friends will be along for the journey, as well as a whole new crop of students and scholars. Here's to the future....and many exciting events along the way!!! Who knows, asteroid TVA2014 or comet Garrett – Deardorff may just be right around the corner!!”

Clear, Dark Skies my Friends... coming soon to a neighborhood near you!!!





## Looking Up – May 2015 by Curtis Croulet

**Full Moon** is May 3 at 8:42 am; **Last Quarter Moon** is May 11 at 3:36 pm; **New Moon** is May 17 at 9:13 pm; and **First Quarter Moon** is May 25 at 10:19 am.

**Mercury** reaches its best evening apparition of 2015 around May 7. Look for it during twilight, before the sky is completely dark.

**Venus** reaches its greatest altitude above the horizon at sunset around May 21. Greatest elongation (angular distance from the Sun) is June 6. Venus brightens from mag -4.2 to -4.4 during May.

I was wrong last month about **Mars**. I gave up on its visibility slightly too soon. You might still be able to glimpse it in the western sky with binoculars at sunset as May begins. But it'll shortly be lost in the Sun's glare. Conjunction with the Sun is June 14. Next opposition is May 22, 2016.

**Jupiter** is now west of the meridian at sunset. Conjunction with the Sun is August 26.

**Saturn** is in Scorpius. The ringed planet rises around 9 pm on May 1 and shortly before 7 pm on May 31. Opposition is May 23.

**Uranus**, **Neptune**, and **Pluto** are now morning objects. Of the three, **Pluto** is best for observing in May, rising around midnight as May begins. Seeing **Pluto** is only half the battle; you must also identify it amongst a sea of 15<sup>th</sup> magnitude stars. Unfortunately, the magazines haven't yet published finder charts for 2015.

Two minor meteor showers occur in May: **Eta Aquarids**, peaking on May 6, and **Eta Lyrids**, peaking around May 9 or even as late as May 11. The **Eta Aquarids** may have decent hourly rates (possibly as high as 85 per hour), but the **Eta Lyrids** are sparse indeed, "peaking" at around three per hour.

Let's look up.

Spring has always been my favorite observing season. The spring sky is loaded with galaxies. Of the vast number of galaxies available in the spring sky, special attention must be drawn to the Virgo Galaxy Cluster. This galaxy cluster is sometimes called the Coma-Virgo Cluster, because it spreads across parts of both Coma Berenices and Virgo. The approximate center of the Virgo Cluster is about 54 million light years away. Dozens of the cluster's members are visible in amateur telescopes. Some of them are visible in binoculars. Many were cataloged by Messier. Within the Virgo Cluster is a notable arc of bright galaxies often called Markarian's Chain, named for the late astrophysicist Benjamin Markarian (1913-1985). The accompanying image shows the most spectacular part of Markarian's Chain.



Many of you are probably aware of different kinds of galaxies, the most important for this discussion being elliptical galaxies and spiral galaxies. Barred spiral galaxies, like our own Milky Way, are a sub-type of spiral galaxies. Elliptical galaxies are usually boring to look at, and CCD images of them aren't very interesting, either. They usually appear as nothing more than oval-shaped blobs. But they are very important subjects of study by astrophysicists. Usually they are mostly composed of very old stars. Elliptical galaxies are hypothesized to have resulted from collisions and mergers of smaller galaxies. Elliptical galaxies are often extremely massive, often much more massive than even large spirals like the Milky Way and Andromeda. Massive elliptical galaxies are frequently found in the centers of galaxy clusters, where they bind the clusters together with their gravity. Of course, we're ignoring the even greater gravitational effect of dark matter.



In the accompanying image of Markarian's Chain you can see two massive elliptical galaxies on the right side of the image. They are (L-R) M86 and M84. Just beyond the lower-left corner of this image is an even more massive elliptical galaxy, M87. The galaxies in the upper-left corner are NGCs 4435 and 4438. NGC 4438 is the one with the wing-like extensions. You're unlikely to see 4438's extensions in an amateur telescope. These two galaxies appear nearly equal in size and magnitude in a telescope, and they are often called "The Eyes."



Markarian's Chain, to say nothing of the Virgo Cluster, extends well beyond the frame of this image. A good star atlas will help to identify individual galaxies. But when I was young I was often happy simply to scan this area with a telescope, trying to get the maximum possible number of galaxies in one field. I should mention that this image also contains galaxies far beyond the Virgo Cluster, most of them very faint.

Clear skies.



## Art's Night Out Article 159 May 2015

With very mixed emotions, I am writing my final “**Art's Night Out**” article. I am more involved in writing studies on the Bible for the purposes of teaching, preaching and leading others in personal Bible studies. This is all a part of my call into the ministry a few years ago. As a result, I am finding my free time is becoming less.

I have thoroughly enjoyed getting out into our night skies and finding objects that I then can relay onto you how to find. I trust my articles have given you enjoyment as well.

As some of you know, my articles were born from a desire I had while recuperating from brain surgery. This is something I had never done before, nor even thought of doing until I was lying in bed in intensive care trying to focus on something. My brain seemed to be totally away from my body. By concentrating on writing an article for our newsletter, that would help novice astronomers find things in the sky, intrigued me. So, with several weeks of recuperating and lots of time to think, “Art's Night Out” was born.

I contacted Curtis Croulet (our President at the time) and ran the idea by him. I think his reply was; “*why not give it a try*”. I wrote my first article and sent it over to him to review. The rest is history.

I have talked with Mark DiVecchio and have given articles 26 – 158 to use at his and the club's discretion. I am hoping that these articles will continue on for several more years as an aid to those getting interested in viewing our awesome night skies.

Thank you all for the many encouraging words concerning the articles. I do hope they have a benefit for you.

Sincerely,  
Art Cobb



## Art's Night Out Reloaded

### Article 29 May 2004

Last month we spent quiet a bit of time in the constellation Leo looking at several visible galaxies. Leo is the forerunner to numerous other visible galaxies coming up in the constellations Virgo and Coma Berenices. Before we leave Leo, I want to point out a few interesting stars. The first challenge for you is going to be a variable star located about 5 degrees to the right or west of star Regulus. Regulus is the bright star which forms the bottom star of the "sickle" shape of Leo's head. As you look about 5 degrees to the right of Regulus you'll see a triangle of 7<sup>th</sup> magnitude stars; 18, 19, & 21 Leo. If you look just below star 19, which is the southern most of the three stars, you should see a fainter star, R-Leo. If you observe R-Leo over a period of several days, you should see a change in brightness. Observing variable stars requires a little patience and getting familiar with a given region or view of stars. R-Leo changes from a brightness of mag. 4.4 to a mag of 11.3. This difference should be noticeable over a period of a few weeks. A moderate scope at about 75X should give you a decent view.

The next challenge is going to be a nice double star in the "sickle" of Leo. Find star 41 or "Gamma-Leo". This one appears to be the brightest star in the actual "sickle" head. It will be the 2<sup>nd</sup> brightest star up about 8 degrees from Regulus and to the left about 4 degrees. The primary star of this double is a deep yellow at about 2.2 magnitude. The companion star is at about 3.5 magnitude and is separated by about 4.4" (arc seconds). Because of the brightness of the primary star "Gamma", separation will require a fairly decent optic scope at about 150X in dark skies. This is certainly not out of range for most of us.

If we look east of Leo's tale about 20 degrees, you'll see the constellation Coma Berenices. It is identified by 3 stars about 10 degrees apart forming a triangle. These stars are Alpha (southern most star), Beta (eastern most star), and Gamma (western most star). Locate star Alpha. Now move your scope approximately 1 degree south and east of Alpha. You should see a nice fuzzy globular cluster, M53. This is easily seen with small to moderate scopes at low power. I've easily located this with binoculars in Anza. Now, look just one more degree south and one degree west of M53 and you'll see another fainter globular cluster, NGC 5053. This is smaller in size than M53 and doesn't show as many stars, but it can be seen and with higher power you can pick up some resolution.

Okay, next find star Gamma in Coma Berenices, which is the western most star of the triangle, and form a line through star Beta out about 6 degrees and slightly north. You should see another globular cluster, M3. This is a very bright cluster actually located in the constellation Canes Venatici and can be easily seen with binoculars in fairly dark skies. Numerous stars can be resolved at moderate power. My 4" refractor @ about 75 power resolved several outer stars and displayed a nice bright core.

While viewing M3, look east again about 6 degrees and up north about ½ degree. In this field of view is another globular cluster, NGC 5466. This one is fairly faint, but can be seen in dark skies using moderate power. I could see this easily using my 4" refractor at 75 power in Anza.



Before we leave this area, I'd like to point out M-111 cluster again. I showed you this last year, and it's worth seeing again. Go back to Coma Berenices constellation. If you look at star Gamma again and directly south, you'll see a large open cluster. You'll need to use binoculars on this one as it's size is too large for scopes. I first saw this while reclining in my spa. It appears as a hazy patch in the night sky. I retrieved my binos and peered up again. Wow! It was very impressive. Definitely more stars than Pleiades, but just as pretty.

Continue south about the same distance as star Alpha-Coma. In this area will be another pretty double star, 24 Comae Berenices. This consists of a bluish and a slightly yellow star. The pair is listed as a 5.2 magnitude and 6.7 magnitude. They will appear almost the same size. The trick with these is the distance apart from each other. There is a 20.3" separation between them, just about 2/3 distance of the moon. You'll need a low power field of view to pick them up.

Good hunting!

Have a great summer. Until next time, Art

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The TVA is a member club of [The Astronomical League](#).



## For Sale or Trade

(a new and occasional column to help you find a new home for those old friends)

From Art Cobb:

Williams Optics Zenithstar 110mm triplet STM coated OTA  
 2" Durabright premium diagonal  
 2 speed feather touch focuser  
 metal carrying case  
 2 tube ring mounts  
 Excellent condition

Asking \$1400.00



From Bob Fuller:

- 1) The optical tube from a Discovery 17.5" F3.9 Telescope. This is left over from my Truss conversion. It's free to anyone who can come get it.
- 2) I also have about 3 feet of 20 inch Sono tube left over. It's also free
- 3) Orion 8 inch Intelliscope (XT8i) with two cheap eyepieces. My first good scope, but it sits in the corner now. It also comes with a Telrad and right angle finder scope. Price \$350
- 4) Celestron N10 10 inch F4.1 Newtonian OTA with Dovetail mount Price \$200