

## President's Message

*by Jon Stewart-Taylor*

We had two good club observing sessions towards the end of January, one at Starfields and one at Battle Acre. It was fun to get out under the dark(ish) sky with club members. As the season turns and the weather warms, I hope we can do this more often. Club sessions are scheduled the Friday and Saturday closest to Last Quarter, New Moon, and First Quarter, so if the weather favors us, we can collect some photons.

Very Important: If you have custody of any club property, please either post to the e-mailing list or send an e-mail to me directly. Identifying all the "things" we have is an important step to winding down the old CFAC.

We're trying some new things to publicize club activities. I've taken the liberty of creating a Facebook account for the club (search for Cape Fear Astro or Cape Fear Astronomical Society). I'll be trying to post to it every day, even if it's just an astronomical calendar entry, but all significant club activities will go there as well. If you have anything you'd like to add, e-mail it to me, or post via your own Facebook account to share.

I'm also posting to local calendar web pages such as the Port City Daily, Wilma, Encore, and WHQR. There was a brief discussion about possible publicity outlets on the e-mailing list. If you have any ideas, please send them to me.

Our public sessions at Carolina Beach State Park will resume in March, as the park's closing time shifts to 9pm. Public sessions aren't for everyone, of course, but it can be fun to share the skies, and the planets are going to be prominent this year.

Hoping for clear skies. -Jon

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## Observe Mars in 2020

That's the subject of the February Meeting Program. I plan to include the following: Mars' orbit: eccentricity, tilt, min. distance, max. distance; Mars' size, gravity, air pressure; Mars' seasons, dust storms, polar caps; observing and imaging Mars in 2020; its altitude, apparent diameter and seeing. The program will also touch on scope thermal control, telescopes, filters, cameras, image processing and possible outreach for CFAS. – *Karl Adlon*

## Cape Fear Astro Calendar

Events marked with ★ and bold are Cape Fear Astro events for the current Month.

### February 2020

- 02 First Quarter moon
- 08 Moon 1.5° from Beehive (M44), evening
- 09 Full Moon

### ★ 09 Cape Fear Astro Monthly Meeting

#### GAStronomy Meeting

**Sunday, February 9, 5:00pm – 6:45pm**

*(Dinner, prior to the Monthly Meeting)*

**Tequila Comida & Cantina**, 5607 Carolina Beach Rd Suite 130, Wilmington, NC 28412

#### Next CFAS Monthly Meeting

**Sunday, January 12, 7:00pm – 9:30pm**

212 DeLoach Hall, UNCW Campus

Program: **"Observe Mars in 2020"**

10 Mercury at Easternmost Elongation: 18° from sun, evening

15 Last Quarter Moon

★ 15 Club Observing – Location TBD

★ 16 Club Observing – Location TBD

20 Moon 1.75° from Saturn, morning

★ 21 Club Observing – Location TBD

★ 22 Club Observing – Location TBD

23 New Moon

Astro phenomena from

<https://www.universalworkshop.com/astronomical-calendar-any-year/>

## Tourist Traps #6: Objects for Late Winter and Early Spring

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"Tourist Trap" is my code-word for the objects to view during public observing sessions. They should have one or more of the following characteristics:

- ★ Easy to find, even in light-polluted conditions.
- ★ Able to stand up to a bright background sky.
- ★ Representative of a class of objects.
- ★ Unusual or distinctive trait or appearance.

I may be jumping the seasonal gun here, but here are some objects best during spring skies. They're at their best for public sessions during the usual 8-11 PM time in April and May. If you're not at a public session, there're available later at night earlier in the year.

**M97: Planetary Nebula (Owl)** in Ursa Major. This is one of only two planetary nebulae which could be called tourist traps for spring (the other is M1, which is technically a supernova remnant). You'll need a 4" or larger scope for the public to be able to see it well. Distance estimates vary, but it's about 3,000 light years away, and at about 3 light years across it's one of the largest planetaries. Like all planetary nebulae, the Owl is a shell of gas ejected from a star, and shines due to the energy of the star which created it. Under dark skies in a large scope it shows two "eyes" (dark patches).

**Alpha CVN: Double star (Cor Caroli)** in Canes Venatici. A beautiful double with a very subtle color contrast, which is easy to find even in light polluted areas. "Cor Caroli" means "the heart of Charles", and is probably named after Charles the 1st of England. The primary is magnitude 2.9, and is slightly variable (possibly due to giant starspots). The secondary is magnitude 5.6, and takes hundreds of thousands of years to circle the primary. The pair is about 130 light years away.

**M65/M66/3628: Galaxies (The Leo Triplet)** in Leo. All three of these galaxies are visible under dark skies in the same low-power field of view. Even under fairly bright conditions and in a small 'scope, M65 and M66 are pretty easy to make out. All three galaxies are about 20 million light years away, separated by about 125,000 light years, and are about 50,000 light years in diameter. M66 is a face-on spiral, M65 is another spiral, but tilted somewhat, while 3628 is an edge-on spiral with a thick dust lane running edge to edge. The three appear to be outlying members of the Virgo cluster of galaxies

**M3: Globular cluster** in Canes Venatici. At magnitude 6, M3 is one of the brightest globulars visible from the northern hemisphere. Although it's not terribly near any bright landmarks, it's pretty easy to find in binoculars or a finder. In a small scope it appears to be a bright core within a fainter haze, and larger scopes will begin to resolve the haze into stars. It's about 40,000 light years away, and contains as many as a half a million stars.

**M51: Galaxy (The Whirlpool Galaxy)** in Canes Venatici. This is actually a pair of interacting galaxies. A 4" or larger scope will show the pair, but an 8-10" scope is needed to show anything of the structure under public conditions. The main galaxy is about 35 million light years away, at least 50,000 light years across, and contains 100 billion or more stars. Interaction with companion galaxy 5195 has intensified star formation in the spiral structure. The companion is probably an elliptical galaxy, and may contain more stars than the spiral. It is also probably further away, as dust clouds in the arm of the spiral galaxy appear to cross in front of 5195.

**M104: Galaxy (The Sombrero Galaxy)** in Virgo. A fairly bright (8th magnitude), edge-on spiral with dark dust lane running from edge-to-edge. Under public conditions, you probably won't see the dust lane, even in larger scopes. In low-power fields of view, there's a small hammer-shaped asterism which adds to the visual interest. The asterism appears larger than the galaxy, but of course that's just perspective. The asterism is just foreground stars in our own galaxy, and probably about 2500 light years away, while M104 is about 50 Million light years away. M104 has a significant history in our understanding of the universe as well. It was the first galaxy found to have a high red-shift value. This indicated that it was much further away than was possible for it to be in our galaxy, and was one of the first steps toward recognizing the "spiral nebulae" as "island universes": galaxies like our own.

## January 19 Observing at Starfields

*by Karl Adlon*

While not a scheduled observing session, being a Sunday, as the 19<sup>th</sup> drew near it was clear that it would be a good night, though cold. And with the next day being Martin Luther King Day and some having the day off, Jon proposed an observing session. It turned out that only he and I were interested and willing.

As forecast, the skies started off a little hazy with thin clouds that mostly went away quickly. Jon was trying some things with his ZWO camera. I brought my Meade 8" SCT on a LX75 goto mount. Here's a list, from memory, of things we looked at:

Venus (to adjust finder), M42, the Trapezium, M43, M1, M45, M31, M32, M110, M33, Betelgeuse, Rigel, Capella, M36, M37, M38, M35, M50, M47, M46, M50, M93, M103, NGC 659, NGC 457 –the E.T. Cluster, NGC 2392 -The Eskimo Nebula, NGC 40, NGC 7662 -The Blue Snowball, Hind's Crimson Star and Mizar & Alcor.

Except for trying a 14mm Radian eyepiece on Venus, I stuck with a 31mm Hyperion giving about 65X and a bit over 1 degree field of view. Venus was more the ½ illuminated, very bright and pretty small in the eyepiece. I use my right eye almost exclusively for observing, but decided to have a peak with the left. The sight scared me until I remember that I see pretty OK during the day and even driving at night. Anyway, I'll save money by not buying a binoviewer!

While it was still low, and I did come back to it several times, I next went to the Orion Nebula. The 8" SCT was purchased use 2 years ago and I was pleasantly surprised that the Trapezium was quite easily split. We tried to find the Flame Nebula, but apparently conditions were not good enough at the time.

I bought the Meade 8" SCT used from a seller in Normal, Illinois as we were on our way to our new

home in Southport to take delivery of our furniture. At only \$250 for the optical tube assembly, I couldn't pass it up. Why that price? Because you had to pick it up. The seller had sold another and the shipper broke it! I hear this story often. Anyway, I thought that even if the optics were so-so, it would be good for public observing. So far, I am pretty happy with its performance.

Naked eye, Betelgeuse was obviously not as bright as it used to be, especially compared to Rigel. In the telescope, Betelgeuse had an orange tint while Rigel was bright with a blue cast to it.

Then we went from object to object, pretty much in the order above using the goto. M37, 36 & 38, from West to East, are all in Auriga and show how different Open Clusters can be from one another. Each one is interesting in its own right.

I wanted to go to Hind's Crimson Star but the goto wanted SAO numbers for most stars. Wait! I can look it up on my phone! Wikipedia says SAO 150058. I plug it in, wait for the mount to stop slewing and have a look. I don't see it. Hold it! What's that rather dim, very red star smack in the middle of the eyepiece? You guessed it. Dim yes but very red! Right now, it's the object I remember the most from that night.

After packing our equipment back into our respective vehicles we talked a little bit. I looked up towards Orion and Canis Major one last time for the night. The sky transparency was very good, making the bright stars appear much brighter against the almost black sky.

It was a beautiful end to a memorable night under the stars.

## The Time Machine

by Karl Adlon

A friend gave me this telescope; a Bushnell 76mm (3") Newtonian, 700mm focal length (f9.2). She explained that an older relative gave it to her but she never used it. And she lost the eyepieces. Maybe someone could use it. Are you sure? She repeated the story. I pick up the scope. It weighs almost nothing. One hand does it. Well, that's nice.

Once home, I take a peak in the focuser. Yup, the diagonal collimation is way off. I adjust the diagonal, main mirror and red dot finder – the battery works!

*Some time during this process I am transported back in time about 55 years! After asking for a telescope each Christmas, there's a Sears 3" f10 white scope near the tree. Somehow, Mom + Dad scraped up enough to get the oldest of six the thing he'd been asking for for a couple years. (If you consider that most things, like gas, are inflated more than 10 times, this was about \$200 today!)*

Monday night is not great, but I can see stars through the haze. I use a 20mm Plossl, the only 1-1/4" eyepiece that I have, giving 35X. It takes a bit, but I find Rigel, focus the scope and better adjust the finder. Next: the Orion Nebula! Huh! Are the skies worse than I thought? Maybe, but let's calculate: 76mm / 35X = a bit over 2mm exit pupil. OK, not a great deep sky scope. The mount is touchy at 35X, so not a great planetary scope.

*In my memory, I'm back at the white scope. The low power, plastic lens eyepiece gave 75X. No finder. So I looked at the Moon a lot and Jupiter and Saturn. I'd take the eyepiece out and move the scope around until I saw some light and carefully put the eyepiece back in. When I aimed at the middle "star" in Orion's sword, I could tell it wasn't a star. The 200X eyepiece was hardly ever used.*

200X in a 3" scope is 67X per inch. This was probably more than those plastic lenses could take, regardless of the quality of the main or diagonal mirror. So, given what I know today, I guess I got about the most I could out of the little white scope. Many Thanks to Mom & Dad!

Now, what to do with the little black scope?

In time, it will find a new home.



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Editor's Note: Used in this Newsletter, "Cape Fear Astronomical Society" may be abbreviated "CFAS" or "CFAstro".

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