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COVER PHOTO COURTESY OF ED MALEWITZ

A WORD FROM THE PRESIDENT

Howdy Folks,

Just a few words here to thank those who attended the recent Fort McKavett Star Party. We had a really great turnout of telescopes and club members eager to share their time and eyepieces with the visitors. We had well about thirty scopes on the field and the skies cooperated even though there was a bit of wind to deal with. Buddy prepared what many considered his best barbeque ever on Saturday and quite a crowd turned out for the feed. After an afternoon of hiking and just being lazy, we were treated once more to Buddy's hospitality prior to the star party. There was a light visitor turn out and the skies were almost perfect. Every time I visit the Fort I get the urge to give Hernan a big hug for making the experience possible. What a great place to visit and enjoy for such a small effort. Thanks Hernan....hug to follow.

Bob Taylor





Star Party Report

By Lisa Lester

Photos by Ed Malewitz

Last weekend's star party at Fort McKavett was a big success! We had 44 people from the Houston area, Florida, and New Mexico attend the event. Thursday night the skies were clear and there was no wind. We all spent time catching up with the people we don't get to see very often. Also, everyone walked around checking out the new toys and the telescopes that were focusing on Fort McKavett skies for the first time. It was a great night for observing!

Late Friday morning a group headed into Menard to have lunch at Ojeda's Mexican Restaurant. The food was terrific as usual! After lunch, the group split up and some people drove over to Menard Elementary and Junior High. I would like to thank Ken Lester, Aldora Louw, Chris Randall, Ed Malewitz, and Judy Stanley for their help with the school presentation on Friday afternoon. We had some technical difficulties at the beginning of the presentation. While Ken, Aldora, and Chris worked on that problem Judy and Ed helped out by talking to the students and staff! Ken, Aldora, and I gave astronomy presentations to a very attentive audience. Judy brought piles of NASA photos, bookmarks, and information sheets for the students and staff and Ed took pictures of the activities.





On Friday evening, the 5th grade students from Menard Elementary came out to the fort to have a mini star party with us. Thanks to everyone who spend time with the students and I really appreciate all of you being willing to put your own observing and imaging on hold for the two hours that they spent with us. The students were pretty well behaved and had a great time. Even the girls who were spooked by the ghost of Fort McKavett said that they wanted to come back again!

Saturday was a very busy day at the fort! The fort hosted a reunion of the people who used to live there when the fort was a town. Buddy and his volunteers provided a wonderful BBQ lunch for everyone! After lunch, the Friends of Fort McKavett held their annual meeting. The fort is planning to take part in many activities next year. They are going to hold their March Living History event, host 2 star parties, and they will have a one-week camp in the summer.

By dusk, people were finding a little room in their stomachs for chilidogs and brisket sandwiches! As the Sun went down, the wind picked up and was gusty for the rest of the evening. The cooler temperatures and gusty wind deterred some visitors but about 24 people enjoyed looking through the scopes at a variety of objects. Overall, the weather was the best it had been in several years and no one seemed extremely upset that the wind was sending them to bed a little early Saturday night since they would have to get up the next morning in order to pack up and head home!





We have one more star party to look forward to this year. It will be at the Haak Winery on November 11, 2006. I hope that lots of you will be able to come out for this event and that the weather will be much better than it was in September!!!

October's Fort McKavett Star Party

Story by Ken Lester

Photo by Ken Steele

Once again the barracks at Fort McKavett are empty and the parade ground is deserted. As I walked the observing field on Sunday looking for 'lost items' of an astronomical nature, I reflected on what was maybe the best fort star party ever.

For a change the weather cooperated with clear skies all 3 nights. Only one, Saturday night, was windy to a fault. The temperatures, while a little chilly, were above freezing and very tolerable.

In addition to the good weather, the food provided by Buddy, his helpers, and the Friends of Ft. McKavett was superb. I would be surprised if anyone went hungry on Saturday! Even the left over brisket sandwiches Saturday night hit the spot. The quality of food was matched by the generosity of our JSCAS members as the Friends of the Fort more than recovered



the cost the food. The additional donations will contribute to a new washer and dryer at the fort to handle the fort's and park host's laundry needs.

The school visit went very well. Our visit to Menard Elementary on Friday afternoon was very appreciated by the kids, teachers and the principal. The fifth grade science teacher brought out his science class on Friday night to experience the heavens. It has been our experience that very few of the children we try to reach with out school program actually come out to the star party. When the principal asked if it would be OK for the kids to come Friday, we couldn't refuse. This Friday night visit by the students was a first. The principal writes a weekly column for the Menard newspaper. This week's column reviewed the great things that happened during the week in school. He included several paragraphs about their Friday night visit.

Astronomically, I had the opportunity to get some observing done. For some unknown reason, I have never been able to find the Helix Nebula. One of the first things I tried on Thursday night was the Helix. Located between Capricorn and Aquarius, the Helix lies near some 5th magnitude stars. Unfortunately, my tired old eyes had trouble seeing those stars. However, persistence paid off and I was finally able to locate this 7.5 magnitude nebula. Once I was in the correct neighborhood the nebula was easily visible with and without my OIII filter. I was astounded at how much of my 35 Panoptic's the field of view the Helix covered. At 16' in diameter, it is very large. This nebula should be "must see" on everyone's list.

Unfortunately, even great star parties must end. I'm already thinking about next March's star party!

Bigger than any scope we have!

Story and Photographs By Triple Nickel

The Leviathan or "The Big Telescope" is in Birr Castle. Birr Castle forms the outer edge of the town of Birr, County Offaly, Republic of Ireland. I had the fantastic pleasure of visiting this telescope and observing from the grounds right next to this behemoth September 29th through Oct 2nd, 2006. The following is about the scope and my visit.



The Shannonside Astronomy Club invited me to give a talk last year, 2005, right when hurricane Rita decided to pay us a visit. With my house targeted at ground zero for her arrival, I had to cancel my trip to Ireland. That was really hard to do. The club was gracious enough to invite me again this year for their annual Whirlpool Star Party (WSP). Don't picture the Texas Star Party in size and venue, but this is one of the largest gatherings in the United Kingdom and Ireland. Now, before I go any further, Ireland is NOT part of the UK. Okay, I made that mistake my first night of WSP. An officer of the Northern Ireland Police who is also an officer of the Irish Astronomical Society guickly corrected me. Phillip Baxter became my best friend and protector during WSP! Trust me... I needed his help, even if I had a hard time understanding him sometimes! He was from Northern Ireland which IS part of the UK. Okay, confused? I recommend visiting a map...I did and it helped. Anyway, the WSP is a three-day event with observing from the Birr Castle Demesne (pronounced De-main, not De-mes-nee, as I tried to call it), on Friday and Saturday nights. All day Saturday and Sunday are for guest speakers from all over the world, and that is where I fit in. I gave my talk on Sunday as the second to last speaker of the whole event! NO pressure eh? I was a nervous wreck by noon Sunday. The speakers were fabulous. The hosting was supreme! This is a class act and there I was in the middle of it. Anyway, long story short...my talk went well and in fact, I got invited to give the same talk to the WYAS, UK, annual meeting in May of 2007! WOO HOO!

The scope...it is amazing! I could not help but stand there in awe thinking that it was built in the same time frame as Fort McKavett...1845. When you think of it, it is absolutely amazing that this rich guy had the smarts and desire to build what became the largest telescope in the world, a title that lasted until 1930. And he didn't have Bob Taylor to help him make the mirror. How could it be done? Now, are you sitting down? The mirror is as wide as I am tall! Yep, 72 inches. Here is a picture of people standing in the optical tube...don't try this at home!



Pictured here are Lady Rosse, The Fourth Earl of Rosse, and Dr. Boeddicker. I'm thinking the Earl was a very short kind of guy, and his wife, well, she was a lot taller than him. Their history will be covered below.

The third Earl of Rosse, William, was given the title of Lord Oxmantown from his birth on the 17th of June, 1800. He was the eldest of three sons, all of whom were educated at home in Birr by private tutors rather than being sent to public schools in England. This type of education may have greatly helped William's natural instinct for engineering, practical aspects of which surrounded him on the Birr Castle demesne. Private tuition gave way to a university education when William was 18 years old. He then went to Oxford College, and graduated with a first class honors Mathematics degree in 1822. William joined the Royal Astronomical Society in 1824 and represented Co. Offaly (at that time known as King's County) from 1823 to 1834 in the House of Lords, supporting both Catholic Emancipation and the Reform Bill. He retired from politics to pursue his scientific and engineering interests and in 1836 he married Mary Wilmer-Field, a wealthy heiress from Yorkshire. Okay all you JSCAS single people, take note...marry rich and be a stay-at-home astronomer!!! The financial security from this marriage, as well as the ownership of Birr Castle (which his parents granted him before they left Ireland to live in Brighton, England) allowed him to realize his scientific ambitions and plans. Read this as to mean he could play astronomy all day long! In 1828 he published his first experimental results regarding the grinding and publishing of telescope mirrors in the *Edinburgh Journal of Science*. At the outset of his career William decided to publish all his results, in marked contrast to many other telescope makers. Sounds like Bob Taylor...always willing to share his smarts! In 1831, he joined the British Royal Society (and was its president from 1848 to 1854).

The first major telescope built by Lord Rosse was based around a 36-inch (91 cm) mirror. After experimenting with copper and tin alloys for the metal reflecting surface and developing his own steam-driven mirror grinding machine, this telescope was completed in 1839. Okay, now I finally get it.... Bob Taylor is the reincarnated Third Earl of...oh, never mind. This scope was supported in a frame which was a modification (and improvement) of a design by William Herschel. A circular track allowed this telescope to reach most areas of the sky. Despite this telescope being "home-built" (the mirror was cast in the grounds of Birr Castle) two contemporary expert observers confirmed it's quality and performance. This allowed significantly increased resolution of stellar objects. One of the experts (Dr. Thomas Robinson of the Armagh Observatory, well to the north) called it the most powerful instrument of it's time. Lord Rosse used the 36 inch telescope to study the Moon in greater detail than was previously possible, under a magnification of 900 times. He also studied star clusters and nebulae (fuzzy patches of gas) which earlier telescopes were incapable of resolving to any great degree. Remember, at this time in our astronomical history, there were no other galaxies! They were called nebula because they were only fuzzy objects.

Lord Rosse spent over three years building his next large telescope, "The Leviathan of Parsonstown" based around a 72 inch (183 cm) mirror, with which he hoped to confirm that some of the nebulae contained stars, hints of this being given by the 36 inch telescope. This telescope was basically a 17 m tube, suspended between two 15 m high walls, with a network of supports which enabled the tube to be moved freely in a vertical direction, but restricted horizontal movement to the extent that the total viewing time on any particular object varied from about 50 minutes for an object at the equator to about 2 hours for an object at the highest level. The vertical movement was contained between the lowest level of 15 degrees elevation and the highest level of 15 degrees beyond the vertical, i.e. a total vertical travel of 90 degrees. Again the mirror, made of Speculum, was cast in the grounds of the Castle, using 3 large crucibles and resulting in a mirror that weighed over 3 tons. Construction of the telescope and mountings took over 2 years but finally, on 15 February 1845, the weather cleared long enough for a short viewing of the double star Castor, which confirmed the potential of the new telescope. In April 1845, Lord Rosse was able to deduce the spiral nature of the M51 nebulae. For the first time in history, another galaxy was recognized.

The potato famine in Ireland prevented regular use of the telescope until 1848. The telescope was initially used to view Jupiter and the moon, although the bulk of the work done by the 72 inch was in the area of nebulae and star clusters. At the time it was commonly thought that these gas clouds were part of our galaxy. Lord Rosse observed many nebulae and was able to resolve spiral arms, indicating that at least some of the nebulae were more than just collections of gas. In 1923 Edwin Hubble showed, through his measurement of the distance of variable stars, that some of the starry nebulae were in fact galaxies separate (and in many cases larger), than our own.

Lord Rosse also realized that he was observing edge-on spiral objects and by the end of 1850, the number of spiral objects seen had reached fourteen. He made drawings of the objects he observed (astronomical photography was well established by the time of the fourth Earl, but the 72 inch telescope was too unsteady for the long exposures required), and noted various types of spirals. Lord Rosse studied M1 (The first object in Charles Messier's list of over 100 star clusters and nebulae) naming it the Crab Nebula, along with many other nebulae, including M51, M87 and the planetary nebula M27. Use of the telescope was hampered however, by the cloudy Irish weather and the necessity of replacing the metal mirror, which tarnished quickly, with the backup mirror, at regular intervals. I was told that it took 23 of the Earl's servants to operate the telescope. So much for a quiet night at the eyepiece!

In addition to Lord Rosse, visiting astronomers from many parts of the world came to use the telescope and it's fame was such that it is referred to in Jules Verne's early Science Fiction novel *"From the Earth to the Moon"*

"The distance which had then separated the projectile from the satellite was estimated at about two hundred leagues. Under these conditions, as regards the visibility of the details of the disc, the travelers were farther from the moon than are the inhabitants of earth with their powerful telescopes. Indeed, we know that the instrument mounted by Lord Rosse at Parsonstown, which magnifies 6,500 times, brings the moon to within an apparent distance of sixteen leagues."

Among the astronomers who took advantage of the telescopes unequalled light gathering power were J.L.E Dreyer, who later compiled the New General Catalogue of clusters and nebulae. Lord Rosse's son Laurence who became the fourth Earl on the death of his father in 1867 also used the telescope regularly and made the first accurate estimate of the temperature of the Moon. However, the instrument used for this work was the 36-inch reflector, which the fourth Earl had fitted with a drive to enable tracking of the Moon's movement. The 72-inch telescope was used less frequently and on the death of the fourth Earl it was dismantled.

The third Earl of Rosse occupies an important position in the history of astronomy. In the words of Professor Sir Bernard Lovell:

"He succeeded in an almost impossible task, the measure of which can be appreciated from the fact that his telescope remained the largest in the world for three-quarters of a century...... The Birr Telescope is a tribute to the third Earl's skill in engineering and optics: the results he obtained with it are a remarkable tribute to his observational skill and to his insight that such a device would record more of the depths of the universe than man had yet conceived. I have before me two illustrations of the nebula in Canes Venatici- a galaxy more than ten million light years away in space. One is a drawing made by Lord Rosse as he saw it in the Birr telescope. The other, a photograph taken a century later

by the 200 inch telescope on Mount Palomar. The identity of the two is dramatic and the spiral form of the galaxy is shown with far greater form in the drawing. It is to the everlasting credit of Lord Rosse that he discovered the spiral structure of the nebulae and thereby opened an avenue of exploration which today has lead us into the inconceivable depths of space and time."

There is a museum in the castle and the drawings by the Third Earl of Rosse are there in their original form. By the one of M-51 is a Hubble Telescope photo, and the details in his drawing are remarkable! He didn't miss a thing! We would be proud to have him as a member of our club for sure...but hey, we have CCD guys that beat Hubble all the time!

So, there you have a mild coverage of what is truly a major astronomical instrument in the history of astronomy. If it weren't for the Third Earl of Rosse, the nebulae would have remained nebulae for many years to follow. He proved they were galaxies. I have to tell you, that standing there on Friday, September 29th, looking up at a perfectly clear sky, the Leviathan behind me, the Whirlpool Galaxy, M-51, right in front of me, I was impressed. In order for the Earl to view M-51, the scope had to be tilted full up and beyond vertical to see the galaxy. It doesn't seem possible when you are there, but it was. Birr is at 53 degrees north latitude, and we were viewing Cassiopeia above Polaris, and the Big Dipper below Polaris at the same time. The horizon was well below the Big Dipper...and I can tell you this was strange to see...being a Texas astronomer. However, there was a price to pay! You could not see Sagittarius from there, and as y'all know, it is well within our capability here in Texas to see it.

Saturday night was rained out, so the beautiful, but cold and damp Friday night was all that we got for viewing during this year's Whirlpool Star Party. They substituted an astronomy quiz after the big Saturday night dinner, and boy was it fun. They formed teams from each table of diners, and I am proud to tell you, my table did not come in last! Nope, the table that came in last was a table full of astronomers that left early! Okay, we came in last! Are you happy? I mean to tell you, those folks know their astronomy! I did get all the International Space Station questions right! Only thing was, there were only three or four of those questions out of 100! Oh well, it was the best trip I have ever been on, and yes, their club is just like ours...only they sound different.



Triple Nickel in front of the Leviathan

CCD IMAGING AT THE FORT

Text and Photo by AI Kelly

It was a dark and stormy night. Well, OK, not stormy, but it *was* dark, thank goodness. Amid the low buzz of activity from Jack, Shane, Becky, Bob, Jim, Andy, and about twenty others, my scope and camera were busy tracking and accumulating photons from Sharpless 2-188. It was Thursday night, October 19, 2006, at the JSCAS Fort McKavett star party.

Jack Petersen and I had arrived at the Fort early that afternoon. We visited with other arrivals while marking our turf in a socially acceptable way and setting up our scopes, tables and chairs. Jack brought his 5" refractor on its beautiful home-built tripod, while I brought my new, nearly-self-motivating CGE-14.

Thank goodness I decided to do CCD imaging that very first night, since the following two nights were clear but far too windblown for my system to yield acceptable images. That first night was a dandy, though: clear, cold, and still. There was dew, but the Kendrick heater strip and a short dew shield kept the corrector plate dry.

Unfortunately, the dew was a problem for others. Jack borrowed my old 12V hair dryer and battery pack, but (as Randy pointed out) it made the noise of a belt sander while (as Jack pointed out) it was asthmatic. It wouldn't have blown out the weakest candle flame and the air it expelled was barely above ambient temperature. Time for a new one!

The imaging list I had compiled for the trip included five dim DSOs (deep sky objects). Each would require 2-5 hours of photon accumulation to reach acceptable signal-to-noise depth in unfiltered and red, green, and blue-filtered images. All these data are necessary to make a good color composite image.

I started with a planetary nebula remnant, Sharpless 2-188 in Cassiopeia, and that's as far as I made it through the list on the trip (*"imaging game called on account of wind"*). The accompanying image shows the results of staring at SH 2-188 for 2 hours and 20 minutes. I wish I had stared at it much longer!



THE "4 PEAKS EXPEDITION" TO TEXAS CITY NOVEMBER 16

By Paul D. Maley (pdmaley@yahoo.com)

We need your help to map invisible features at the south pole of the moon on the morning of Thursday November 16. The 7.5 magnitude star known popularly as SAO 138685 will pass behind the limb of the 18% illuminated waning crescent moon multiple times. It will disappear and reappear during a 5-minute period behind 4 rather high lunar mountains. We plan to view it from a set of sites located in the Texas City area. The star grazes the non-illuminated side of the moon about 14 degrees from the terminator (the line dividing the dark from the illuminated side of the moon). Such low moon illumination should make this really amazing to watch with the moon located 27 degrees above the east-southeast horizon (azimuth 111). The sun will be 20 degrees below the horizon. The objective is to accurately time the moments of each disappearance and reappearance using optical or video means. You will need a telescope capable of easily seeing the 7.5 magnitude star and finding it should be simple since it will be the only star situated next to the dark limb at the moment of the event. You can see the moon approaching the star as time passes.

Fig.1. The picture below shows the waning crescent moon courtesy of J. Chumack. The moon will look almost exactly like this on the morning of November 16. You can spot the 7.5 magnitude target star near where you see the dot on the right side of the dark limb.



This adventure is called "The 4 Peaks Expedition" because of the four prominent mountains at the SOUTH POLE that will interact with the star that we will be watching. You won't see the mountains because they are not sunlit, but a graphical depiction of what you are expected to see is illustrated in figure 2. We will assign stations perpendicular to the grazing occultation track so that each observer will be assured to something completely different from everyone else.

Fig. 2 The graphic below shows the predicted profile of the moon's edge with the 4 large mountains that will block out the star's light pointing downward. The view is exaggerated and is as if you are in a spacecraft located within a few miles of the moon. Such a profile was developed over the years partly using observations such as those you will make. An observer located at A should see 2 sets of disappearances and reappearances, while the one at B should see 4 sets, C should see 3 sets and D should see 1 set. By distributing our group along the path we can build a precise profile of the lunar terrain. The more observers, the higher the resolution.



This occultation is a perfect candidate for those who own video systems; but regardless of how you observe it, a source of time signals is mandatory so that we can link each timing to a specific lunar position. The **minimum** equipment needed is as follows:

a. <u>a 4-inch telescope or larger</u> with several eyepieces. It helps (but is not mandatory) to have a mount that tracks so that your hands are free. Expect dew to form so be prepared with a dew shield or zapper.

b. portable cassette tape recorder (fresh batteries and tape rewound to the beginning)

c. <u>portable shortwave time signal receiver</u> (such as can be found at RADIO SHACK) capable of picking up WWV on 5.0 of 10.0MHz. Use fresh batteries.

d. a watch (preferably digital) that is accurately set to time signals

The observation process is quite simple: just monitor the star and call out the moments when it disappears ("D") and then reappears ("R") in to the tape recorder while simultaneously recording the time signals! That's all there is to it. But you will have to be alert for multiple events. If you need any advice, please send an email to me at pdmaley@yahoo.com.

On Wednesday night at 7pm, I will have a GO/NO GO decision on my voice mail. Please call 281.2440208. If the event is a GO, we will meet no later than <u>4:00am</u> at Gulf Greyhound Park. See figure 3 for a map to the meeting point. But here are specific instructions:

"Go south on I-45 to exit 15 (Hitchcock). As you take the exit, stay on the feeder in the middle lane. Go through the first traffic light (at FM1764) and you will pass a Shell station on the right. Continue on for a couple tenths of a mile and there is a road that turns to the right FM2004. Turn right and follow it a little ways and you will see on your right a sign that says GULF GREYHOUND PARK on your right. Pull up there and stop with your flashers on. We will have a small caravan down to the University of Houston Coastal Center which is a few tenths of a mile south of there on the right.

There is the possibility of mosquitoes so bring repellant. Also, your site will be on the road so do not pull off the road as you could get stuck. We will drop you off at your designated site. There is also a possibility an oil tanker may pull in but the first station should flag it down so it does not proceed. The land is used for pumping about 330 barrels of oil a day.

This should be fun and scientifically beneficial in helping to improve the topographic knowledge at that part of the moon's limb. Please join the JSCAS observing team effort.



Fig. 3. Map to the meeting place. Kindly be here NO LATER THAN 4:00am Thursday Nov. 16 and we will deploy to our sites at 4:05am.

THE TIMELINE

Wednesday night Nov. 15

After 7:00pm... Call the hotline (281.2440208) to determine if the occultation is GO or NO GO.

Thursday morning Nov. 16

4:00am... Arrive at the meeting place shown in figure 3.

4:05am... Deploy to the sites. Begin your set up process.

4:50am... Run a short test to be sure your tape recorder records your voice and time signals evenly. Play back to verify.

5:06am... Turn on your time signal receiver

5:07am... Begin non-stop observing and recording

5:12am... End observation. Turn off equipment. Record information on your site location so you will have it for reference later. Check the site area to be sure you picked up all your equipment and left no trash.

5:15am... <u>Please return to meeting point and turn in your audio tapes</u>. Be sure they are marked with your name and phone number. If you have video, make a tape copy when and mail it to 4535 Cedar Ridge Trail, Houston TX 77059. Or if you are at JSC, call me at 281.2440208 and I can pick it up from you on site.

AN UNUSUAL SPACE OBSERVATION MADE FROM THE ATLANTIC OCEAN

Story and Photos by Paul Maley



Figure 1. The Delta II launch vehicle carrying the STEREO spacecraft hurtles through the smoke and steam after liftoff from Launch Pad 17-B at Cape Canaveral Air Force Station. Liftoff was at 8:52 p.m. EDT October 25. STEREO (Solar TErrestrial RElations Observatory) is a two-year mission using two nearly identical observatories, one ahead of Earth in its orbit and the other trailing behind. The duo will provide 3-D measurements of the sun and its flow of energy, enabling scientists to study the nature of coronal mass ejections and why they happen.

Lynn and I were recently on a 10-day cruise from New York to the Caribbean in October. I had hoped that we might be fortunate enough to be at KSC (the last stop on the cruise) during a rocket launch since it had been more than 20 years since my one and only launch experience. By coincidence our ship, the **Crown Princess**, docked at Port Canaveral, Florida from 7am-2pm on launch day for the STEREO mission and it was obvious we would not be there to witness the night liftoff.

While in the internet café aboard ship I heard someone talking about the launch and expressing interest in seeing it fly over. I told him my plan to watch it that night and when and where I thought I could view it. From the tone of his voice, I could tell his wife would have other plans for him.

However, knowing that the trajectory would carry the Delta rocket eastward from KSC gave me hope that our course back to New York would allow for an observation of the ascent trajectory regardless of whether anyone else but me was watching it.

A 15-minute window existed from 8:38-8:53pm that night and during this period my ship would be situated about 130 miles NE of the launch site. From an ephemeris I could see the trajectory of the Delta rocket would carry it from the SSW to SE and it would take nearly four minutes to travel horizon to horizon. The only questions were: 1) would the rocket actually launch, and 2) would the weather cooperate. Along the Florida coast the sky was brilliantly clear during the day; but as we moved toward the northeast we encountered scattered banks of clouds from 2pm – 7pm, and at dinnertime it was mostly cloudy. The prospects looked quite dim. Also, my camcorder battery was quite dead so if I did see the launch, I could not record it.

I had scouted the ship at night the evening before and there was virtually no place that was light free. I enquired about turning off lights and this proved to be completely impossible. There were just two spots, one on deck 15 forward where an open observation platform existed under the ship's bridge, and another area on deck 8, which was locked after dark. The open-air platform had no railings and by definition was locked except when in port.



Figure 2. Our ship. Notice the bridge, which is the dark horizontal projection on the left side. The deck 15 platform is just above the bridge itself.

After repeated contacts to the purser's office I was finally able to find a sympathetic ear. It was agreed that they would open both areas just for me to watch the rocket launch. At 7:45pm, I had my first look at both areas. A stiff 35-knot wind was blowing directly toward the ship from the northeast and the deck 15 option was quickly eliminated. It was literally impossible to find a place there that would not have blown me off the ship entirely. That left deck 8 forward of the lifeboats.



Figure 3. Deck 8 is the area on the right side just forward of the right-most lifeboat. There are 4 port holes to the right and I was situated just above and to the right of the right-most of those four. My view of the port side (opposite side) of the ship was completely blocked but the starboard size view was completely unobstructed from elevations ranging from 0 degrees to about 40 degrees, provided I leaned out over the railing.

After resetting my watch to GMT from the internet kiosk aboard the ship, I began the watch at 8:32pm to get dark adapted in case the launch took place on time. Even on deck 8, I was being pounded by the 35 knot wind and I had to roll up my star charts tightly to prevent them from being carried away. As the minutes ticked by the clouds more or less dissipated and the faintest stars I could spot naked eye were around +4 low in the south. The steam from the ship's engines were blowing directly backward so that from about azimuth 180 eastward it was basically possible to see stars.

I kept looking at my watch realizing that at 8:52 only one more minute remained before the end of the launch window. It was completely unreasonable to think that the launch had not been scrubbed already. However, just as I was about to give up I saw two star like objects moving eastward from behind the ship superstructure. One was 2.5 magnitude the other trailed behind by a few degrees and was 3rd magnitude. The second object was seen to glint three times before it vanished. Both drifted into a cloud but the one lead object popped out at magnitude +2 and kept slowly rising in brightness and in diameter. The object was finally recognized as a rocket exhaust, which gradually took on an orange – red color and began to reveal a trail behind it. The trail lengthened to about 9 degrees and in overall brightness to -4 magnitude in the southeast as it slowly descended in elevation. The diameter of the rocket plume was perhaps only 0.25 degrees but it was totally impressive. After a little more than two minutes the rocket stage appeared to burn out completely, then a brief flash 10 seconds later was seen never to reappear again. It was an amazing sight and I regret not having a way to document it. There was nobody else about and the bridge was pointed in the wrong direction so I expect nobody there could have seen it.

I searched the internet in an attempt to find a photo that might simulate would I saw, but none that matched my observations could be found. Yet look at the drawing of a previous Delta launch in figure 4. If you turn it so the tail is pointing back nearly straight at you, that provides some idea. Then take the upper portion of the tail and accentuate it, delete the lower portion completely and we are getting even closer. The plume was quite clearly noticeable with the unaided eye as were lines along it in the upper hemisphere.



Figure 4. Observation of a Delta launch in flight.

Launch Timeline				
Т-00:00	Liftoff			
The Delta 2 rocket's main engine and twin vernier steering thrusters are started moments before launch. The six ground-start strap-on solid rocket motors are ignited at T-0 to begin the mission.				
T+01:03.1	Ground SRM Burnout			
The six ground-start Alliant TechSystems-built solid rocket motors consume all their propellant and burn out.				
T+01:05.5	Air-Lit SRM Ignition			
The three remaining solid rocket motors strapped to the three remaining solid rocket motors strapped to the Delta 2 rocket's first stage are ignited.				
T+01:06.0	Jettison Ground SRMs			
The six spent ground-started solid rocket boosters are jettisoned in sets of three to fall into the Atlantic Ocean.				
T+02:11.5	Jettison Air-Lit SRMs			
Having burned out, the three spent air-started solid rocket boosters are jettisoned toward the Atlantic Ocean.				
T+04:23.3	Main Engine Cutoff			
After consuming its RP-1 fuel and liquid oxygen, the Pratt & Whitney Rocketdyne RS-27A first stage main engine is shut down. The vernier thrusters cut off mo- ments later.				
T+04:31.3	Stage Separation			
The Delta rocket's first stage is separated now, having completed its job. The spent stage will fall into the At- lantic Ocean.				
T+04:36.8	Second Stage Ignition			
With the stage jettisoned, the rocket's second stage takes over. The Aerojet AJ118-K liquid-fueled engine ignites for the first of two firings needed to place the upper stage and STEREO payload into the proper orbit.				
Data source: Boeing.				

Taking a look at the timeline above, actual launch was reported to have occurred at 8:52:00.39 pm. I noted the burnout of the bright object at 8:54:30pm (approximately) and the flash at 8:56:41. The main engine cutoff is most likely the burnout event and the flash the second stage ignition.

As of this writing the STEREO spacecraft are in orbit and hopefully will have a successful mission. The next time you travel near Florida regardless of the reason, always check the KSC launch calendar in case a launch of some kind is scheduled. You might get lucky!

Sixth Annual Houston/Beaumont Regional Astronomy Meeting

By Ken Steele

Pictures by Randy Brewer

The Sixth Annual Houston/Beaumont Regional Astronomy Meeting was held Friday, October 27, 2006 at the Houston Community College Administration Building. All six regional clubs were well represented. Besides Bob Taylor and our own JSCAS, there was Houston Astronomical Society, North Houston Astronomy Club, Fort Bend Astronomy Club, and the Astronomical Society of South East Texas (from Beaumont). The George Observatory was also represented.





Each club president, as well as select other members, participated in a fun and interesting evening, punctuated first by a series of door prizes awarded to many individuals, with prizes ranging from eyepieces to children's books, as well as charts and viewing aids. All of us were reminded about the purpose of our meeting, to support Astronomy Day and educate the public.



After a short break involving sampling the six cakes decorated with our respective club insignia, we continued on with the meeting with a fascinating talk by astronaut Dan Burbank about the latest flight to the ISS. He had a great series of slides and short movies to illustrate his talk and we easily could have kept him there a lot longer with questions, but unfortunately time ran out.

Astronomy Day at the George Observatory

By Ken Steele

Photos by Randy Brewer

Yet another successful day and night at the George Observatory was had by all on October 28, 2006. The day was cool and clear. The night was even better, with the Milky Way visible, as well as the moon, and, if you knew just where to look, Comet Swann was telescopically visible. Perfect for a public who all too often doesn't know just what wonderful things there are to see in the sky.

Our club members were there of, course, manning tables and answering questions from the arrival of the first visitors to when the last visitor left for the evening. Just look at the pictures below to get a brief glimpse of all we did, in conjunction with the other clubs. Educating the public is one of the best things we can do for the long term future of amateur astronomy. Every star party you attend is one more chance to capture someone's imagination.













November 2006

Summary for the 15 Nov 06

Object	Const	Mag	% III	Rise Time	Transit	Set Time
Sun	Lib	-26.7	100	06:45	12:04	17:24
Moon	Vir		20	02:02	08:17	14:31
Mercury	Lib	1.0	19	05:40	11:12	16:44
Venus	Lib	-3.9	100	07:11	12:26	17:42
Mars	Lib	1.6	100	06:12	11:36	16:59
Jupiter	Lib	-1.7	100	07:09	12:26	17:43
Saturn	Leo	0.6	100	23:57	06:32	13:07
Uranus	Aqr	5.8	100	13:48	19:34	01:17
Neptune	Сар	7.9	100	12:34	18:03	23:27
Pluto	Oph	14.0	99	08:58	14:22	19:49

Highlighted times denote daylight events.

★ SSO: (Solar System Objects)

Lunar phases for November 06

Full 💛	Third 🕩	New 🛡	First 🌓
5 th 06:58	12th 11:45	20th 08:01	28th 00:29

Central Standard Time

Solar Transit of Mercury on November 08, 2006

This Transit is mostly visible here in Houston, but it is better on the west coast. Many details are available on the Inter net for the event. **Remember Safe Solar Viewing**, Our times for Houston are:

Event	Universal Time	Position Angle on Sun	Local Time	Altitude in Sky
Contact I	19:12:04	141°	13:12	41
Contact II	19:13:57	141°	13:14	41
Greatest Transit	21:41:04	205°	15:40:48	23
Sun Set	23:40		17:46	0.5
Contact III	00:08:16	269°		
Contact IV	00:10:08	269°		

For more details http://sunearth.gsfc.nasa.gov/eclipse/OH/transit06.html

★ **BSO**: (Bright Sky Objects)

NGC 224 (M 31) - Galaxy in Andromeda, Magnitudes 4.4, Size 180' x 63'.

NGC 752 (C 28, Mel 12) – Open Cluster in Andromeda, Magnitudes 5.7, Size 50', Stars 60.

NGC 457 (C 13, ET, Mel 7, Cr 12) – Open Cluster in Cassiopeia, Magnitudes 6.4, Size 13', Stars 80.

NGC 129 (Cr 2) – Open Cluster in Cassiopeia, Magnitudes 6.5, Size 21', Stars 35.

★ **DSO**: (Dark Sky Objects)

NGC 188 (C 1, Mel 2, Cr 6) – Open Cluster in Cepheus, Magnitudes 8.1, Size 14', Stars 120.

NGC 598 (M-33) - Galaxy in Triangulum, Magnitude 5.7, Size 66' x 38'.

NGC 55 (C 72) – Galaxy in Sculptor, Magnitude 8.2, Size 32' x 6'.

NGC 185 (C 18) – Galaxy in Cassiopeia, Magnitude 9.2, Size 12' x 9'.

★ **CDMP:** (Chris' Don't Miss Pick)

NGC 253 (C 65) – Galaxy in Sculptor, Magnitude 7.1, Size 28' x 7'.

NGC 253 was one of the major discoveries of Caroline Herschel, the sister of William Herschel. She discovered this object on September 23, 1783. The common name for NGC 253 is Silver Coin Galaxy; it is also known as the Sculptor Galaxy. It is the brightest member of the Sculptor group of galaxies, which is grouped around the South galactic pole (therefore, also sometimes named "South Polar Group").

This object is contained in many observing lists such as; the SAC 110 best NGC object, the RASC's Finest N.G.C. Objects, John Caldwell's observing, and Caldwell 65 in Patrick Moore's lists.

Many pictures and more further information can be found at <u>http://antwrp.gsfc.nasa.gov/cgi-bin/apod/</u> apod_search?ngc+253, and <u>http://www.seds.org/</u>, or <u>http://www.ngcic.org/</u>.





Fort McKavett Photos

Ed Malewitz

Piper Hommel















Fort McKavett Photos

Ken Steele











Member's Gallery



Randy Brewer



Des Wells (father of Chris) - Taken in England





Chris Wells—Taken at the Fort, complete with Laser

NEW STAR PARTY FROM THE KINGSVILLE ASTRONOMICAL SOCIETY

Dear fellow astronomy clubs,

The Kingsville Astronomical Society is planning our fifth annual Deep South Texas Stargaze coming up January 17-21, 2007 (Wednesday, Thursday, Friday, and Saturday nights). It is held in the warm climate of South TX, at 28 degrees north latitude. Held at Escondido Ranch, 2 hours south of SanAntonio, 5 hours southwest of Houston. Very remote, dark sky location (7+ magnitude skies). A/C & heated lodge accommodations available, as well as RV sites, and tent camping. Restrooms with hot showers (no towels or bed linens provided). Although participants will have to provide their own food, there is a cooking/food preparation area available, as well as full-size refrigerators in each room.

Please publicize this information in your astronomy club, particularly in your November and December meetings and newsletters. I have enclosed a flier with more information that you could reproduce and distribute to your group. If you have any questions, please do not hesitate to call me.

Jason Fry, Registrar Deep South Texas Stargaze dstsreg@hotmail.com 361-572-2632

November Meeting Agenda

November 10th, 7:30 p.m., Center for Advanced Space Studies/Lunar Planetary Institute, 3600 Bay Area Blvd. (at Middlebrook Drive).

- Welcome!!!
- Speaker to be announced
- Break
- SIG reports, Star Party News
- Astronomical Oddities Hernan Contreras
- Last Words, Door Prizes

Any unfinished discussions can be continued over food and beverages at a location to be announced at the end of the meeting.