

# NOVAC

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## Official Notice

The Annual Meeting of the Northern Virginia Astronomy Club (NOVAC) will be held on January 9, 1996 at 7:30 P.M. EST, at the abode of Brenda Jones : 883 N. Kentucky Street, Arlington, VA..

## President's Column

by Bob L'Hommedieu

### NOVAC ELECTIONS

Next month we will hold our annual elections for club officers and board members. None of the current club officers will be seeking re-election this year. Our current officers have served two terms with the exception of Brenda Jones who has been our Treasurer for four terms.

This presents an opportunity for other members to come forward and lead NOVAC. I believe that is a good thing for the health of our club. Fresh ideas and fresh faces will help see that NOVAC stays in touch with what the members want out of our club.

Serving as an officer is a fun and interesting experience and is an excellent way to meet new people and to help our club. I know that we have members who are willing to serve and would do a fine job, but are reluctant to volunteer because they feel they lack experience. I know this because I did not get involved myself until some one asked if I would run for Secretary four years ago. At first I was reluctant, but the more I thought about it, the more I wanted to do it and I am very glad I did. If you would like to serve as an officer or a board member, please let me know. Nominations for office will be open until December. □

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# The Recreational Astronomer: Family Astronomy

By Jon Stewart-Taylor

Welcome back to the Recreational Astronomer. In this issue, I'll describe a night of Family Astronomy as it happened this summer. Along the way I'll point out some of the important techniques and attitudes that keep Family Astronomy focused on the Family, and help make the night a successful and positive experience for everyone. August 25th, 1995 was a very special night for us, not just because it was perfect weather for astronomy, but because we turned it into a night of Family Astronomy. At noon the weather was beautiful, and I was hoping it would continue through the evening. I knew that Kathleen would have the kids (5-year-old Gregory, 3-year-old Fiona, and 12-month-old America) out at a friend's house until almost dinner time, so I planned to get home a little early to get everything ready to go. In Family Astronomy, the emphasis has to stay on the Family, rather than the Astronomy, and the astronomy things to pack are a small minority compared to the family things. Dinner was the first step: sandwiches for simplicity, several "fun" snacks (defined as almost anything they don't get every day), water and boxes of juice, and lots of napkins for spills. Next was America's diaper bag, and Gregory and Fiona's pajamas. After that it was toys and activities (both active and quiet) for the kids, and lots of blankets to make nests for them when it was time for bed. Everything was arranged near the door for fast loading into the car.

When Kathleen arrived, I met her in the parking lot and asked if she wanted to go to Savage for an observing session. She looked at the weather, looked at me, and said yes. What if she hadn't? Well, the 'scope and other astronomy stuff weren't out of the basement yet, and most of the other things would be just as useful for a picnic at a playground or park as for an observing session. But she did agree, and took the kids in to use the potty while I loaded the car. 15 minutes later we were heading for the toll road.

From Reston to Savage is a long drive for young ones, so we played one of their favorite story tapes (Anansi, read by Denzel Washington). After the tape ended we were still about 20 minutes from the site, and the children were getting hungry, so we gave them each a small bag of dry cereal and raisins. We arrived well before dusk, and walked around the site with the older kids, showing them where they were and weren't allowed to go, and telling them why.

After that, Kathleen kept an eye on the children while they ran around like wild ferrets, and I unloaded the car. Dinner came out first, then the kid's toys and blankets for their nests. We ate dinner while admiring the stars as they came out. As the dusk deepened, we broke out the glow-in-the-dark bracelets. Not only do the kids love them, but they let us keep track of where they are in the dark.

The weather was unusually clear, with the temperature about 80. There were small patches of clouds at the west and south horizons, but they cleared as it got darker. As the darkness deepened, we could tell it would be an extraordinary night. We reached limiting magnitude 4 shortly after dusk. By full twilight, the Milky way was showing very clearly. We watched for satellites, and saw 3 or 4 in the first hour.

I unpacked the scope, but just to get it started cooling for later. Rather than trying to use the scope, we chased the kids, and just watched the sky. By this time the clouds had completely disappeared. We saw several meteors in Sagittarius and Scorpius heading west, and told some Coyote stories to the kids: "Why There are Meteors" and "How the Stars Were Made".

As Gregory and Fiona started to settle down, I started finding some objects which would interest them in the scope. Jupiter was first, and Gregory commented on the 4 moons. Fiona wasn't quite sure what to make of it. Next I found M6 and M7. I also found it's hard to use a Telrad while holding a wiggly 1-year-old. The open clusters weren't as successful with the children, but Kathleen liked them. Mostly we lay on blankets and just looked at the brilliant stars, and the Milky Way as it flowed overhead.

After that I spent a lot of time carrying America, and helping to get Gregory and Fiona into their pajamas, and settled in their nests. They weren't sleepy yet. We told them they could stay awake and watch for meteors as long as they wanted, but they had to stay in their nests. It was a big treat for them to stay up late. An hour or so past their usual bedtimes it seemed like they were getting too sleepy to function, but too excited to sleep, so we put a tape of their usual bedtime music in the boombox. That finally settled them down, and they were asleep within 15 minutes.

For the next hour Kathleen and I took turns playing with the distressingly unsleepy but charmingly cheerful America, and looking through the scope. Before Scorpius and Sagittarius started getting too low, we found M8 and M20. M8 was large, with the dark lane visible in the nebulosity, and the cluster large and bright to the side. With higher power the dark lane was larger but fainter, and the nebula details were easier to see. M20 was also bright, while higher powers showed the trifurcation.

The temperature fell gradually to the mid 60s as evening progressed, so we added layers of clothing, and put another blanket over Gregory and Fiona. There was very little moisture in the air, and no dew on the optics or Telrad. Our next target was M11, with a detour through the Scutum star cloud. I'd never seen field like that: pushing the scope around was a bit like watching snowflakes through a car windshield.

Kathleen was entranced, and chose it as her favorite view of the night. When we did view M11 it was beautiful, with one brighter star against many fainter ones.

America finally nodded off while I was finding M13 in the scope. Viewed through at our highest power the cluster appeared as what Kathleen called a "Queen Anne's lace". M57 was clear at low power, and a lopsided doughnut filling half the field at high power. M31 had M32 and M110 in the same field. M32 easier to see than M110 perhaps because it was more compact. M110 large and diffuse. M31 was very big, even though it was still rather low in the sky. In the eyepiece it extended 2 or 3 field-widths to each side, a bright core with arms trailing off to both sides. We ended the night with h and x Perseus (the double cluster).

Kathleen was starting to get cold. There was still no dew when we quit at 11:30, which probably helped her stay warmer and last longer, but even in August we should have brought another layer of clothes for her, perhaps a sweatsuit to go over her jeans and some heavy socks. We packed up the scope first, then the picnic stuff, and the kids went (sleepily and complainingly) into their car seats last. After an unhurried drive we arrived home around 1:00 am. What made the night so successful? Remembering to keep the Family first, with the children's needs foremost, then Kathleen's. We were in a safe area, with room for the children to play, and things for them to do. Everybody was kept warm and comfortable. The Astronomy was kept at the right level for each of the family members (for the children easily observable things, satellites, meteors, Jupiter, bright clusters. For Kathleen we kept to the major "tourist attractions"). We tried to allow for changing needs throughout the night (layers of clothing for everybody, the kids' PJs and nests), and to know when to change activities, and when it was time to stop. It also helped that the weather was as perfect as I've ever seen it.

With a little bit of planning, you can have a wonderful evening with your family. And, if you do it right, you might get in a little observing as well. □

# Sky Sweep for November & December

by Kevin B. Jones

Over the last two years, this column has been highlighting the Messier objects easily visible in the evening night skies. This has been particularly for the benefit of those observers who are interested in earning Messier or Binocular Messier Certificates through the Astronomical League (see Doug Mistler, NOVAC's Astronomical League Coordinator, for details). I had originally planned to write about all 110 Messier objects by the end of 1995, but my trip to Australia this summer interrupted this series of Sky Sweep columns. Most of the remaining objects are summer targets, and I'll have to wait until next summer to get to them! Look for the remaining Messier objects to appear in Sky Sweep in the May/June and July/August 1996 NOVAC Newsletters.

The only Messier object new on the slate for this issue is M76, or the Barbell Nebula, a small and faint planetary nebula a degree north of Phi Persei. M76 is roughly rectangular in shape, 1.5 arcminutes long and about half as wide. The ends of the rectangle are the brightest parts of the nebula. This nebula is usually thought to be one of the most difficult objects in the Messier catalog to find because it is so faint (10th magnitude). While M76 is not as easy to locate as many other Messier objects, I haven't had any trouble finding it using a 4-inch telescope under moderately light-polluted skies. As is the case with many faint deep-sky objects, having a good star chart at the eye-piece with you makes locating and identifying M76 easier—it is too faint to be swept up easily without the aid of a chart.

During the clear, crisp early winter evenings of November and December, Andromeda and Triangulum are high overhead. These two constellations contain two large, bright spiral galaxies from our own Local Group—two of the Milky Way's closest neighbors in intergalactic space. The brightest of these is M31, the Andromeda Galaxy. It is located about 15 degrees to the northeast of the northeast corner of the Great Square of Pegasus, and is bright enough to be seen easily with the naked eye from a dark sky site such as Savage. When observing this galaxy, note its two satellite companions, M32 and M110 (NGC 205) located in the same wide field of view. Also look for dust lanes in M31, visible even in binoculars as sharp drops in brightness along the edges of the galaxy.

Our other neighboring spiral galaxy is M33, or the Pinwheel Galaxy. It is about half the apparent diameter of M31, but has a much lower surface brightness. Because of its large size and low surface brightness, M33 is easier to find in a pair of binoculars or a finderscope

than in most telescopes. Some telescopes cannot provide fields of view wide enough to include the entire galaxy. With these telescopes, it is possible to be looking directly at the galaxy without noticing it, because it has a low surface brightness and more than fills the field. Good eyesight and dark skies can combine to make M33 a naked eye object for some observers.

While observing in this part of the sky, be sure to also note Gamma Andromedae, or Almaak. This star (at the end of the Line of Andromeda asterism) is a beautiful double showing nice Albireo-like color contrast between its components.

Moving about 15 degrees to the north of this star, back into Perseus and past M76, will bring you to a spectacular pair of open clusters, called the Double Cluster, or NGC 869 and 884. These clusters are located in a truly dazzling Milky Way field and are impressive in anything from the smallest binoculars to the largest telescopes. These two clusters are also easily visible to the naked eye even from not-so-dark observing sites. Telescopes reveal beautiful color contrasts between some of the clusters' stars.

Don't forget about the meteor showers coming up in November and December: the Leonids on November 17th and the spectacular Geminids on December 13th. Both of these showers will be essentially unhindered by bright moonlight and should make for some relaxing stargazing. Clear skies!

Kevin Jones at the College of William and Mary in Virginia

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## Galileo at Jupiter

by Douglas M. Smith,

### Introduction

Due to arrive at Jupiter on December 7th, 1995, the Galileo Spacecraft was launched from the space shuttle Atlantis and put on its long trek toward Jupiter on October 18, 1989.

NASA intended Galileo to be the flagship of a new round of missions designed to intensively scrutinize individual planets. The Magellan trip to Venus, and the failed Mars Explorer mission were in this group, as well as the upcoming Cassini mission to Saturn (planned for October 1997, if funding is maintained). Other missions in this group include the Mars Global Surveyor, and the Mars Explorer/Land Rover (both scheduled to be launched in 1996).

The Galileo mission is similar to the Viking missions to Mars in that a probe will be released to voyage down into Jupiter's atmosphere. The probe will endure an amazing, fiery entry in the atmosphere, and descend by parachute for about 1 hour, relaying detailed data back to the orbiter before being crushed by the planet's immense atmosphere. Meanwhile, the Galileo spacecraft will continue to study the planet and its many moons for the next two years, imaging those bodies in detail hundreds of times greater than was possible from previous Pioneer and 1979 Voyager I & II flybys. The images are expected to be spectacular.

### Background

Due to funding inconsistencies, as well as space limitation on the space shuttle, NASA settled for a non-boostered mission that would require three gravity assisted flybys and six years to get to Jupiter. It was calculated that one Venus flyby and two Earth flybys would give the spacecraft enough momentum to leave the inner solar system. On its way, Galileo acquired some fantastic images of Venus, the Earth/Moon system, as well as some detailed images of two asteroids, Ida and Gaspra. Galileo also provided major assistance to astronomers studying the impact of comet Shoemaker-Levy's collision with Jupiter last summer by photographing the planet from an angle that was not available from Earth.

One major glitch in the mission occurred early on, when the High Gain Antenna, protected under a solar shield from the intense sunlight of the inner solar system, failed to unfurl. NASA had to scramble to come up with alternate communications routines using the two remaining Low Gain Antennas. After a two year campaign to free the stuck hardware, the project team has determined there is no longer any significant prospect of the antenna being deployed.

(Continued on page 6)

# Review: The Coulter 10" Dobsonian

by Jon Stewart-Taylor

[Ed. Note: In the last issue, Jon told us "Tales of Woe and Intrigue: Acquiring a Coulter 10" Dobsonian". Now, after a brief re-cap, we will hear "The End of the Story".]

I decided to take the plunge and order a 10" Dobsonian telescope from Coulter Optical. I chose a 10" Dobsonian for several reasons. I'm primarily a Recreational Astronomer (tm), so I don't expect to be doing photography any time soon. I do mostly deep-sky observing, so I wanted a larger aperture. And, I'm on a very tight budget, so the entire scope including shipping would have to be under \$400.

We placed an order with Coulter January 4th, using a credit card for the \$90 deposit. When the invoice arrived, it said the scope would be finished in "4-6 weeks, or even longer". We knew from sci.astro.amateur that the real delivery time would be 2-3 months, and the scope arrived April 17, 16 weeks after we'd placed the order. A cursory inspection at the truck showed no obvious damage to the scope or mirror, so we signed the papers and carried it into the house.

On removal from the box, it was revealed in all its glory: a rocker box made of black-painted chipboard, and a red sonotube optical assembly. The azimuth bearing was very stiff, but a pair of pliers to loosen the bolt quickly cured that. There is what appears to be a suitcase handle on each side of the rocker box, but I'm not sure they make carrying it easier- perhaps they help when two people carry it. The black-painted chipboard is UGLY. Some of the chips appear to be separating from the board, but overall the rocker box is sturdy and very stable.

The optical tube is also sturdy. The bottom has a solid particle-board cover, with 6 screws for collimation, and 3 fairly large rubber feet to keep the screws from hitting the ground when you stand it on end. The altitude bearings appear to be particle-board disks, covered with some sort of vinyl strap. They work very smoothly. The scope seemed to be slightly bottom-heavy, but that was good, since the Telrad would add weight to the top.

The infamous Coulter focuser wasn't what I was expecting. The PVC plumbing fittings are very large and solid, and the drawtube is very thick aluminum. At first glance it looked like it could work fairly well. The secondary mirror mount astonished me: a black-painted metal bar, about 3/8" thick, 2" wide, and 12" long, bolted to the tube with 1/4" bolts. The eyepiece supplied showed its binocular ancestry clearly.

As one might have expected, the skies were pretty bad that night. Limiting magnitude was

about 2.5, with a high haze and waves of clouds which would periodically reduce that to about 0.5. I took the scope outside anyway. Setting up on the sidewalk, I centered Mars in the Telrad rings, and looked in the eyepiece. Amazingly, Mars was in the field of view, and after fiddling with the focuser a bit I brought it into focus. Unsurprisingly, it was a featureless orange ball.

Focusing the supplied eyepiece requires pulling the drawtube quite far out. When pulled that far out, there is quite a bit of slop between the drawtube and the PVC. Pulling the eyepiece further out of the drawtube allowed me to push the drawtube further into the PVC, and this helped a little.

Next I pointed the Telrad where I expected M44 (the Beehive cluster) to be, and found it after sweeping about for a bit. It looked, well, like you'd expect it to look through a big scope on a bad night. However, the colors were more vivid than I'd previously seen them. The haze and clouds were thickening. A sucker hole around the Big Dipper led me to check out Mizar and Alcor. This was a nice view, with Alcor about half a field away, and Mizar cleanly split into two components of about equal color and brightness. At that point the clouds began rolling in thickly, so I packed the scope away.

My next chance to try out the scope was the following Friday, at Parsells Field, our 'semi-dark' site. It was a clear, warm night, hovering around the limiting magnitude of 5 typical of Parsells. After aligning the Telrad on Mars (still a featureless orange ball), I pointed it at M45 (the Orion nebula), which was about 15-20 degrees above the horizon. I wasn't expecting much since it was so low, but the view was amazing. The "wings" seemed to trail on forever, the Trapezium was split into 3 components, and a faint lime-green tint was detectable in the brighter areas.

Open clusters M36/37/38 in Auriga were the obvious next target. They were beautiful sights, cleanly resolved. The most surprising thing was a bright redish star in the center of M37. Although my 4" reflector had partially resolved the cluster, it hadn't given me even a hint of the color of that star.

Over the next two hours I visited every Messier object (and several non-Messiers) in Ursa Major, Canes Venetici, and Leo. M97 (the Owl nebula) was bright and easy. Double star Cor Corioli showed a beautiful color contrast. The various galaxies stood out well against the background sky, several showing hints of detail I couldn't have guessed at in the 4". I ended the night browsing through the Virgo cluster of galaxies. There seemed to be no end to them: in less than half an hour I found 10 or 15 just sweeping through the area, more galaxies than I had observed in all of 1994.

Overall, I am very pleased with the performance of the scope. Although the mechanical parts are crude, I wasn't really even aware of them while I was observing. When I wanted to aim the scope, it moved. When I wanted it to stay put, it stayed. The focuser was surprisingly easy to use once I moved the eyepiece out of the drawtube about 1/2".

Optically, it performs better than I'd expected. Of course I didn't use it at high magnifications, or compare it to other telescopes on demanding objects. But even with the supplied eyepiece and the scope right out of the crate, I could find objects to 11th magnitude in less than a minute, and actually see some detail when I found them. The views were very bright, and often showed color where I'd never seen it before.

As I become more accustomed to the scope, and run into some of its limits, I may lose some of my enthusiasm for it. However, it seems to be an excellent choice as a second scope for a Recreation Astronomer, or a first scope for someone stepping up from binoculars. My only reservation about recommending it is Coulter's apparent inability to tell when they'll actually ship a scope.

Late Note: Due to the ill health of the owner, Coulter Optical has filed for Chapter 7 bankruptcy, and will be going out of business permanently. □

## From Ron Ferris:

From RFerris26@aol.com Sat Sep 30 07:04:42 1995

NOVAC programs scheduled for the near future are:

October 18 - "Deep Sky Observing Techniques" - Brent Archinal

November 15 - "Informative and Truthful Hints for Observers" - Al Boldt

December 20 - "Looking Up Downunder" - Kevin Jones

January - "Getting Started In Observing" - Jon Stewart-Taylor

(with Pete Gural on "meteors" (Not Firm)) □

# Lessons

by Greg Wuestenhagen

Lately, my brother in law has been showing an interest in taking up astronomy and buying a telescope. My conversations with him and my observation of his approach to this have caused me to conclude that there are many potential astronomers out there who might benefit from some candor on the part of those who, like myself, have recently taken up the hobby.

A little over a year ago, in the late summer of 1994, I was overcome by the desire to own and use a telescope. I was spending many long weekends rehabilitating a home in the foothills of the blue ridge below Skyline drive, and west of Charlottesville, VA. The skies were incredible, and I remembered the basic visual astronomy I had learned as a young teen. I could locate and name Orion, the Summer Triangle and its "real" constellations and major stars, the Great Square of Pegasus, Cassiopeia, and the Big Dipper. The Milky Way could be quite clearly seen, magnificently pouring forth from the teapot of Sagittarius in the Southeast. I became very intense (as I am wont to do) about acquiring a proper telescope. When I was about fourteen years old, my father had bought me a Sears, Roebuck telescope; a two inch refractor in a wooden trunk case, with German mount and slow motion controls. (It should be noted that this instrument has little in common with modern "department store" telescopes which are generally quite unsatisfactory; this scope compares quite favorably with instruments which now sell for five hundred dollars.) I had successfully used it to observe the moon, Jupiter and its moons, and Saturn and its rings. I say "successfully" with qualification; I had never mastered the complexity of the mount and its polar alignment. Thus, I never learned to find any objects not readily visible to the eye. It did not take long for me to lose interest. This time around, I wanted to purchase an instrument that I would be able to use and enjoy.

My first step was to purchase astronomy magazines and research the types of telescopes and accessories. My first love was a large aperture (12") Newtonian on a German Equatorial mount with motor drive. I really wanted to be able to view deep sky objects as a priority. I came to the conclusion, though, that such a large and cumbersome telescope would be difficult to use and time and effort consuming to deploy. I wanted to be sure that my next scope was sufficiently easy to use that I would not be discouraged.

It seemed to me that the one type of telescope which would meet my criteria of being relatively easy to use for its aperture size, while being at least good for both planetary and deep sky viewing would be the Schmitt-Cassegrain. I was aware that this would not be the best

choice for any particular type of viewing, but I decided to purchase a 10" Meade SCT in its most basic configuration (the 2010), but with their multicoating package (2010B).

I made the decision not to deal with any mail order suppliers. I have had poor to just acceptable luck with this type of shop when purchasing camera equipment and supplies, and I concluded that any extra cost would be worth looking my salesperson in the eye and establishing a relationship. After calling around, I went to a local optics and astronomy shop intent on my purchase. Finding that it would take some time to get the 10", and that the 8" (2080B) was on hand, I purchased the latter. On the advice of the owner/salesperson, I also purchased a few eyepieces: Celestron Ultimas in 7.5, 12.5, and 35mm focal lengths, to accompany the 25mm Meade eyepiece. I took my new scope home (it came in two large and four or five smaller boxes) and assembled it in my living room. I deployed the tripod, installed the wedge, and mounted the optical tube/fork assembly in just a few minutes. I installed the finder scope and collimated it. I was in business!!

My first view through the new scope was (predictably) of the moon. The view was breathtaking! I spent quite a few hours exploring the lunar surface. I had found a rough polar alignment to be easy with the fork mount, and I did not have to make too much correction in declination.

In fact, the 8" SCT was much easier to use than my old 2" refractor (at least in my unskilled hands). I subsequently observed Jupiter and found that my rough polar alignment was still accurate enough for casual viewing. All in all, my first impression of the scope was entirely favorable.

I decided that a nice pair of binoculars would be an excellent addition; this would allow for much more convenient spur of the moment viewing, and would help me learn to "star hop" to deep sky objects. I selected Celestron's 12x80 binoculars because I wanted the large exit pupil for brightness more than I valued higher magnification. I have subsequently looked through a variety of more expensive binoculars, and I remain entirely satisfied with my purchase. I mount them on a 7' photographic tripod which is capable of adjusting each leg to differing lengths and angles, and it works out quite well. I also purchased a planisphere and Peterson's Field Guide to the Stars and Planets.

I used and enjoyed the scope with regularity. I began to collect more eyepieces for my telescope. I bought a 56mm 2" Meade with 2" diagonal, a 24mm Celestron Ultima, Celestron's f/6.3 reducer-corrector, and a Celestron Ultima 2x Barlow. I also purchased filters for planetary viewing: yellow, orange, red, green, light blue, and neutral density. I was enjoying my-

self, but I had a number of lessons to learn.....

Lesson One: I found that I could not reliably find deep sky objects with the setting circles on the scope and less than perfect leveling of the tripod and polar alignment. My initial attempts at finding deep sky objects were not totally inept. Naked eye objects like the Andromeda Galaxy and the Orion Nebula were easy. I located and enjoyed an excellent view of the Ring Nebula in Lyra. I found the Dumbbell as well, though I wasn't initially sure what I was looking at. I was, however, unable to see numerous objects in which I was interested. I have since learned that the view of many of these deep sky objects is dim under the best of conditions, and requires persistence and training the vision, dark adaptation, and confidence in scope handling. Ultimately, I decided to purchase a JMI Mini-Max digital setting circle computer and encoders for my scope. I had them installed for me at a local astronomy shop. I purchased a 12mm eyepiece with illuminated crosshairs to aid me in star alignment with the Mini-Max.

The Mini-Max revolutionized my viewing! I was now able to find many more interesting objects with much more precision and greatly enhanced convenience. I was confident that the object I sought was in my field of view, so I really worked at averted vision techniques and the use of filters to enhance these nebulous objects. No more self doubt, no more red flashlights trying to read setting circles, no more uncertainty about locating objects in the field of view. I wish I had made this purchase at the beginning.

Lesson Two: Usability is the most important thing. I learned this when I found myself befouled with dew and couldn't continue to view on an otherwise excellent night. I had purchased all manner of eyepieces and accessories, but had not provided myself with any manner of dealing with this. I borrowed a small hair dryer from my wife to alleviate the dew, but I consider this to be a less than ideal method of dealing with this problem. I needed a dew prevention system, such as a heater for the optics. I also desired to use this AC powered telescope away from the house; I needed a power converter to run my scope off of 12v DC current (i.e. car battery).

Other usability issues: I still need a better finder; the 6x30 is marginal, and it is mounted so close to the body of the telescope that it is very difficult to use. I want an 8x50 on a higher, removable, dovetail mount, and probably a Tel-Rad as well! I need a dew-shield/lens shade for the scope, mostly for increased quality of viewing where a small amount of reflected light may degrade the image. I also want to find a good way of creating a permanent off axis aperture mask for planetary

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viewing. I've tried cut out black cardboard, but I am looking for a better solution. I've heard of using a drum head with a hole cut in it.

A big part of usability is storing, transporting, and organizing the equipment. Getting all of the equipment to an observing site, assembling the scope, and finding everything you need in the dark is a major challenge to be addressed. If this phase of observing is not handled well, the discouragement and difficulty will keep you from enjoying it. I made the following purchases and adaptations to solve my deployment problems: a relatively inexpensive footlocker lined with plenty of foam for the optical tube and fork mount assembly, a heavy black duffel bag for the tripod and wedge, a 12" by 16" by 4" foam-lined case from a local sporting goods store. I custom cut the foam for eyepieces, diagonals, and small accessories (at less than half the cost of a mail order case expressly for the same purpose). I made a tripod tray for my telescope from a circular piece of 1/4" plywood cut in half and joined with hinges. This is stained in a light color to make it easy to find objects on it in the dark. This provides me with an instant working surface under my telescope. Last but not least, I purchased a dolly which converts to a four-foot long four-wheeled cart to carry all of this to and from my car or truck. By the way, I also keep a lot of transparent red tape handy. This is the stuff sold in auto parts stores for temporary repairs to brake lights and turn signals. I use it on flashlights, the light in my trunk and in the back of my truck, etc. It's not as good as red LED lights, but it works.

Lesson Three: Do it right the first time. I wish now that I had been patient and held out for the ten-inch scope. Any additional brightness would be greatly appreciated when viewing deep sky objects. The ten-inch scope has half again more optical surface and thus is much more bright. I also wish that I had purchased two really outstanding eyepieces (Naglers) instead of a gaggle of merely good ones. In any case, buy the best quality you can afford at the time, or wait and save if you can't afford what you really want. When I chose my binoculars, I was patient and ordered them from Celestron instead of buying something else locally. It's less expensive in the long run to do it right the first time.

Lesson Four: Don't underestimate the value of quality binoculars! The view of large deep sky objects is so much more magnificent through the binoculars that it is with the scope. It is also quite easy to set up and use them, due to their ease of handling, large field of view, and portability. This gets me outside gaining familiarity with the sky and enjoying many large scale objects. I find that I spend as much time with the binoculars as I do with the scope, even when I have them both set up at the same time.

The key to successful deep sky viewing is knowing where and how to look and using an instrument that gathers light efficiently. High magnification is rarely an issue, except in viewing planetary detail or splitting double stars. Even on planets, I find that the 12.5mm eyepiece at 160x is much more satisfactory than the 7.5 at 267x. If I had started with the binoculars, I probably would have been patient enough to wait for the exact scope I wanted, and perhaps to do more research before choosing.

Lesson Five: No telescope is the perfect instrument for a lifetime of astronomy. The SCT is very handy. It is easy to set up and use for its optical size. The fork mount is easy to polar align. The optics are adequate for just about everything, but not really ideal for any type of viewing. It is inferior to a good refractor for contrast on planetary detail, and inferior to a good, large Newtonian for deep sky viewing due to its lack of comparative brightness and its optical inefficiency. In the long run, I am sure that I will revisit the 12" or larger Newtonian, and there is probably a four or five inch refractor in my future as well. I may even consider a large Dobsonian.

Lesson Six: If I had it to do over, I would have attended viewing nights and star parties, etc. and taken the opportunity to see various types of scopes, binoculars and accessories in use before I purchased anything. I would have talked to other astronomers about their preferences and the lessons they have learned along the way. I would not have depended as much on magazines, promotional materials, advertising and on salespersons for information. I would have had some experience with each type of telescope before I made my decision. This would probably have had a major impact on my decisions, and I'm sure that this would have been for the best.

Conclusions? I am relatively happy with my 8" SCT and the equipment and accessories I have. The important thing is getting out there and using the equipment you have to enjoy visual astronomy. The right equipment is important, but there is a great deal of quite satisfactory and potentially "right" equipment out there. Learning to use and enjoy it is what it is all about. By the way, remember my very first 'scope, the 2" refractor from Sears, Roebuck? It is still in service, on long term loan to a friend with kids. This scope is actually quite good for planetary viewing and for objects like globular clusters, and large, bright, easy to find objects like the Andromeda Galaxy and Orion Nebula, etc. My first scope is enabling another family to get a start in visual astronomy.

Hoping to bump into you some dark night...

Greg Wuestenhagen aka  
skeetr@ix.netcom.com

(Continued from page 3)

### Recent Events

On April 12, 1995, Galileo fired its thrusters to fine-tune the direction of aim of the atmospheric probe. On July 12, after the spacecraft's spin was increased from 3 rpm to 10 rpm in order to stabilize the probe like a gyroscope, the probe was released from the spacecraft to fly the remaining 82 million kilometers independently, free-falling toward Jupiter for 5 months. On July 27, the spacecraft's main engine was fired for the first time, redirecting its course toward a close flyby of Jupiter's volcanic moon Io and a planned entry into orbit around the giant planet.

In September on approach to Jupiter, Galileo encountered a barrage of interplanetary dust, registering up to 20,000 hits per second. It is not clear whether the source of the dust is from Jupiter's moon Io, or debris left over from Comet Shoemaker-Levy.

### December 7th Arrival - What to Expect

Designed to survive the highest impact speed ever achieved by a human-made object (171,000 kilometers per hour or 106,000 miles per hour), the probe will directly measure for the first time Jupiter's chemical makeup, winds, clouds and lightning.

After the heat shield is shed and the parachute is deployed, the seven instruments onboard the atmospheric probe will go to work. Instruments include a neutral mass spectrometer to determine chemical composition, an interferometer to determine helium abundance, a nephelometer to observe cloud particles, a net-flux radiometer to measure the difference between upward and downward radiant energy, an energetic particle detector, and lighting and radio-emission detectors. Sorry, no imaging equipment to view Jovian sunsets!

The gravity assist from Galileo's flyby of Jupiter's volcanic moon Io will carry it onto an overflight of the probe's entry site for probe data collection. Firing of the engine that same day will brake the spacecraft and allow it to be captured into Jovian orbit.

### Internet/WEB Resources

Jet Propulsion Laboratory project background:

<http://www.jpl.nasa.gov/mip/galileo.html>

Galileo Home Page, with up-to-date press releases and images:SPACEX

You can reach me on CompuServe at 75313.424. My general e-mail address is: 75313.424@compuserve.com

# Sky Calendar for November/December 1995

Compiled by Luke Ward

Times are EST. Sources include *Astronomy Observer's Guide*, *Sky And Telescope*, and *World Almanac 1995*.

## November

- 2 Moon 6° N of Saturn
- 3 S Taurid Meteors (moon=gibbous)
- 13 N Taurid Meteors (moon=gibbous)
- 15 **Meeting at Arlington Planetarium**
- 16 Mars 1.2° S of Jupiter
- 17/18 *Observing weekend (Savage/Crockett)*
- 17 **Leonid meteors** (moon=last quarter)
- 19 Venus 1.3° S of Jupiter
- 22 **Venus 0.2° S of Mars, VERY CLOSE CONJUNCTION!**
- 23 Pluto behind sun
- 24/25 *Observing weekend (Savage/Crockett)*
- 26 Moon 5° N of Neptune and Uranus
- 30 Moon 5° N of Saturn

## December

- 7 Galileo should FINALLY reach Jupiter!
- 14 Geminid meteors (moon=gibbous)
- 15/16 *Observing weekend (Savage/Crockett)*
- 16 Venus 2° S of Neptune
- 18 Jupiter behind sun
- 20 **Meeting at Arlington Planetarium**
- 22 **Solstice: winter begins**
- 22/23 *Observing weekend (Savage/Crockett)*
- 23 **Mercury 1.1° S of Mars**
- 27 Moon 5° S of Neptune

## Hale-Bopp Comet Data

This data on this comet is from IAU Circular 6202, which was circulated over the Novac E-mail Mailing List.

Date	R.A.	Dec	Mag
Sept. 10, 1995	18° 18.77"	-30 dg 16.9"	10.3
Sept. 30, 1995	18° 16.17"	-29 dg 20.6"	10.2
Mar 3, 1997	21° 32.05"	+34 dg 34.1"	-0.9(?)
Mar 13, 1997	22° 42.51"	+41 dg 40.2"	-1.4(?)
Mar 23	0° 16.14"	+45 dg 41.3"	-1.7(?)

## Planet Positions

Positions are for November. Paraphrased from *Sky And Telescope* magazine, "Stars And Planets" column, page 67.

**Saturn**-To the upper left of Fomalhaut, in the evening sky. Watch the rings as they tilt in and out of the earth's plane. Magnitude is 1.0.  
**Venus/Jupiter/Mars**- low in the SW at dusk. Many close conjunctions. A triple conjunction occurs on the 18th. The closest conjunction of the year will be between Venus and Mars on the night of the 22nd. On the 23rd and 24th the pair will be met by Jupiter and the crescent moon.


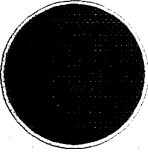

## For Your Information...

There are LOTS of places where you can get up-to-date information about observing and local events! Here are some of the ones that I find most useful:

The *Smithsonian Sky-watcher's Report*, a recorded message updated each Tuesday, contains information on constellations, satellite passes. It is a free service. Call (202)-357-2000.

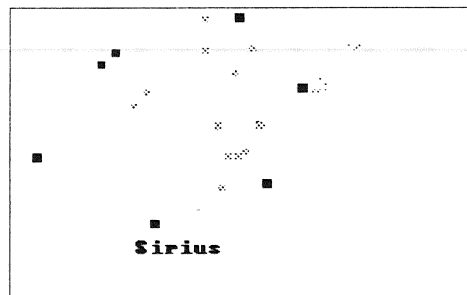
Subscribe to the [NOVAC E-mail mailing list](#) to receive regular mail concerning club events and observing news. Send mail to Jon Stewart-Taylor at [jstewart@telnet.com](mailto:jstewart@telnet.com) and he will add your address.

## Lunar Phases

<p><b>Last Quarter</b> November 15 December 15</p> 	<p><b>New Moon</b> November 22 December 21</p> 
<p><b>First Quarter</b> November 29 December 28</p> 	<p><b>Full Moon</b> November 7 December 6</p> 

Observing is best between Last Quarter and New Moon, when the moon is never up between sunset and midnight.

## Another Quiz!



See if you can identify the six black winter stars, (black) in my crude drawing!

Answers are below.

Answers, Clockwise from Sirius:  
 Procyon, Pollux, Castor, Capella,  
 Aldebaran, Rigel

# NOVAC electronic mailing list message:

X-From: jstewart (Jon Stewart-Taylor)

X-Date: Mon, 18 Sep 1995 13:18:37 -0400 (EDT)

— Work performed Friday —

Patio area: Cleared the lawn and stone wall to the north of the patio, so there's now room for another 2 scopes to set up there, with better views of the north west. Also partially cleared the area south of the patio next to the stone wall, so there's room for 1 scope there, with a better view of the west. The NVRP crew mowed around the patio and up the road to the white gate.

New parking area: Cleared an area south of the existing parking area, with room for about 5 cars. This area will need to be mowed and staked before using. The entrance is between the 2 (currently unpainted) stakes beside the dogwood tree. Plan expansion of area for another 5-10 cars, which will bring total parking capacity to 15-20 cars.

Road to A-frame: Began clearing road to A-frame house south of patio. Cleared area needs to be mowed. Plan to continue clearing next visit.

Neighbors: I met 2 of the neighbors who live near the site (one of whom was the former caretaker). Both were friendly, helpful, and interested in our use of the site, and both expressed interest in attending an observing session. I promised to send them copies of the latest newsletter. If you intend to be observing on one of the scheduled evenings, please contact me so I can notify them.

— Future of the site —

I spent some time talking to the park manager about the future of the site. At this point NVRP has no definite plans for the park. The main house west of the patio is slated for demolition, but I don't expect to see it happen this year, and maybe not next year, due to budgetary reasons. We have been promised use of the A-frame house if we will clear the road to it, and clear the vines, etc. off the house. This would give us a warming room, and perhaps toilet facilities. NVRP is supposed to send a formal proposal for approval by the NOVAC board.

I brought up the idea of making the site an "astronomy park", and it wasn't rejected out of hand. I mentioned the possibility of making some new observing pads out of gravel or concrete, expanding the parking area (before I started doing it!), and removing 3 or 4 of the most obnoxious trees. The manager agreed to the pads and parking area, and gave the impression that any semi-permanent modifications to the site would be acceptable, as long as they were well planned and executed. He did say that at least until NVRP makes some decisions about what to do with the site, permanent modifications (including tree removal) would not be acceptable. He did agree to bring up the idea of an astronomy park with his superiors.

— Input Needed —

I believe NOVAC could get rent-free (possibly exclusive) use of this site for the next 5 years or more, and continuing relatively liberal access to the site for the foreseeable future. With the completed improvements to Route 7, and soon-to-be-completed extension of the toll road, the site is quickly accessible from most of the area NOVAC serves. According to a Loudoun land-use planner, the geological structure of western Loudoun (particularly the difficulty of running sewer lines) makes rapid expansion in the area unlikely.

At one point, there was talk about creating a committee to try to find a site for a NOVAC observatory. I feel we need to have a group of interested NOVAC members, officers, and board members determine what NOVAC wants to do with this site, and make long-range plans to get it done.

I will try to bring it up at the NOVAC meeting on the 20th. If you are interested, or know anyone who is interested, please let me know.

J.

--

Jon STEWART-TAYLOR jstewart@telenet.com telenet!jstewart@uunet.UU.NET

Bela vizagxo estas duono da doto. □

## Election Night '95

You must be present to vote! December 20, 1995, meeting starting at 7:30.

Vote for Officers and 3 Board Members.

Nominations as of 10/18/95:

For President: Brenda Jones

For Vice-President: Doug Jackson

For Secretary: Open

For Treasurer: Open

For Board Members: 1. Bob Bunge

2. Jeff Stetekluh.

3. Open

# Highlights of the September/October General Membership Meetings

## NOVAC General Meeting Minutes (abridged) for September 20, 1995

The meeting was called to order at 7:30 PM by Bob L'Hommedieu. At least 39 members and guests were present at the Arlington Planetarium.

### Announcements

1. Volunteers are needed to help with parking at the 13th annual Northern Virginia Telescope Meet, Sept. 30 at Crockett Park. A sign-up sheet is being circulated at this meeting for those who are interested in helping.
2. Nominations are open for candidates for NOVAC's officers and Board for 1996. All four officer positions and two Board positions are open. Anyone interested in running or making a nomination should contact Bob L'Hommedieu, Ron Ferris, or any officer.
3. Bob Bunge announced that amateur astronomer David White is the recipient of the US Naval Observatory telescope that was being given away to whomever could take it away.
4. Jeff Stetekluh announced that Arlington Cable is carrying "NASA Select" on Channel 32. Check your local cable listings for the station carrying NASA Select in your county.
5. Bob Bolster announced that Hopewell Observatory is having an open house on Saturday, Sept. 23. Anyone interested is invited.
6. The 1996 Winter Star Party, sponsored by the Southern Cross Astronomical Society, will be held February 12 - 18, 1996, on West Summerland Key, 30 miles northeast of Key West, FL., at the southernmost dark sky campsite in the continental US. For more information, pick up a flyer at the meeting or contact Guy Moore at (703) 525-3730.

### Officers' Reports:

Ron Ferris reported that the Oct. 18 program will be Brent Archinal speaking on "Deep Sky Observing Techniques." On Nov. 15, Al Boldt will present "Informative and Truthful Hints for Observers." On December 20, Kevin Jones will discuss "Looking Up from Down Under" about observing in Australia and New Zealand.

Brenda Jones asked that members send updated information about addresses and phone numbers to her. Due to a recent computer crash, some data in NOVAC's membership file was lost, and Brenda is in the process of restoring the file.

Marta Krause reports being deluged with advertisements from vendors selling astronomy-related calendars, posters, coffee cups, and other paraphernalia. Anyone interested in doing astronomical holiday shopping should contact Marta.

Jeff Stetekluh and Brent Archinal gave the observing report.

### Member Presentations

1. Brent Archinal reported that the Carnegie Institute has published the *Carnegie Atlas of Galaxies*, a two-volume set containing the best images from 60 to 70 years of astrophotography. The set is the successor to the *Hubble Atlas of Galaxies*, which was begun by Edwin Hubble in the 1960s. The first edition, printed on paper of highest quality, has a printing of only a couple of thousand. Underwritten by outside funds, it is reasonably priced at \$92 and \$4 handling for the set. Subsequent editions, if printed, are likely to be of much higher price. Anyone interested in obtaining the set should contact the Carnegie Institute in Washington, DC.

2. John Dobson's book, "How and Why to Make a User Friendly Sidewalk Telescope," is available from Kalmbach Publishing, publisher of *Astronomy* magazine, for \$39.95.

### September Program

Ron Ferris introduced Dr. David J. Thompson, of NASA/Goddard, who then gave a slide presentation on the Compton Gamma Ray Observatory.

The meeting was adjourned at 9:25 PM.

Marta Krause

## NOVAC General Meeting Minutes (abridged) for October 18, 1995

The meeting was called to order at 7:30 PM at the Arlington County Planetarium by Bob L'Hommedieu.

### Announcements

1. The NOVAC Telescope meet held on Sept. 30, 1995 at Crockett Park was a success. The weather was good and there was a large turnout by the public. There were more telescopes present this year than in years past. Bob L'Hommedieu thanked all those who helped with the event and those who attended.
2. Nicole Mastej will be collecting orders for books through the end of October so that the Club can place an order with Kalmbach Publishing in time for Christmas.
3. Bob Bunge said that there will be a launch of a Conestoga rocket from Wallops Island this Friday to put a *Meteor* satellite in low earth orbit.
4. Sandy Sanders announced that former member Al Schuman has donated several interesting books to the NOVAC library.
5. Jerry Wolczanski and Brenda Jones reported on their recent star party for 80 sixth graders at Camp High Roads. Jerry read an

interesting thank you letter from one of the students.

6. Jon Stewart-Taylor announced that usage of Parsells field was low, and that next year, there would not be any scheduled observing nights there, but that NOVAC members were still welcome to use the site any night they wished.

### Officers Report

1. Vice president Ron Ferris reported that the speaker for the November meeting will be Al Boldt and that Kevin Jones will give the December program.
2. Treasurer Brenda Jones reported that she had forms available to order some interesting astronomical novelty items.

### New Business

Club elections will be held at the December Meeting. The candidates so far are:

- President - Brenda Jones
- Vice President - Doug Jackson
- Treasurer - no candidate
- Secretary - no candidate
- Board Members - Bob Bunge and Jeff Stetekluh

Any NOVAC member is eligible to run for office and any interested members are urged to contact Bob L'Hommedieu or Ron Ferris for more information.

### Observing Report

The observing report was given by Jeff Stetekluh and Bob Bunge.

### Show and Tell

Bill Jensen showed his recently acquired 20 year old Questar 3 1/2 inch telescope. The telescope is in good condition, but Bill asked that members familiar with the Questar contact him so that he might ask them some questions regarding his new scope.

Al Boldt showed some inexpensive Orion rubber eyepieces cups that help block out stray light while looking through the eyepiece.

### Program

Brent Archinal gave a very interesting program covering Deep Sky Observing techniques. The program was very informative for both the newcomer and the experienced observer alike.

Bob L'Hommedieu

# From: Brent Archinal

Delectable Dining Before a Delightful Meeting

It keeps going and going and going. We're now completing a full year of meeting for dinner before the regular NOVAC meetings. Suggested at the NOVAC Annual meeting in January, this continues to be a great way for NOVAC members to meet one another. Some months we've had pretty good turnout with 10 or a dozen members, and other months only a few. However, in every case we've had a great (doesn't "delectable" sound better?) dinner and gotten to know each other a little better. Here's your chance to keep the "tradition" going and meet a few NOVAC members, without trying to do it at a hurried meeting or unrecognized in the dark while observing. Besides, the free

chips and salsa are still available! So before the November 15 and December 20 meetings, please come on by. Dinner will be at the *Santa Fe Cafe* in Rosslyn. You should plan to arrive at 5:45-6 PM. This is a nice Mexican restaurant with reasonable prices, although credit cards are not accepted. Smoking is allowed in this (large) one room restaurant. There's always plenty of space, so don't worry about finding room with us.

Directions: The *Santa Fe Cafe* is located at 1500 Wilson Blvd., in Rosslyn, with entrances off of both Wilson Blvd. and Clarendon Blvd. This restaurant is just west of "downtown Rosslyn", on the southwest corner of Wilson Blvd. and N. Oak Street, where Wilson splits becoming Wilson one-way west and Clarendon one-way east. From I-66 east, take the Rosslyn exit to Lee Highway, and turn right at the

second light onto Fort Myer Dr. Go two blocks, turn right onto Wilson, and the restaurant will be one block ahead on your left (on the corner across Oak/Clarendon from a big outdoor sculpture). On street parking is available in front of the restaurant, or around the block to the left on Clarendon just before it ends. The restaurant is also quite close to the Rosslyn Metrorail station.

Reservations are not necessary, although it does help to know who's coming so we'll know how big a table to get. In any case if you need a ride to the meeting and back to the metro, or for more information or directions please give me a call (evenings) at 703-448-7466 or e-mail me at [baa@casa.usno.navy.mil](mailto:baa@casa.usno.navy.mil).

See you at dinner - right before that "delightful" meeting!

- Brent Archinal

□

## Notices Notices Notices

### NOVAC Notices and Benefits

#### Discounts on Sky & Telescope

As a member of NOVAC you can get a subscription to *Sky & Telescope* for \$24.00 instead of the regular \$33.00 rate. Make your check out to SKY & TELESCOPE for \$24. Note on the check: new subscription or renewal. Send your check to Brenda Jones, 883 N. Kentucky St., Arlington, Va. 22205. You can also order any publication directly from Sky Publishing at a 10% discount. Just mention the Club Discount Plan and that you are a member of NOVAC.

#### Discounts on Astronomy

Your NOVAC membership entitles you to subscribe to *Astronomy Magazine* at the annual rate of \$18.00. This is a discount from the usual \$24.00 rate. A two-year subscription costs \$36.00. Make your check payable to Kalmbach Publishing Company. Note on the check: new subscription or renewal. Send your check to Brenda Jones, 883 N. Kentucky St., Arlington, VA 22205. NOTE: There are no special 10% discounts offered on publications from Kalmbach Publishing, but read what follows.

#### Discount on Books

NOVAC is participating in the discount book sales program offered by Kalmbach Publishing. They will sell our members any astronomy related book for 20% off the list price when we send in a group order. Nicole Mastej is coordinating the sales. If you are interested, please see her at a meeting or call her at home (703) 476-1207 to place an order. Make your check payable to NOVAC for the price of the book minus the discount when you place the

order. We anticipate doing this 3-4 times a year if demand warrants.

#### Club Telescopes Available for Use

NOVAC makes available two six-inch (f/15) Newtonian reflectors for club members to check out free of charge and use for a limited time.

One scope is a Celestron model SP-C6 on a Super Polaris German equatorial mount and wood tripod. It will readily fit disassembled in any car and is easily transported and can be set up quickly at remote observing sites. The scope comes with an Orion Ultrascopic 10mm and Meade MA 25mm eyepieces with 1.25-inch barrel sizes. To borrow this scope you will need to show your NOVAC observing pass and leave a \$500.00 security deposit.

The other scope is a home-made six-inch reflector on a dobsonian mount and comes with a 25mm Kellner eyepiece. It is easy to transport to dark sky sites and easy to use. To borrow this scope you will need to show your NOVAC observing pass and leave a \$250.00 security deposit. If you are interested in borrowing either of these scopes, contact Bob L'Hommedieu at (703) 978-0946. He will schedule a time for you to pick the scope up at his home. Bob lives at 4415 Eastwood, Fairfax, VA.

Note: Checks must be made payable to NOVAC. Checks used as security deposits on telescopes are not deposited and will be returned to the originator when the scope is returned in the same condition it was checked out. The scopes may be checked out for two to four weeks at a time, depending on demand.

#### NOVAC Library

NOVAC has established a library at the Arlington Planetarium for use by NOVAC members. Books may be checked out and returned

only at the monthly meetings. Members may check out books for one month at a time. To borrow books, see NOVAC librarian Linda Thomas at the monthly meeting. The NOVAC library seeks book donations to the library. If you have any astronomy books or materials you are thinking of discarding, please consider a donation to the NOVAC library. A complete list of all library holdings is available upon request.

#### NOVAC Observing Schedule for 1995 Observing at C. M. Crockett Park and Savage Farm

November 17, 18, 24, 25.

December 15, 16, 22, 23.

#### Observing at Parsells Field

November 17.

December 1, 15, 29.

#### General Membership Meetings

General Membership Meetings are held at the Arlington Planetarium on the third Wednesday of every month. The Arlington Planetarium is located at 1426 N. Quincy Street, Arlington. Trustee Meetings are held the Tuesday before the week of the General Membership Meeting. Non-Trustees interested in attending should contact a Club Officer or Board Member for further information.

#### NOVAC On-line

NOVAC maintains an e-mail mailing list. Messages sent to the list include reminders about scheduled observing sessions, announcements for unscheduled sessions, requests for quick observing session summaries, MIR observability predictions, etc.. For more information, send a message to [jstewart@telenet.com](mailto:jstewart@telenet.com).

#### NOVAC Observing Site Rules

**C. M. Crockett Park:** NOVAC members may use Crockett Park for observing on nights other

(Continued from page 10)

than those scheduled for club observing; however, YOU MUST HAVE PRIOR APPROVAL FROM THE PARK MANAGER. Call (703) 788-4867 early in the day on which you wish to observe. If you reach an answering machine, leave a message saying that you are a NOVAC member and wish to observe that night. Also, leave your telephone number. If you do not receive a return call, you MAY NOT use the park. THERE ARE NO EXCEPTIONS! Use of the park is limited to NOVAC members only. Park management locks the entrance gate at sunset and you may use the combination shown on your Observing Pass to gain access. Do not reveal it to anyone. You must lock the gate behind you after entering and after you leave. During EDT, set up on the large field to the left. During EST, set up on the paved cul-de-sac 200 yds. past the gate. No loud radios, alcoholic beverages or loose pets. Do not leave trash or debris behind. We are guests of the park and park management may revoke our observing privileges at any time due to the carelessness of one person.

**Parsells Field:** In addition to scheduled nights, NOVAC members may observe at Parsells field ANY evening, with no prior notice. You must park and set up only in the parking area: do not go onto the field itself. Please park to the left near the entrance and set up to the right away from the entrance. The usual NOVAC observing site rules apply: no loud noises, alcohol, or loose dogs, and pick up after yourself. We are guests of the Dulles Little League, and could have our access to this site revoked at any time if it is abused.

**Savage Farm Site:** The Savage Farm site is reserved for NOVAC use on the same nights as Crockett Park plus all the major meteor showers. For non-scheduled observing sessions, call the park manager, Paul McCray, at (703) 729-0596 at least 24 hours in advance and leave a message with your phone number. You MAY use the site for that session UNLESS you receive a call from Mr. McCray stating otherwise. No loud radios, alcoholic beverages or loose pets. Pick up after yourself and do not leave any trash behind. Make sure the gate is locked whenever you are in the park, and when you leave. We are guests of the NVRP and could have our access to this site revoked at any time if it is abused.

#### Directions to NOVAC Observing Sites

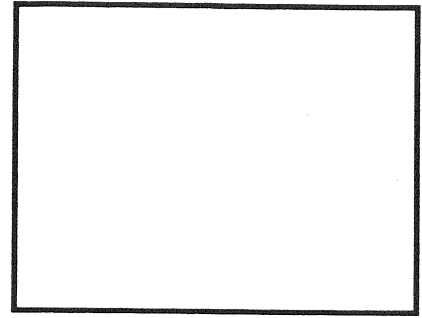
**C. M. Crockett Park:** From the Washington DC/Northern Virginia area, go west on I-66 to the 47-a exit. This is 234 South to Manassas. Continue on 234 for 2.8 miles then turn right on Godwin Drive at what was previously the "Po Folks" restaurant. Follow Godwin Dr. for 1.8 miles to where it merges with Rt. 28 West. Once on Route 28, continue driving for another 13.7 miles through the towns of Nokesville,

Catlett, and Calverton until you turn right on Rt. 643 toward Warrenton. There is a small country store (Mayhugh's) on the corner of the intersection. Go on about a mile up Rt. 643 to the Park Entrance road. Look for a small sign for C.M. Crockett Park on your right directing you to turn left. Once on the park entrance road, go one-half mile to the park gate.

**Parsells Field:** From the Northern Virginia area go West on the Dulles Toll Road until you reach Route 28. Go North on Rt. 28 for 2.8 miles to Route 625, Waxpool Rd. (You may also take Route 7 West to 28, then go South to Waxpool). Turn West on Waxpool, and go 1.8 miles to the Waxpool/Farmwell intersection. Turn left on Route 625, Waxpool Rd. (!), and go 1.6 miles to the Waxpool/Ryan/Shelhome intersection. Continue on Waxpool for about another 1.6 miles to the field. Turn left and follow the blue parking signs to the parking area.

**Savage Site:** Use some combination of Routes 7, 267 (Dulles toll road), and 28 to get to the Route 7 Leesburg bypass. Go around Leesburg on the bypass until you reach "regular" Route 7 again. From the intersection of the bypass and "regular" Route 7, continue on Route 7 west 18.5 miles to Route 601, at the top of Snicker's Gap. Turn left onto Route 601 south and go 2.4 miles to the park entrance. The park entrance is past the driveway whose gatepost reads *Ben Lomand*. The park entrance is the next driveway on your left. There will be a sign on a tree saying *Wildlife Sanctuary*. If you come to gateposts on the left that say *Belle Allee* and *Ball Alley 1875*, you have gone too far. You may also take I-66 west to Route 17 North. Stay on Route 17 North until it intersects with Route 50 at Ashby Gap. Turn left onto Route 50 and go 1.0 mile and turn right on Route 601. Continue on Route 601 (Blue Ridge Mountain Road) and go two miles past the main gate of the FEMA installation. Turn right at the park entrance after passing the gateposts with *Belle Allee* and *Ball Alley 1875* on your right.

The park entrance on Route 601 is marked by a small brown and white NOVAC sign. The neighbors periodically pull up the sign, so it may not be there. As you turn into the park, go straight ahead until you reach the gate, which is secured by both a keyed padlock and a combination lock. These locks are located to your left behind the gate as you face it. The combination is on your NOVAC observing pass. ALWAYS lock the gate behind you. The NOVAC lock MUST be locked to the keyed lock, not to the chain, to allow emergency access by the fire department. Drive to the observing area (the stone patio next to the house). There is very limited parking at the observing area itself, so please park in the parking area on the right (as you face the patio). □



Picture of a Black Hole

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(Continued from page 10)

than those scheduled for club observing; however, YOU MUST HAVE PRIOR APPROVAL FROM THE PARK MANAGER. Call (703) 788-4867 early in the day on which you wish to observe. If you reach an answering machine, leave a message saying that you are a NOVAC member and wish to observe that night. Also, leave your telephone number. If you do not receive a return call, you MAY NOT use the park. THERE ARE NO EXCEPTIONS! Use of the park is limited to NOVAC members only. Park management locks the entrance gate at sunset and you may use the combination shown on your Observing Pass to gain access. Do not reveal it to anyone. You must lock the gate behind you after entering and after you leave. During EDT, set up on the large field to the left. During EST, set up on the paved cul-de-sac 200 yds. past the gate. No loud radios, alcoholic beverages or loose pets. Do not leave trash or debris behind. We are guests of the park and park management may revoke our observing privileges at any time due to the carelessness of one person.

**Parsells Field:** In addition to scheduled nights, NOVAC members may observe at Parsells field ANY evening, with no prior notice. You must park and set up only in the parking area: do not go onto the field itself. Please park to the left near the entrance and set up to the right away from the entrance. The usual NOVAC observing site rules apply: no loud noises, alcohol, or loose dogs, and pick up after yourself. We are guests of the Dulles Little League, and could have our access to this site revoked at any time if it is abused.

**Savage Farm Site:** The Savage Farm site is reserved for NOVAC use on the same nights as Crockett Park plus all the major meteor showers. For non-scheduled observing sessions, call the park manager, Paul McCray, at (703) 729-0596 at least 24 hours in advance and leave a message with your phone number. You MAY use the site for that session UNLESS you receive a call from Mr. McCray stating otherwise. No loud radios, alcoholic beverages or loose pets. Pick up after yourself and do not leave any trash behind. Make sure the gate is locked whenever you are in the park, and when you leave. We are guests of the NVRP and could have our access to this site revoked at any time if it is abused.

#### Directions to NOVAC Observing Sites

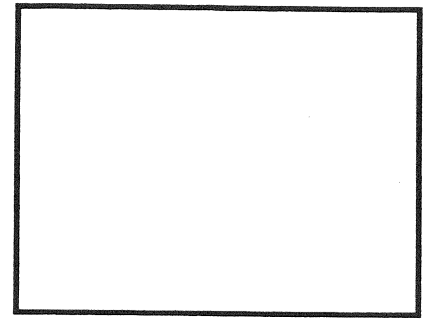
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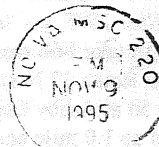
**C. M. Crockett Park & Savage Farm**

November 17, 18, 24, 25.  
December 15, 16, 22, 23.

**Parsells Field**

November 17.  
December 1, 15, 29.

**The Northern Virginia Astronomy Club**  
c/o Brenda Clements Jones  
883 North Kentucky Street  
Arlington, Virginia 22205



**See Black Hole,  
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