Fort Bend Astronomy Club
P.O. Box 942
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The FBAC Observer

Volume 19, Issue 4

April, 2005

The CCD Chronicles

Wes Whiddon

A while back there was considerable discussion on Netslyder and in personal conversations about individuals using the club's ST-7 camera outside the confines of the dome. Some of us seem to be for it and others against it. A great deal of talk against outside use came from the notion that imaging is a difficult thing to do and operation of a CCD camera requires great perseverance and superior intellect to accomplish. Since I disagree with this assumption, (especially about the intellect part because, after all, I can do it), I would like to offer, in a series of articles, my experience—limited as it is—as an operator of a CCD camera. Notice I say operator, not imager, because, even though I've used several different CCD and video cameras over the course of the last few years, I still can't produce the kind of images you see every month in the back of Sky and Telescope and Astronomy magazines or when you look at Randy Brewer's web site. And by the way, I won't even attempt to get you anywhere near the level of imaging that someone like Randy has reached. Imagers like him are in a league of their own for reasons I will discuss later. But, laying all that aside, I think I can dispel the idea that imaging is hard to do. So, lets get started.

First though, I give to you a warning and then a story. CCD imaging is not rocket science but, like anything worthwhile, it takes practice. Notice that in the paragraph preceding this one, I did not completely deny that it takes perseverance. Practice makes perfect and imaging is no exception. When I first started out, my efforts were hit and miss because I didn't develop a plan for practicing things like focusing, exposure control, learning software, and other essentials that go with CCDing. To heck with the preliminaries, I wanted to take pretty pictures. It didn't take long for me to realize that failure was just around the corner.

To this day I don't remember exactly when and why I decided to begin electronic imaging. I tried using film a few times but light pollution doesn't treat film kindly, turning the sky a ghastly kind of green in most shots. So I put the old Nikon F body aside thinking I might take it up another day.

I suppose I may have been perusing the ads in Astronomy or Sky and Tel one day when I stumbled on the SBIG page featuring the ST-237A camera. As I sat there on the throne (and most of you know which one I mean), I realized I could buy a good CCD camera with color filter wheel for less than a king's ransom. Remember, I was sitting on the throne at the time so I made, after consulting the other half of the monarchy, a decision to buy one. In due course, I found myself standing in front of the counter at Land, Sea, and Sky, check book in hand, purchasing an ST-237A complete with color filter wheel. While I was waiting for the tape to stop winding out of the cash register and for the sales clerk to stop licking his lips, visions of astronomical objects in all their glory floated before my eyes. Colorful images of Andromeda, the Whirlpool, and Orion floated in inky black space filled with pinpoint stars. Darkness would fall, the heavens were waiting, and I would be their master. I was soon to learn there is much disappointment to be found when darkness falls.

Anticipation is one of our base human emotions. And since a lot of us have evolved, over the past few decades, into technocrats, we can't wait to get our hands on a new gadget. I raced home with my camera, hurried through the back door, slipped my penknife along the tape securing the box, threw back the flaps on the box, and there it was in it's neat little foam rubber cocoon, inert now but soon to come to life and convert ancient and invisible photons into electrons and back into photons for my viewing pleasure.

I was anxious to get started so as soon as twilight came, I drug my Celestar 8 out into the backyard, found Polaris in the light polluted skies, polar aligned as best I could, set up the camera, and attached it to the back of the scope. Seconds later I began to realize that the scope didn't like this much weight on its tail and it promptly began to sag backwards. I tightened up the declination bands on the scope and it seemed OK. By then I saw a sprinkling of stars around the sky so I slewed over to a bright one, cranked up the camera, made my first exposure…and saw absolutely nothing.

(Continued next month)

April 2005 Astro Calendar

SUN	MON	TUE	WED	THU	FRI	SAT
					1 Last quarter moon at 6:50 p.m. CST. Look for Luna in Sagittarius.	2 Sirius reaches its highest point in the sky, due south, 1/2 hour before sunset.
3 Luna 8 degrees right of Mars at dawn in Capricornus. CDT begins.	4 Jupiter just past opposition, rising within minutes of sunset.	5 Waning moon low in the east-southeast just before sunrise.	6 Find mag 2 Alphard in Hydra, the Water Snake. If you can find skies that good here.	7 Neptune sits only 3 degrees to the upper left of Mars.	8 New moon at 3:32 p.m. CDT. Partial solar eclipse can be seen from here.	9 View an exquisite, thin crescent moon early this evening.
10 Saturn in quadrature today, 90 degrees from the Sun.	11 Luna and the Pleiades convene together. A beautiful site.	12 Green laser night. Shine your laser into your neighbor's window and see what happens.	13 After posting bond, get out of jail and check out Arcturus near Jupiter.	14 **AOW Star Party, Faith Lutheran Church. See web site, fbac.org**	15 **FBAC Club Meeting. See Web Site, fbac.org**	16 First quarter moon at 9:37 a.m. CDT.
17 Orion low in the west soon to be bid adieu.	18 Regulus and the Waxing Moon. Nice title for a book.	19 Watch Mars near Gamma Cap for the next few mornings.	20 See the future. Early risers can see August stars.	21 Lyrid Meteor Shower before dawn tomorrow. Expected to be a flop.	22 See the moon occult Jupiter. Move to South Africa to catch it. Or Antarctica, take your pick.	23 Speed over to first mag Spica in Virgo. Did you know it's a variable?
24 Full Moon at 5:06 a.m. CDT. Penumbral eclipse in western part of U.S.	25 The Moon is oblong tonight because it's one day after full.	26 Mercury reaches greatest elongation.	27 Take time off from observing. Watch TV and improve your mind.	28 **Fort Bend Wine and Food Event, George Observatory**	29 **AOW Star Party, Dickinson Elementary School. See web site, fbac.org**	30 The Beehive is buzzing. Look for the Praesepe in Cancer.

GOING DEEP

Keith Rivich

A funny thought occurred to me the other night as I was contemplating the sky and thinking about this article; it seems that once a constellation crosses the meridian I sort of lose interest in observing there. My thoughts seem to be on what's rising in the east, not setting in the west! I suppose my attention is drawn to the "new" and sort of pushes the "old" to another part of my mind, for it will be "new" again in six months or so and I will be excited all over again. But this shouldn't be the case. For most of us observing from the Houston area the SW sky is the darkest and should be used the most for observing.

For this article I will break my bad habit by playing around in the neighborhood of the "Christmas Tree" cluster in Monoceros.

Monoceros, the Unicorn, is a non-descript constellation just to the east of Orion. It boast no stars brighter then 4th magnitude but it abounds with deep-sky objects for moderate scopes. To find our starting point draw a line from Meissa, the top of Orion's head, through Betelguese to a 4th mag star about the same distance away. This will be the star 8 Mon. 8 Mon anchors a line of three 4th mag stars (8, 13 and 15 Mon) extending to the NNE each about 3.5º apart. The northernmost star is part of the very nice open cluster **NGC 2264**, the Christmas Tree cluster. Its name becomes apparent when viewed due to its distinctive shape. Others liken it to an arrowhead pointing south. The open cluster is associated with S Mon (15 Mon), which is found at its center. The cluster is engulfed in a huge but very faint nebulosity, the southern part of which goes by the name of **The Cone Nebula**, a dark nebula which looks like a huge monolith in front of white clouds. But this dramatic effect is mostly apparent in long exposure photographs. I have tried many times to see the Cone but have not had any luck.

Now nudge your scope 3º E, slip in an OIII filter and give **Kohoutek 2-2** a try. K2-2 is a large, diffuse, ancient planetary nebula. In the club's 18-inch scope at 94x this planetary was quite difficult, even with an OIII filter. With perseverance I was eventually able to detect an elongated, egg-shaped glow between two stars. This planetary is very obscure, so if you do detect it you can count yourself among a select group of people who have ever seen it.

Go back to 15 Mon and picture a point about ½ of the way to 12 Mon and just a tad south. Scan around a little until you find a little comet shaped nebula, a.k.a. **Hubble's Variable Nebula (NGC 2261).** This most interesting object is fun to watch over time as the appearance of the nebula changes with irregular frequency. Once thought to be caused by the variability of the illuminating star it has been determined that the changes are caused by huge clouds orbiting near the star and casting shadows against the nebula. Way cool!

While centered on **NGC 2261** look near the SW edge of your finder scope and you will see the odd shaped open cluster **NGC 2251**. Instead of the being roundish, like its cousins, **NGC 2251** is elongated and flattened on one end, similar in appearance to the constellation Delphinus. About 45' SE of 2251 you will find the soft glow of **NGC 2254**, a ragged little cluster of 12-13th mag stars.

Lets move down our chain of stars to 8 Mon. Look with your eye slight E of this star. Do you see a diffuse glow? If you do then you have found the Rosette Nebula, **NGC 2237**. If the Orion Nebula did not exist the Rosette would be the showpiece of the winter sky. Easily visible to the unaided eye it comes alive with any optical aid. Central to the nebula is the open cluster **NGC 2466** whose ferocious stellar winds are sweeping away the interior of the cloud and is responsible its "rose" shape. Snaking through the brighter parts of the nebula are numerous un-named dark clouds similar to what can be seen in its summer counterpart **M20**, the Trifid Nebula. The Rosette is also unique, at least from my experiences, in that it responds equally well with all three popular narrow band filters, the OIII, UHC and H-Beta. It seems that with each filter you are looking at a different nebula! **NGC2466** is part of a cluster of open clusters, five in all that form a square pattern with **NGC 2252** at the center. The four corners of the square are made up of **CR 106**, **CR 97**, **CR107** and **NGC 2466**. Of the CR clusters 106 looks the most interesting as it is made up of around 30 stars with several in the 9th magnitude range. A DSS image shows a bit of nebulosity near the clusters center. Good hunting!

Object	Type	RA-DEC	Size	Magnitude
Kohoutek 2-2	PN	06 52 27 09 57 40	6.2'	12.5p
NGC2264	OC	06 40 59 09 53 42	4.1'	4.1
NGC2261	BN	06 39 09 08 44 52	2.0'x1.7'	N/A
NGC2251	OC	06 34 39 08 22 00	10'	7.3
NGC2254	OC	06 35 47 07 40 07	4'	9.1
CR106	OC	06 37 06 05 58 00	45'	4.6
CR97	OC	06 31 18 05 55 00	21'	5.4
NGC2252	OC	06 34 23 05 22 30	15'	7.7
CR107	OC	06 37 42 04 45 00	35'	5.1
NGC2244	OC	06 32 19 04 51 24	23'	4.8
NGC2237/38	BN	06 31 40 05 04 00	80'x60'	N/A

AQUARIUS
the water bearer

JOHN FLAMSTEED'S star map shows Aquarius as a young man pouring water from a jar, though the story goes that this was a mixture of nectar and water, the drink of the gods. The stream ends in the mouth of the Southern Fish, Pisces Austrinus.

Aquarius is the second of our 'water' constellations, the first is Pisces, both of which are constellations in the Zodiac. As with Pisces, when the Sun passed through Aquarius, it heralded the rainy season, an extremely important time for all cultures depending on agricultural activities for survival.

You will find Aquarius almost directly beneath the Western Fish in Pisces and to the right of Cetus, the Whale. Like Pisces, Aquarius is an old constellation. As the Water Carrier he is carved on stones of the Babylonian Empire and probably is still older that that period. In Egyptian mythology he pours water into the Nle at the season when the Nile normally overflows it banks and brings the much-needed water to the farmlands bordering that great river. The Arabs, also depending on water of the rainy seasons, adopted Aquarius from an earlier time. But because their religion forbids them from showing pictures of any living form, they show this constellation simply as a water bucket alone.

In Ancient Greece, Aquarius was at one time associated with Zeus, as the basic force giving rise to life. In another Greek myth Aquarius is identified with a man and his wife known as Deucalion and Pyrrha. According to the myth, in 1500 B.C. Aquarius (possibly representing Zeus) caused a great flood to wash over Earth. Deucalion's father, Prometheus, advised his son and wife to build a great boat and stock it with provisions. They did and the two floated in the world-sea for nine days and nine nights. Eventually they ran aground on Mount Parnassus.

Safe but lonely, the two sole survivors of Earth walked about as the waters became lower and exposed more of the land. What were they to do? They appealed to an oracle and were told to .."throw over your shoulders the bones of your mother." "But what does that mean?" Deucalion asked of his wife. Phrrha did not know either. At first she said that she refused to dig up the bones of her mother, but Deucaion guessed that the key to the message was different. "The bones of Mother Earth," said Deucalion, "must be stones." So as the two walked along they picked up stones and kept tossing them over their shoulders. After a while they looked behind them and there were people. The stones that Deucalion had thrown had become men, and those thrown by his wife, Pyrra, had become women.

And so the Water-Carrier, in the guise of Zeus, became the taker-away of life. This myth of a world flood and then a rebirth of life on Earth is a common one and can be found in many myths. Our only interest here is that the constellation Aquarius is the significant figure in this Greek myth.

As mentioned earlier, Aquarius is just one constellation in the area associated with water. The ancient Babylonians saw this part of the sky as the sea which includes Pisces, The Fishes, Cetus The Whale, Capricornus the Sea Goat, and Pisces Austrinus the Southern Fish. —Leonard Pattillo

AQUARIUS

COMMENTS	NGC/IC NO	NGC/IC DESCRIPTION	MAG.	DISTANCE	SIZE	UR PAGE	SA PAGE	R.A.	DEC
Galaxy	NGC 6945	Pf,Vs,R,mbM	13.5	----------	1.0'x0.5'	254/299	16	20h38.9'	-05º01'
Globular Cluster	M 72	pB,pL,R	9.3	56,000 LY	5.9'	299	16	20h53.5'	-12º32'
Open Cluster	M 73	Cl,eP,vlC	8.9	----------	2.8'	299	16	20h59.0'	-12º38'
Planetary Nebula	NGC 7009	Saturn Nebula,vry brite	8	----------	44'x23'	299/300	16	21h04.2'	-11º22'
Gobular Cluster	M2	!! Globular,B, vL	6.4	17,000 LY	13.0'	255/256	16/17	21h33.5'	-00º49'
Galaxy	NGC 7171	vF,cL,E,124º	12.3	----------	2.8'x1.7'	301	17	22h01.0'	-13º16'
Galaxy	NGC 7183	vF,pL,E 90º	14	----------	6.0'x1.4'	346	17	22h02.4'	-18º56'
Galaxy	NGC 7184	pB,pL,mE 64º,bet 3 strs	11.2	----------	5.8'x1.8'	346	17	22h02.7'	-20º49'
Galaxy	NGC 7218	pB,lE,1E,r	12.1	----------	2.8'x1.2'	301-346	17	22h10.2'	-16º40'
Multi Gal. Systm	NGC 7252	F,S,R,er	12.1	----------	2.2'x1.0'	347	23	22h20.7'	-24º41'
Planetary Nebula	NGC 7293	Helix Nebula, Bright	7.3	----------	12.0x10.0	347	17	22h29.6'	-20º48'
Galaxy	NGC 7301	vF,pS,lE	14	----------	1.0'x0.5'	347	17	22h30.4'	-17º34'
Galaxy	NGC 7300	vF,cS,E,vglbm	12.9	----------	2.2'x1.2'	302	17	22h31.0'	-14º00'
Galaxy	NGC 7302	F,pS,R, in a group of 2	12.1	----------	1.9'x1.3'	302	17	22h32.4'	-14º07'
Galaxy	NGC 7309	vF,pL,R,glbM,r	12.5	----------	2.1'X2.0'	302	17	22H34.3'	-10º21'
Galaxy	NGC 7371	vF,pL,R,lbM	12.1	----------	2.1'x2.0'	303	17	22h46.1'	-11º00'
Galaxy	NGC 7377	pB,S,vlE, Brite Core	11.6	----------	2.2'x1.8'	348	23	22h47.8'	-22º19'
Galaxy	NGC 7392	pB,pS,lE 120º	11.9	----------	2.0'x1.3'	348	17	22h51.8'	-20º1.3'
Globular Cluster	NGC 7492	eF,L,bet 2 stars	11.4	71,000 ly	6.2'	303,304	17	22h08.4'	-15º37'
Galaxy	NGC 7573	eF, S,iR,b,np	14	----------	1.6'x1.4'	349	23	23h16.3'	-22º10'
Galaxy	NGC 7576	Paired with NGC 7585	13	----------	1.5'x1.2'	259	17	23h17.4'	-04º44'
Galaxy	NGC 7585	Paired with NGC 7576	11.7	----------	2.3'x1.9'	259	17	23h18.0'	-04º39'
Galaxy	NGC 7600	cF,S,R,psmbM	11.8	----------	2.4'x1.1'	304	17	23h18.9'	-07º35'
Galaxy	NGC 7606	pF,cL,pmE 0º	10.8	----------	5.8'x2.6'	304	17	23h19.1'	-08º29'
Galaxy	NGC 7721	pF,cL,E 12º	11.8	----------	3.4'x1.4'	304	17	23h38.8'	-06º31'
Galaxy	NGC 7723	cB,cL,E,gmbM,r	11.1	----------	3.6'x2.6'	304	17	23h38.9'	-12º58'
Galaxy	NGC 7724	Barred Spiral, w7727	13	----------	1.9'x1.4'	304	17	23h39.1'	-12º14'
Galaxy	NGC 7727	Paired w ngc 7724	10.7	----------	4.2'x3.4'	301	17	23h39.9'	-12º18'

FBAC Meeting Minutes March 18, 2005

- Meeting Started at 7:43 p.m.
- David Jenkins welcomed everyone and introduced the officers.
- The Novice program, a continuation of last month's presentation, was given by Don d'Entremont on diversity in the Solar System, which included a survey of the planets and asteroids relating to current findings about planets.
- Break at 8:09 p.m.
- Break ended at 8:33 p.m.
- Main Program was given by Steve Goldberg on the Ins and Outs of the Texas Star Party (TSP)
- Librarians Report—brought about 50 books
- Secretary's Report—Minutes were posted to NetSlyder immediately after last month's meeting. Tonight's minutes should be posted either when I get home or when I log onto my Internet account tomorrow morning. Please submit any corrections to me via NetSlyder.
- Treasurer Report—Form 990 requested by IRS.
  The bank balance is $1404.00. The club owns around $20,000 worth of equipment.
- A-team Report—1 discovery but may be lost due to weather.
- East Dome Committee—We need to have a subcommittee to work on the ST-7. Dennis Borgman and Jim Ellis volunteered. Policy for all club equipment.
  - AIM regarding Quadrant 4
  - Discussion of East Dome Training issues.
- Earth Day Saturday, April 2nd at Brazos Bend State Park
  - Volunteers will be needed to man an FBAC area
- Dennis Borgman discussed the club loaner scope program.
  - Introduced the new C8 donation by Wes Whiddon
- AOW report—Leonard Patillo will post information on this to NetSlyder.
  - Terry Hiserodt discussed a possible AOW presentation at Dickenson Elementary in Richmond.
- Door Prizes/Chili's Count
- Refreshments for next month's meeting—the Goldbergs

Congrats to FBAC's own Shirley Mondshine, who won an 8" Meade LX-200 as part of the Telescopes For Telethon drawing.

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Dedicated to the acquisition and dissemination of information pertaining to the science of astronomy

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We're On The Web
Http://www.fbac.org

You are invited to submit your opinions for inclusion on this page. Please be thoughtful and respectful of others in your comments. Rants will not be published. All articles should be 450 words or less and are subject to editing for clarity and length before publication. Please submit in Word format to:
stargazer411@earthlink.net

The Fort Bend Astronomy Club meets on the third Friday of every month except for those months when special meetings are called. The next regular meeting will be at 7:30 PM on April 15, 2005 at the First Colony Conference Center, 3232 Austin Parkway, Sugar Land, TX. Dues are $30/year for the first member, $5 per additional household member. Student dues are $15/year.

The **Houston Astronomical Society** meets the first Friday of the month in room 117 of the University of Houston Research Building. The novice program begins at 7:00 PM and main meeting at 8:00 PM.

For the **Johnson Space Center Club**, refer to the JSCAS web site for meeting times and sites. There is a link on the FBAC web site.

North Houston Astronomy Club meets on the 4th Friday of the month at Kingwood College. The meeting starts at 6:45 PM, main meeting at 7:30 PM.