NOVAC

THE NEWSLETTER OF THE NORTHERN VIRGINIA ASTRONOMY CLUB

Issue Number 47 **Volume 13** **May/June 1993**

President: Myron Wasiuta	703-786-9276	
Vice President: George Uhl	703-369-4575	
Secretary: Bob L'Hommedieu	703-978-0946	
Treasurer: Brenda Jones	703-527-7963	
Editor: Thomas S. Parry	703-758-8224	
Assoc. Editor: Jon Stewart-Taylor	703-476-8949	
NOVAC Information Hotline	703-256-8359	
NOVAC Computer Bulletin Board	703-256-4777	

UPCOMING NOVAC EVENTS

Club Observing Dates

May 14, 15, 21, 22

June 11, 12, 18, 19

Monthly Meetings

May 19

June 16

Editor's Note

I'm sure many of us felt like winter was never going to end. For this observer, seemingly endless cold cloudy nights led to a serious case of photon deprivation! April brought not only the sweet fragrances of spring and clearer skies, but served up a literal smorgasbord of astronomical delights. We witnessed a supernova in galaxy M-81, the eruption of a large disturbance in the region of Jupiter's south equatorial belt, and a magnificent mid-day occultation of Venus. For those who were fortunate to see these events, I'm sure their appetites have been whetted for a great observing season.

May and June General Meetings

Along with what we hope will be a great observing season, there are some excellent NOVAC General Meeting programs planned for May and June. The May session will feature Diane Temple, a teacher and professional storyteller, who will give a presentation on constellation mythology with a focus on American Indian folklore. She intends to use the planetarium projector as part of her presentation to depict the constellations in the sky. The June program will tentatively feature Dr. Mich Nikolich who will speak on an upcoming lunar mission and/or advances in space flight technology. Fred Holmes will also give observing reports in each session for the current month.

The monthly meetings of the Northern Virginia Astronomy Club are held the third Wednesday of every month at 7:30 P.M. at the Arlington County Planetarium, 1426 N. Quincy Street, Arlington, VA. Admission is free and open to the public. Call the NOVAC hotline (703) 256-8359 for upcoming events, special announcements, or to leave a message for additional information.

Special Events

The United States Naval Observatory will be holding its centennial celebration on Saturday, May 15, 1993 from 10:00 A.M. until 4:00 P.M. The event is free and open to the public. NOVAC has received a special invitation to participate. See the detailed announcement in this issue.

For those of you who haven't been out to a general meeting in a while or who haven't joined us for observations at Crockett Park, we hope you will come out and join us. We would really like to see you. Until then, clear skies, enjoy the newsletter and let us hear your opinions.

Inside this issue

Highlights of March and April NOVAC General Membership Meetings

by Bob L'Hommedieu

General Meeting March 17, 1993

Myron Wasiuta called the meeting to order at 7:30 P.M. Twenty-two members and guests attended at the Arlington County Planetarium.

Old Business:

1. NOVAC purchased two new eyepieces for one of the club six-inch reflectors. One is an

Orion Ultrascopic 10mm 1.25 inch. The other is a *Meade* MA 25mm 1.25 inch.

2. The Treasurer paid the $200 fee required by Crockett Park for the use of their facilities during our monthly observing sessions.

3. The members present voted to have Blaine Korcel serve out the remainder of Sikander Daryanani's term on the Board of Trustees.

New Business:

1. On 17 April 1993, the Arlington Outdoor Lab has asked NOVAC members to support their Earth Day activities by providing telescopes.

2. On 24 April 1993, the Faquier County Schools will hold their Earth Day celebration at Crockett Park. They would like NOVAC members to provide telescope viewing for the event.

3. Yorktown High School will hold a series of astronomy-related events each Wednesday evening in April and May. Anyone interested should contact Brent Archinal.

4. David Levy, noted amateur astronomer and comet hunter, will present a talk on Tuesday, April 13, 1993 at the Air and Space Museum. The Board of Director's meeting, normally scheduled for that evening, will be moved to the following night, April 14, 1993.

5. Brent Archinal reported that NOVAC received a demonstration copy of a computer program called Megastar. Although memory intensive, Brent believes this to be a good star atlas program. Copies of the demo can be downloaded from the NOVAC BBS.

6. It will help the club document our public educational activities with the I.R.S. if we ask for thank you letters from all groups for whom we provide services in the way of telescope viewing, speakers, etc..

7. The weekends of April 20 & 27 will be good times to try a Messier Marathon. Anyone completing the marathon in one night will be eligible for a NOVAC award.

8. Recreational Equipment Inc. of Baily's Crossroads will allow us to place NOVAC information in their store.

9. The centennial celebration of the U.S. Naval observatory is slated for 15 May 1993. NOVAC has been invited to participate in the event and all are invited to attend. For further information, see *USNO Centennial* in this issue or contact Brent Archinal.

10. NOVAC will order a supply of the Astronomical League Binocular, Messier, and Herschel observing guides to sell at meetings. For more information on what these guides contain, see *Astronomical League Observing Guides* under *NOVAC Notices* in this issue.

Two NOVAC members, Andre Bormanis and Al Schumann, presented the program. Andre showed slides of photographs he took during the recent total lunar eclipse. Al detailed his efforts to upgrade and refurbish a Coulter 13.1 reflector and illustrated each step with slides.

General Meeting April 21, 1993

Myron Wasiuta called the meeting to order at 7:30 P.M. Thirty-three members and guests attended at the Arlington County Planetarium.

Old Business:

1. There was general discussion about the deteriorating dark sky conditions at Crockett Park and the need for a new dark-sky site. Several club members are actively looking for a new sight and there seems to be better conditions in the direction of Front Royal. The problem is securing land and a place we can call our own. The search continues.

2. The centennial celebration of the U.S. Naval observatory is slated for 15 May 1993. NOVAC has been invited to participate in the event and all are invited to attend. For further information, see *USNO Centennial* in this issue or contact Brent Archinal.

3. A reminder that Earth day celebrations will be held at Crockett Park on April 24, 1993. The Park would like NOVAC to help by providing telescopes for viewing and presentations to the public on astronomy.

New Business:

1. Lynn Haber has requested the help of NOVAC members in presenting an astronomy program for homeless children in Arlington. There will be up to 20 children taking part along with their parents and other adults. Please call Lynn Haber at (703) 934-3126 if you would like to help.

2. A supernova has been detected in galaxy M81 that is presently brightening to near eighth magnitude. The supernova is clearly visible in small scopes.

3. It was reported that Comet Shoemaker-Levy has been captured by Jupiter's gravity and has broken into at least 20 pieces.

4. There are no Astronomy Day events planned by NOVAC this year.

5. Due to personal and business conflicts, Jim Schaeffer has stepped down as the Northern Virginia Telescope Meet Chairman for this year. Jim has already done a lot of work in planning the event and now NOVAC needs some one to volunteer to finish the job. If you are interested, please call Myron Wasiuta.

6. Fred Holmes is interested in starting a "sidewalk astronomers" event in the District of Columbia. Fred would like all interested members to call him.

7. NOVAC received the Binocular, Messier and Herschel observing guides from the Astronomical League. The guides will now be available at club meetings. Cost is $4.50 for the Messier Guide and $6.00 for the Herschel Guide. The one-page Binocular Guide is free.

Four NOVAC members presented the program. Bob Bunge, Brent Archinal, and Myron Wasiuta spoke on the pros and cons of a club-owned observatory. They recounted their experiences with other clubs in the past and the common problems encountered when a club decides to operate and maintain an observatory of its own.

Andre Bormanis treated us to some excellent photographs he took while attending the recent night launch of the space shuttle.

President's Column: A Desktop Observatory

by Myron E. Wasiuta

I got an interesting call a month ago from Blaine Freidlander who is a freelance writer and regular contributor of the *Skywatch* column in the Washington Post. Blain told me he had just been given an assignment from *Windows User* Magazine with a short deadline to review the new desktop observatory software *Epoch 2000* and wanted to know if I would be interested in field testing the program. Epoch 2000 is designed to operate a remote-controlled telescope and CCD camera. I told him I would love to except I did not own a remote-controlled telescope and CCD camera.

Since I had not heard of this software, Blaine filled me in. He said the program can control a Meade LX-200 Schmidt Cassegrain and perform such telescope functions as slewing, focusing, and target acquisition. Once an object is targeted, it can operate a CCD camera, capture the image to the computer's hard drive, and perform sophisticated image processing. In addition, when the Remote

Telescope Network comes on line in November, the program will be able to control a professional telescope at a major observatory in the same way. Epoch 2000 even allows you to control the dome rotation from your home computer. Telemetry such as meteorological data, telescope status and position, time, and images from the CCD camera are all sent straight to your computer in real time. All this can be accomplished in the comfort of your own home by dialing a 900 number with a modem!

Although Epoch 2000 was reviewed in the March issue of *Sky and Telescope*, the review did not include any test data of the program's remote telescope control capabilities. Blaine mentioned that as far as he knew, no one had actually tested the program on a real telescope. We would be the first in the area but we needed a Meade LX-200.

As luck would have it, a friend from the Triangulum Astronomical Society in Fredericksburg owned an LX-200. I immediately called Bill Steward and he very generously offered his telescope and assistance. We planned the trial run for the next weekend and figured that even if the weather wasn't clear we could still watch the scope move in response to our commands at the computer. When the day arrived, Blain, Bill, and I gathered in my computer room to set up and run the test.

Because Epoch 2000 runs in the Windows environment, we needed to load Microsoft Windows 3.0 on my computer. That is when we ran into difficulty. Windows would not load! After several hours and repeated attempts, we gave up. Feeling let down, we all went our separate ways. Bill left the LX-200 in my possession in the event I could get the program loaded.

Not knowing what else to do, I called two of the most competent computer experts I know--Blaine Korcel and George Uhl. Neither had good news and thought there might be a problem with the hard disk itself. George offered to come down the next weekend with his copy of Windows 3.0 to see if it would load. He succeeded in loading Windows and was instrumental in saving the project.

At this point, the deadline for the test report was approaching. Blaine, Bill, and I agreed to meet the following weekend. Once again, we were foiled! The Blizzard of '93 dumped 10 inches of snow in the Fredericksburg area. I reluctantly called things off for safety reasons. Blaine said he could make it to my house in a couple of days and we would try again. In the meantime, I connected the telescope to my home computer using a six-conductor telephone wire with a standard jack to the telescope and a female 9-pin RS-232 plug to the serial port on the computer. The cord was 100 feet long.

The day Blaine came to my house was cloudy so we knew that we would not be able to test the full range of the program's capabilities. With the telescope linked to the computer and our fingers crossed, I launched Epoch 2000 and went to the *Telescope Control* menu, clicked the on-screen button to slew the scope to the north. Immediately the LX-200 responded! The whining of its slewing motor filled the room. It stopped when I let go of the mouse button. Blaine and I grinned from ear to ear! I next changed slewing speeds to *finding* mode. I clicked the *south* button, and immediately the scope began moving slowly to the south! With this initial success, our appetite was whetted for a starry night. As it turned out, that was to be the next night.

Blaine was unable to come so it was up to Bill and me. To begin the evening's testing, we initialized the LX-200 by entering the current time, date, and observing site location (the longitude and latitude can be looked up on any topographical map of your area). With this information in the telescope's memory, we levelled the field tripod. We then manually located a star (for calibration purposes), centered the star at high power and entered its name into the telescope. All of that done, the scope was now ready to use. I connected the scope outside to my computer in the house with the 100 foot cable.

We brought up the starmap function of Epoch 2000. Using the mouse, we centered the pointer on M42, then clicked the *send command* button. Looking out my window, I could see the LX-200 slewing, slewing, slewing..., then stopping. Did it actually acquire M42? Walking--well, almost running to the telescope--we peered through the eyepiece. M42 was centered in the view! Hearts pounding, Bill and I selected another object. This time, the open cluster M35 in Gemini. Feeling like professionals now, we changed the screen display to *night vision* mode, which turned everything a faint red. My computer room was now a telescope control room, bathed in the soft red glow of the monitor. Bill clicked M35 and the LX-200 responded faithfully! Looking through the eyepiece again confirmed its deadly accuracy! We next asked it to slew to Mars. I thought *this would be the real test--equivalent to hitting a moving target.* The LX-200 slewed to the position and found its mark! Mars was nearly centered in the field of view.

Each time after finding its target, the program asked whether we wanted to acquire an image using the CCD camera, and provided the control menu. Since we did not have a camera attached, we could not test this aspect of the program.

The only problem I encountered with the program was in the *images* utilities. When I tried to import raw CCD images into the program for processing, much detail was lost because the images were displayed in only a few shades of gray. No amount of image processing helped nor did a careful review of the manual provide any solutions.

Overall, I was very impressed with the program and am anxiously waiting for the Remote Telescope Network to come on line later this year. Incidentally, the first scope slated to come on the network is a 24" reflector at Mt. Wilson. It is due to be operational in November. By dialing a 900 number, time on this telescope could be yours!

(Be looking for a detailed review of Epoch 2000 by Blaine Freidlander in a future issue of *Windows User* magazine.)

An Occultation of Venus- for Real!

by Thomas S. Parry

Monday, April 19th 1993, dawned partly cloudy but beautiful. As I drove to work, I thought about the occultation predicted by the ephemerides. At 12:20 PM the Moon would pass directly in front of Venus, and a little over an hour later Venus would emerge from behind the Moon. This should be a fantastic and rare midday spectacle. I had never

witnessed the occultation of a planet by the Moon before and I tried to imagine what it would look like in my mind's eye, especially in full daylight.

I arrived at work with the usual things to do, and was welcomed with new tasks. Although I desperately wanted to go home and see the occultation, there were important things to do at work and I felt I really wouldn't have time. Besides, the sky seemed to be deteriorating, with a substantial layer of high cirrus clouds. "The event will be clouded out," I said to myself, rationalizing away my desire to run home, and buried myself in my work.

As the morning wore on, I noticed the high cirrus was dissipating and the sky grew bluer. Even the transparency had improved considerably since sunrise. I started to think again (a dangerous thing to do!): "Maybe I ought to head out and set up after all." My thought was dashed by a phone call summoning me to yet another duty.

I kept plugging away and was getting a lot done. By now it was almost 10:30 AM and I figured if I was going to cut out, I'd have to be outta there by 11:00 to get home, set up my telescope, and locate Venus. Traffic wouldn't be bad at 11:00 and I could zip down I-66 in twenty minutes. The sky had cleared even more and its cobalt-blue hue was so alluring I just knew locating Venus would be a cinch. I could hardly contain myself!

The phone woke me to reality. I reached over, knowing that this call would dash my dreams. "I guess I better just give this up," I thought, but I couldn't get the vision of a midday occultation out of my mind. To my delight, the call was a wrong number! I decided to pick up my pace to try and finish by 11:00. Since I was beginning to see light at the end of the tunnel, and knew there wasn't anything I couldn't put off until tomorrow, I thought I might just be able to make it. Then the boss walked by and announced that she was taking the rest of the day off. "If she can do it, so can I. My ship is in-- I'm outta here!"

I quickly took westbound I-66, knowing it would be clear all the way to Route 50. Wrong! Just beyond the Beltway everything screeched to a halt. My heart sank. "Rush hour at 11:15 AM?" There I sat in a midday parking lot on I-66, when I should have been setting up my equipment and locating Venus. After twenty minutes of snail-paced bumper-to-bumper agony, feeling that the whole effort was in vain, I made it through what turned out to be a construction bottleneck. I thought "The nerve of these guys-- on the day of a rare celestial event!" I made it home at 11:55 AM, twenty-five minutes from ingress.

I changed my clothes and enlisted my wife's help in setting up my 14.5 inch reflector and 10 X 70 binoculars. With her aid, setup and collimation took 15 minutes. Now came the big challenge: with ten minutes left, I had to locate Venus about 23 degrees west of the bright noonday sun. Using the 10 X 70s, I traced a line west from the sun approximating the inclination of the ecliptic for that time of day. In less than 10 seconds I had located a bright pinpoint in the binoculars, close to a barely detectable thin crescent Moon.

With the binoculars mounted on a tripod, the sight was magnificent! The thin crescent of Venus was very distinct next to the larger, fainter crescent of the Moon. The two worlds appeared suspended in an eerie blue sky, as though on some alien planet surrealistically depicted in a science fiction novel.

With minutes to go, I had to aim the telescope: tricky since the Telrad would prove useless in the bright daylight. I aligned it as close as possible to the angle of my binoculars, inserted the 32 mm wide-field, and slowly moved it around and around and around and...wow! As if by some miracle, I caught an unfocused white blob that could only be Venus. I focused and the silvery white crescent snapped into view. What amazed me was how close it appeared to the Moon's crescent.

With three minutes to go to ingress, I popped in the 22 mm panoptic. Words simply cannot describe the grandeur of the event that I was witnessing. It was "Venus-set" on the Moon. I could actually see the worlds moving as they got closer and closer. Finally, ingress--first contact! The twin cusps of Venus' crescent stood upon the brightened lunar horizon, reminding me of the Gateway Arch in St. Louis. With seemingly increasing speed, the planet sank until there was only a patch of Venus left. With the blink of an eye, it was gone.

During the hour and twenty minutes before Venus was to reappear, I kept my scope trained on the Moon so I would not have to relocate it at the last minute to view the egress of Venus. I took a look at the ephemeris to verify the egress time of 1:38 PM and decided to rig my 10 X 70s for an hour of solar observing.

Knowing that ephemeris predictions may be off by several minutes, I decided to start viewing the dark limb of the Moon at the predicted egress point about ten minutes before Venus' scheduled reappearance. That turned out to be a wise idea. Suddenly, three minutes ahead of schedule, a tiny point of light popped into the field! As the seconds ticked by, Venus gradually revealed more of its southern cusp. Moments later the northern cusp appeared about 40 arc seconds along the lunar horizon. At this moment two distinct points of light were separated by the darkness of the lunar limb. Now it was "Venus-rise" on the Moon, and the view was simply awesome.

As more of Venus' crescent came into view the lunar horizon was thrust into stark contrast against the bright planet, revealing a mountain rising from the lunar limb. I could hardly contain my jubilation over the panorama I beheld. Moments later, the full crescent of Venus came into view, broke away from the lunar horizon, and floated away on its own. The occultation was over.

I sat back in the bright afternoon sun to contemplate the majesty of the event I had just witnessed. To see other worlds in motion with clocklike precision is to behold the workings of one greater than anyone or anything on Earth.

Sky Sweep for May and June 1993: The M81 and M82 Galaxy Group

by Kevin Jones

How many of you saw supernova 1993J? This brilliant exploding star was discovered in galaxy M81 (a large, bright spiral galaxy in Ursa Major) on March 28th by Spanish astronomer Francisco Garcia. It reached a peak brightness of nearly 10th magnitude at the end of

March, but should remain visible at 13th or 14th magnitude throughout May and June. This is the brightest northern-hemisphere supernova in 20 years, so don't miss it!

Because of this new star in M81, the M81/M82 system in Ursa Major and its surrounding galaxy group will be the focus of this issue's column. M81 and M82 are both on the order of 7 million light-years from the Milky Way. They may form the nucleus of a small group of galaxies with a dozen or so members, including NGC 3077, NGC 2976, and IC 2574 in Ursa Major, and NGC 2366 and the large spiral NGC 2403 in Camelopardalis.

A quick trick to find the M81/M82 pair of galaxies is to draw an imaginary line between Alpha Ursae Majoris and Gamma Ursae Majoris (these stars make up a diagonal across the bowl of the Big Dipper). Extend this line out of the bowl, past Alpha, doubling its length. M81 and M82 are located almost exactly where this line ends and a hair north.

A distinctive 30-60-90 degree triangle asterism is visible in a finderscope or binoculars very near these galaxies. Although M81 and M82 will be visible in many finderscopes from a dark sky site, they are not as easily visible in severely light-polluted skies. I've used this little triangle to help me find these galaxies several times under the bright skies of Arlington.

M81 is a smooth 8th magnitude symmetric spiral galaxy, appearing almost twice as long as it is wide. M81's spiral arms have a low surface brightness and are difficult to detect visually. M82 is an unusual, 8th magnitude edge-on galaxy boasting long filaments of gas streaming outward from the nucleus on long-exposure photographs. These filaments apparently emanate from some sort of explosion that took place in the galaxy's nucleus millions of years ago.

NGC 3077, found three-quarters of a degree to the southeast of M81, appears as an 11th magnitude, featureless ellipse through the eyepiece. This galaxy is located in the same very low-power field of view as M81 and M82. It is an E2 dwarf elliptical galaxy, unusual because of the presence of faint dark dusty areas around its periphery that appear on long-exposure observatory photographs.

Almost one and a half degrees to the south-southwest of M81 is the peculiar galaxy NGC 2976. Visually, it appears as an 11th magnitude, slightly mottled, elongated ellipse, three arcminutes by one arcminute in size. This galaxy is usually classified as a dwarf Sd spiral. It contains many dark dust lanes and patches interspersed with bright star clouds, typical of a spiral galaxy, but is peculiar in that no clear spiral arms appear on photographs.

The large irregular galaxy IC 2574 is located three degrees to the east-southeast of M81. The large size of this galaxy (nine by four arcminutes) combined with its 13th magnitude brightness give IC 2574 a rather low surface brightness making it a difficult visual target. The classification of IC 2574 as an irregular galaxy is uncertain; deep photographs show faint indications of a spiral structure. Observers of this galaxy using large telescopes should look carefully for a large, bright (relative to the rest of the galaxy) star cloud on the galaxy's north fringes that appears over an arcminute in diameter.

Two other bright members of the M81/M82 group are located outside Ursa Major's borders in Camelopardalis. The first of these is NGC 2366, found 13 degrees to the west of the M81/M82 pair. It is a rather large but faint irregular galaxy, three by six arcminutes and glowing softly at 13th magnitude. In larger telescopes, some of NGC 2366's nonuniform structure may be suspected.

The last member of the M81/M82 group discussed here is NGC 2403. it is also 13 degrees to the west of M81 and M82, but four degrees to the south of NGC 2366. Spanning ten by sixteen arcminutes, this is a very large, imposing, nearly face-on Sc spiral galaxy. Glowing as bright as 9th magnitude, it is easily visible in small telescopes and even good binoculars under dark skies. Through telescopes, NGC 2403's mottled appearance shows itself well. Larger apertures reveal hints of the spiral pattern and resolve the clumpy spiral arms into star clouds.

All the galaxies discussed above are members of the M81/M82 group. This is the nearest outside our own Local Group

Sky Calendar

by Thomas S. Parry

May

3	*Jupiter 7 degrees N. of gibbous Moon*
5	*Eta Aquarid meteors (Full Moon)*
7	*Venus at greatest brilliancy (mag - 4.5)*
10	*Neptune 3 degrees S. of waning gibbous Moon*
11	*Uranus 4 degrees S. of waning gibbous Moon*
12	*Mars within Beehive Cluster, M44*
14	*Saturn 7 degrees S. of Last Quarter Moon*
18	*Venus 6 degrees S. of crescent Moon*
21	*Partial eclipse of sun (not visible in DC)*
22	*Very young Moon in west*
27	*Mars seven degrees N. of First Quarter Moon*
30	*Jupiter seven degrees N. of gibbous Moon*

June

1	*Jupiter stationary*
4	*Total eclipse of the Moon (not visible in DC)*
7	*Neptune 3 degrees S. of waning gibbous Moon*
10	*Venus at greatest western elongation (46 degrees in morning sky)*
	Saturn 7 degrees S. of waning gibbous Moon
11	*Saturn stationary*
16	*Venus 6 degrees S. of crescent Moon*
17	*Mercury at greatest Eastern elongation (25 degrees--good evening apparition)*
	Crescent Moon 3.5 degrees S. of Pleiades
21	*Mercury 7 degrees S. of Pollux*
	Summer solstice (summer begins)
22	*Mercury 4 degrees N. of crescent Moon*
	Mars 0.8 degrees N. of Regulus
24	*Mars 7 degrees N. of crescent Moon*
27	*Jupiter 7 degrees N. of First Quarter Moon*

and are located about 8 million light years from the Milky Way. Stop for a moment and think about the structure of the universe--stars make up galaxies, which make up groups of galaxies, which make up galaxy clusters, which form superclusters. By observing the galaxies mentioned above, you observe a single *building block* of the universe, trillions of times larger than stars such as our own Sun, and trillions of times smaller than the huge superclusters, such as the Virgo Supercluster to which our own Milky Way belongs.

Backyard Star-Hop: Coma Berenices

by Jon Stewart-Taylor

This is the first in an occasional series of articles describing some of my favorite backyard star-hops for binoculars. I live in a townhouse suburb of Washington, DC, with a fair amount of light pollution. On average nights the limiting visual magnitude near zenith is about 3.5 to 4. On the best nights it sometimes reaches 4.5 but the Milky Way is never visible. My usual instrument is a Bushnell *instant-focus* 10X50, but one could use the finderscope of a larger instrument to follow along.

Start by finding Mell 111, the Coma cluster itself. It is located almost at the center of a line drawn between Denebola (Beta Leonis) and the beautiful double star Cor Caroli (Alpha Canes Venaticorum). It will show an unmistakable *U* shape with a flattened bottom. Seemingly made of diamonds, it fits beautifully within the field of view of my 10X50's. Take a moment to do a quick count of the stars in the cluster. With practice observing, you will be able to see more stars each time you observe.

Move slowly eastward (parallel with the bottom of the **U**). Just before the Coma Cluster disappears from your field of view, two stars (one fifth and the other sixth magnitude) will appear on the edge of the field. These stars mark the North Galactic Pole (NGP), which is less than 1 degree below the brighter of the two stars. In the same field of view is galaxy NGC 4725. At magnitude 9.3 it is too dim for me to detect but with darker skies and/or a larger instrument you may be more successful.

Move further to the east, putting the NGP at the edge of the field, and Beta Comae Berenices will appear. At fourth magnitude, it is the brightest single star in Coma Berenices. Continue on the line from the NGP past Beta. Just after Beta leaves the field of view, a fuzzy patch of light will enter. This is the globular cluster M3, a close rival in brightness and size to the better-known M13 in Hercules. Under my viewing conditions, it appears as an eraser smudge and although it remains visible when viewed directly, it requires averted vision to see clearly.

Find Beta Comae Berenices again and head south, perpendicular to the line that lead you to M3. With Beta at the north edge of the field, a sixth magnitude star will appear nearly centered. Put this star at the north edge of your field, and you will see a *bow tie* asterism of sixth to seventh magnitude stars at the south edge of the field. Center the bow tie and the double star Alpha Comae Berenices will appear. Binoculars, however, will not be able to resolve the separation in Alpha. Look halfway between the bow tie and Alpha for M53, another globular. Nearly 2 magnitudes fainter than M3, M53 is an averted-vision only object for me.

To find our final object, put Alpha Comae Berenices at the east edge of the field. A triangle of 5th and 6th magnitude stars will appear near the center. Move north again, and a pretty little trapezoid will appear. Located exactly in the center of the trapezoid is galaxy M64. At magnitude 8.5, this is at the lower limit of detectability for me and I can only see it at zenith on very clear nights. It also helps if most of the neighbors forget to turn their lights on.

There are lots of other objects in the Coma Berenices region but most of them are out of the reach of an average pair of binoculars. This tour (and its selection of objects) shows where binoculars fit in the range of observing instruments. They function in a range half way between unaided eyes and small to medium size telescopes.

The Recreational Astronomer #2

by Jon Stewart-Taylor

Welcome back to the Recreational Astronomer. This time we will look at the stars and the patterns they form to broaden our knowledge of the constellations. Knowing the sky is an important first step in finding celestial objects. It is also a rewarding study in and of itself. Although intended for beginning astronomers, I hope this article will be of interest to everyone who wants to deepen their appreciation and knowledge of the constellations.

Learn the Sky

Any time you are out at night, you have an opportunity to learn the sky better. Even if for just a few moments (taking out the trash, or walking from the car to the house), you can scan the familiar constellations and fit the stars into their patterns. In five or ten minutes, you can learn new constellations and fit new stars into them, or broaden your knowledge of fainter stars in constellations you already know. The more you observe, the more the patterns in the sky become old friends. They will help you welcome the seasons as they change. The stars become guideposts to the constellations and other celestial objects. To see the faintest stars, you will need at least 20 minutes to allow your eyes to fully adapt to the dark. As the seasons progress, new areas of the sky will become visible and you can explore new territory.

What's Where?

Although observational practice is most important, you need to know what you are looking at when you go out. A good sky map is a must. There are different types of maps for different uses and it is helpful if the maps show the stars at various times of the year. Although small, the maps in *Peterson's Field Guide to the Stars and Planets* are good. If you have darker skies than I do, one of the sixth-magnitude maps such as *Bright Star Atlas 2000* or *Edmund Mag 6* may be useful.

One of the best aids for beginners is a planisphere, or star wheel. These can be set to show the sky at any time of the night, for any season of the year. Some of the best star maps containing constellation pictures with meaningful renditions are *The Stars* by H. A. Rey (yes, the Curious George author), who created stick-figure patterns out of the traditional constellations. Practically

anyone can recognize them as what their names imply. The only drawback to the Rey depictions is that in order to form nice pictures he had to use fairly faint stars, some of which aren't visible under average conditions.

"Wouldn't it be Heavenly to Know the Constellations...?"

It's fun, and it isn't hard. There are two basic approaches to learning to identify the constellations. Some people start by learning the names and locations of the brightest stars then learn the locations of their fainter neighbors. Other people prefer to learn to recognize patterns in the stars first and learn the bright stars afterward. Some find that making geometric patterns such as triangles and squares helps them. Others prefer to look for patterns based on the constellation name. Whichever method you feel most comfortable with, practice is the key to learning.

Another aid to identifying stars and constellations is recognizing asterisms. Asterisms are readily recognizable patterns that are either sub-parts of constellations, or share members from more than one constellation. Some of the more prominent asterisms are listed below by season:

Spring: The reverse qestion-mark shape depicting the mane of Leo and the head of Hydra.

Summer: The Teapot and Milk Dipper in Sagittarius, the Summer Triangle comprised of three first-magnitude stars (Vega, Deneb, and Altair) from different constellations, the Northern Cross (the body of Cygnus), and the Keystone of Hercules.

Fall: The "Y" of Aquarius, and the Great Square of Pegasus.

Winter: The Pleiades and Hyades in Taurus and the belt of Orion.

Circumpolar (all seasons): The "W" of Cassiopeia, the Head of Draco, and the Big Dipper in Ursa Major.

Each season of the year has its signature stars and constellations but this is only from the viewpoint of a given time of night. As the night passes, the stars appear to move from east to west. If you stay up and observe long enough, you will eventually see the stars of almost every part of the year. A section of the sky will remain drowned out by the light of the sun.

Learning the Bright Stars

The number of stars you can see is affected by the amount of light in your immediate surroundings. Under city skies, only a handful of stars may ever be visible. In the darkest skies, you may have trouble finding even well-known constellations among the unfamiliar thousands of stars. Most people will ordinarily have to deal with something in-between. Regardless of your conditions, the first stars you will be able to identify will be the bright stars listed below by season (check your starmap or planisphere for the constellations of which these stars are members):

Winter	Spring
Aldebaran	Capella
Capella	Castor
Rigel	Pollux
Betelgeuse	Denebola
Sirius	Spica
Procyon	Arcturus
Castor	
Pollux	

Summer	Autumn
Vega	Vega
Deneb	Deneb
Altair	Fomalhaut
Antares	Capella
Fomalhaut	

Although these are all first magnitude stars, they vary in brightness and color. Hues range from the pure white of Altair and blue-white of Sirius to the yellow of Pollux and the red of Antares. Their seasons, brightness, and colors should allow you to identify them without serious difficulty. It should be noted that each individual's eyes perceive color differently, and some people have difficulty seeing any color in the stars at all. Most people, however, will be able to distinguish the stars by color, even if they can't agree what the color is.

"Strangers in the Night..."

Two types of visible objects may be mistaken for bright stars by an uninitiated observer. During very short observing sessions, distant airplanes can seem to remain stationary giving the momentary appearance of a bright star. The planets, while interesting in their own right, can also cause confusion. Of the six planets visible with the unaided eye, four are bright enough to be mistaken for bright stars. Venus is usually unmistakable due to its piercing brightness. Jupiter and Saturn are not quite as bright, and have distinctive yellow or amber shades. Mars can vary considerably in brightness, but it's ruddy hues normally make it easy to identify.

Another thing that some find helpful is to recognize that stars generally twinkle or scintillate while the planets tend to shine with a steadier light. Also, if you watch over the course of a week or a month, planets will move against the background stars. In general, it is easy to tell the planets from the stars.

Simply Legendary

Most of the constellations date back to at least the Ancient Greeks, some further still. The legends and myths from which their names are taken are moving and interesting. Furthermore, they can be helpful in remembering what the constellations look like and their proximity to each other. Space precludes a detailed discussion of the legends and myths here but a list of references for further study follows.

For outlines of the Greek myths and how they tie the constellations together, *Peterson's Field Guide to the Stars and Planets* and H. A. Rey's *The Stars* are good sources. *Burnham's Celestial Handbook* gives more detailed descriptions of the Greek legends, and touches on myths of other cultures. Allen's *Star Names: Their Lore and Meaning* delves exhaustively into the origins and meanings of both constellation and star names. Hamilton's *Mythology* will provide background and address individual myths.

Acknowledgments and References

For general information about learning the sky:
- o *Backyard Astronomy* (Sky Publishing)
- o *Peterson's Field Guide to the Stars and Planets* by Pasachoff/Menzel

For maps of the constellations:
- o *The Stars* by H. A. Rey
- o *Peterson's*

For information about the names and legends of the constellations:
- o *Peterson's*
- o *Mythology* by Edith Hamilton
- o *Star Names: Their Lore and Meaning* by Richard Hinkley Allen
- o *Burnham's Celestial Handbook* by Robert Burnham

That's it for this time. Go study the sky!

Evolution of an Astronomy Club

by Robert Bunge

One reason that I enjoy belonging to an

astronomy club is watching it grow and mature. I was involved in the Columbus Astronomical Society (CAS) in Columbus Ohio in various ways for more than ten years. When I first joined CAS in 1980, it was undergoing a coup. After several years of infrequent activities and meetings, a new group of people (mostly college students) were in the process of taking over from entrenched officers (the "old guard") who had been involved in the club for the previous ten to twenty years.

As this new blood came into the club, several events began, planned and unplanned, which would shape the future of the club for the coming decade. This younger group was interested in doing amateur astronomy, in getting out and looking at the stars. I don't think the old guard ever accepted the idea of driving out into the country skies to observe. They thought a 6-inch telescope was big, and that most amateur astronomers observed the Moon, planets and a few bright deep sky objects from backyards with OK skies.

The key to the observing success of the young guard was that they were college students from different parts of the state. They brought knowledge of dark sky sites to the club, and a core group of these people started a long search for places to observe. After many exploring trips, a number of observing sites were found and used over the course of several years.

One popular site was a children's camp in southern Ohio. From this site, the skies were dark, the horizons were pretty good, and there was a place to keep warm in the winter. On the down side, phone calls were required to use the site, and arrangements had to be made in advance. A balance had to be kept to use the site, but not upset the people who controlled access. The drive to this site was OK: an hour or so on a divided highway, followed by twenty or so minutes on a two-lane highway through the rolling southern Ohio hills.

Another popular site was north of Columbus. It was the more-or-less abandoned observing site/club house of the Richmond Astronomical Society (RAS). This club had melted away over the years, but a few members remained. This site was located less then 10 minutes off of a major freeway, and was normally open at any time. From here, the skies were dark, the horizons great and there was somewhere to get warm in the winter (or take a nap before the drive home). There were plenty of restaurants and stores in the area to go to if it was cloudy. If the skies suddenly cleared, off we went to observe. Of course fun and activity are contagious, so in due time the RAS was reborn. A close relationship grew between CAS and RAS, with many folks belonging to both clubs.

But, the RAS site also had its problems, such as the cranky caretaker. It was great that he lived on the site. The protection afforded by this eliminated worries about security, as someone was around to make sure the place wasn't broken into. But, the downside was that he controlled the place. When he got worried about guests coming for parties and weddings (the place was a summer camp/lodge) he installed lights. The lights could be switched off, but we sometimes had to wait for the guests to leave before we could turn them off. This wasn't a big deal, but it was a hassle that we had to work around.

After some threats to the camp, he tightened security. For a while, access to the camp was limited, requiring calling ahead, a key, and other measures. He wanted to keep the lights on all the time, but we finally convinced him that we were better security than the lights, with our 11x80 binoculars. What were we to do? We had a multi-thousand dollar observatory on his land, and because the original members of the club were gone, there was little, if any, formal paperwork on the rights of the club and the observers. In fact, it wasn't even clear if the club really owned the observatory! Enough of RAS, and back to Columbus.

There were two other observing sites near Columbus. One was a small YMCA camp that had a small observatory built by CAS members many years ago. For years, CAS members had given programs at this site in exchange for usage. At first this worked out fine, but as park managers came and went, so did the interest in the observatory. Money was tight at the camp, so the "Y" hoped that CAS would handle the upkeep of the observatory. CAS was poor, so they asked the "Y" to maintain it. Neither worked, so tensions grew, while Columbus expanded and the sky grew brighter. Eventually CAS gave up. The programs stopped, and the observatory was left to vandals (in later years, it was rebuilt and new agreements with individuals were made).

The other site near Columbus was the large Perkins observatory, run by two universities. CAS members observed from the parking lot over the years, while for various reasons the universities stopped using Perkins for research. Except for monthly public nights, it was dormant.

With the help of a CAS member (who had a regular column in the Columbus Dispatch and years of public programs at local Metroparks) it was arranged that CAS would use Perkins for public Mars programs during 1988. Due to a lot of work, these programs were a success. After many meetings with university officials the OK was given for CAS meetings, a monthly public program, and some private observing at Perkins. After more than 30 years of public programs and a couple of years of the weekly astronomy column in the newspaper, the universities understood that CAS was a responsible group.

These days the universities, impressed with public response to the CAS programs, have hired a CAS member as a part time observatory director. The director schedules and gives programs, and handles many day-to-day maintenance problems. CAS has a place to give public programs, CAS members have a place to observe (and get warm!) and the universities get good public involvement. The year 1992 was a record year; as more than 15,000 people received a quality program at Perkins.

It has been fun to watch CAS evolve into a mature, strong group over the years. But, it was only done after a lot of sweat, screaming, swearing, understanding, commitment, and good old- fashioned work from the members. Each CAS member had their own personal dream, a little bit different than any other. Each CAS member was either willing to give up part of their dream, or left the group. A few of those who left came back after seeing the results. Those who stayed the course were generous enough to let them back in to enjoy the fruits of the

club's labor.

The Telescope is Finished!

by Al & Lynn Schumann

Yes, the old 13.1 inch Odyssey I telescope we wrote about in the Jan/Feb issue has been dismantled, redesigned and rebuilt. By the way, we need to make a correction to that article before going any further. The telescope we attributed to Bob Ridgley actually belongs to Jim Schaeffer. Sorry, Jim. This outfit is no NBC. When we blow a story we correct it straight away.

What does the new telescope look like? For openers, it is still a Dobsonian; we did not take leave of our senses and try to make an equatorial mount for it. In fact there were no changes at all made to the rocker box. Also, we retained the old altitude bearings as well as everything associated with the optical train. The "tailgate" mirror mount is gone, and with it the old sling-type mirror holder. The sling arrangement has been replaced with a secure nine-point flotation mount. Now the mirror can stay in the tube rather than having to be removed after each use. Kenneth Novac Co. manufactures a mirror mount that is just right for the one-inch thick Coulter mirror.

Otherwise, the big round tube is history, as is the real heavy plywood box that surrounded a good part of the tube. Instead, we built what is in essence a truss-type tube with a box at the top, a box at the bottom, and aluminum angle rails tying the two boxes together. The top box holds the secondary mirror, the focuser, and finder scope. The bottom box contains the primary mirror and the altitude bearings.

At the outset we decided on a square tube. Frankly, it's a whole lot easier to build than trying to fashion a round one. The secondary holder (spider) dictated the inside dimensions of 15-1/4 inches. We planned on using 3/8 inch plywood stock that would give an outside dimension of 16 inches even. With a solid plan in mind, we were off to the races: hardware store, lumber yard, and metal shop.

The 3/8 inch plywood stock by itself is not very rigid, so the inside corners of both boxes were strengthened by 1-1/4 inch square strips of wood secured with glue and finishing nails. The result was a very strong yet light-weight package. The top box is ten inches tall, and the focuser is placed at the midpoint. Five inches on either side should be ample for blocking stray light around the diagonal and the focuser. The bottom box is 23 inches tall, and the altitude bearings are centered at the top. The new tube is two inches thinner than the old one, so we had to add a spacer to each bearing in order for the tube to fit properly in the rocker box. The mirror mount was secured to a piece of 3/4 inch wood. The mirror and its mount are recessed a couple of inches inside the tube to protect the collimation wingnuts. Four bolts hold the mirror and mount in place.

After the boxes were finished, we measured everything as carefully as possible. When we thought we had the tube figured out for the 58.5 inch focal length, we put in the mirror, clamped it all together, and took the telescope outside for a focus check. At this stage, collimation was strictly perfunctory. We just wanted to make sure we could bring a full range of eyepieces into focus. Surprisingly, it took only a slight adjustment to get all eyepieces from 40 mm down to 7mm to focus. We even checked it out with a Barlow. There was still focuser travel remaining at each end, so we figured we were in good shape. After we measured and marked the rails, we dismantled the whole works. We drilled holes in the rails and boxes for the screws. We coated the boxes with sealer, then sanded and painted. At last, we bolted everything back together in final form. We even salvaged the ODYSSEY I logo from the old tube and glued it to the new one.

When the whole shebang was assembled, we went through the Coulter collimation drill. Although time consuming, once everything was properly aligned, our newly completed Odyssey saw first light on 7 March 1993. The moon was almost full that night, so deep sky stuff was washed out. Views of the moon, however, were breathtaking! A Telrad provides the finishing touch.

Oh yes, the weight reduction. Well, the new tube without mirror now tips the scales at 43 pounds. That is 17 pounds lighter than the original. More importantly, the rail concept makes the tube a lot easier to handle. We made no attempt to balance the telescope while it

North Star Window

by Douglas H. Fraser

Some things never change, or at least not very much. So, when I designed my house in 1990 I included in the plans a window that looks up to the north star.

After all, there is something reassuring about the north star. Every time I place my telescope in the back yard I am always a little surprised at how easy it is to roughly align the axis of my tripod with Polaris. It's like an old friend.

The original notion was to lie in bed at night and look up to see Polaris in a window or skylight, but there was a problem--the bedrooms were downstairs. So my plan was to have a hole in the floor strategically aligned with a high window upstairs in the Greatroom.

In October the framing was up and the windows set. I was upstairs after dark with my flashlight and telescope tripod like a transit plotting the location on the floor where I was to cut the hole. Fortune seemed with me. The carpenters had not placed a joist at that location. In fact, the space was wider than normal.

My plans were partly scutteled the following week by the mechanical contractor. He insisted on having that space for his main duct. I could see for myself that no other space would do.

So now I must go upstairs, lean my elbow on the bar next to the phone, flip off the lights, look up and there I find my old friend through the window. Some things never change.

was being built. To do so would have necessitated either rebuilding a taller rocker box or adding weight to the mirror end of the tube itself. We were loathe to embrace either option, because eliminating built-in weight was what the project was all about. Instead, we fashioned a pouch to hold counterweights. The pouch can be clipped onto the tube after it is in place in the rocker box and removed from the tube afterwards. The pouch and weights can be tossed in the trunk of the car and left there, thus leaving a lighter tube to move.

In the final analysis, we believe we have a better telescope than the original. It certainly is better looking. We have all the dimensions, our rudimentary sketches, and a bill of materials for anyone who might want to undertake a similar project for a 13.1 inch, F4.5 Odyssey I.

Software Review

by Al and Lynn Schumann

ORBITS: Voyage Through the Solar System. Ver. 2.14, Software Marketing Corp., 9831 South 51st St., Suite C-113, Phoenix, AZ 85044 (602) 893-2400. IBM PC, $49.95

This is a program that scores a user-friendly bull's-eye. As a primer on the solar system, Orbits is jam packed with vital statistics and the kind of information one would find in a "coffee table" tome. As the program is laid out, it can be read just like a book. Subject menus open with a click of the mouse. One can keep reading, clicking, and enjoying the splendid graphics of all the solar system objects from the sun to Pluto including asteroids. Planets can be compared side-by-side with one another and comparison data printed from the screen. Orbits of the inner and outer planets can be animated for study at varying speeds. Planetary photos are up-to-date and include Voyager images of Neptune and the other planets.

The high-quality graphic and animation capabilities provide for an excellent presentation on the sun including the life-cycle of our star, its origin, structure, and eventual death. For a break in the action, there are a number of games similar to jigsaw puzzles. The player moves picture segments around the screen in an attempt to recreate the title page of each major segment.

Orbits is perfect for teaching a youngster about the solar system or for stimulating interest in the wonders of astronomy. It is, furthermore, a very pleasant refresher course for amateurs whose recollections of solar system details may have become fuzzy.

NOVAC Notices

Sky & Telescope Discounts

As a member of NOVAC you can get a subscription to Sky & Telescope for $20.00 instead of the regular $27.00 rate. To start a new subscription or renew an established subscription, make your check out to SKY & TELESCOPE for $20. Note on the check if this is a new subscription or a 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.

Astronomical League Observing Guides

The club now has a supply of the Binocular, Messier, and Herschel Observing Guides from the Astronomical League. These guides are great for both the beginner and the advanced observer.

The *Binocular Observing Guide* lists the Messier objects visible through binoculars ranging in size from 6x30 to 11x80. It breaks the objects down according to season visible, degree of difficulty, and size of binoculars required. For those of you without a telescope, here is chance to do some "real observing." Binocular observing is fun for beginners and old pros as well.

The *Messier Guide* has descriptions of all the objects as seen through 6" and 8" scopes as well as information on finding the objects. There is a log in the back of the guide for recording your observations and a map showing the locations of all the objects. If you have a telescope and want to start seeing some of the best objects in the heavens, this is the place to start.

The *Herschel Guide* is for more advanced observers. The Guide presents 400 objects first described by William Herschel along with descriptions of each object as seen through 6" and 8" scopes and their positions in the sky. There is also a sample observing log included. If you have seen all the Messier objects and want something more challenging, this is it.

The Astronomical League will award a handsome certificate for those who successfully observe the objects listed in each guide. We will present the certificates at club meetings. Observing is for everyone regardless of skill level and equipment. NOVAC would like all our members to have a chance to see the wonders of the night sky and we hope this will encourage everyone to observe.

Club Telescope Available for Use

NOVAC is making available a six-inch (f-5) newtonian reflector for club members to check out free of charge and use for a limited time. The 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 set-up at remote observing sites. The scope comes with two eyepieces; an *Orion Ultrascopic* 10 mm and *Meade* MA 25 mm--both with 1.25 inch barrel sizes.

If you are interested in borrowing the scope, contact Steve Bodner at (703) 243-1722 (until 10:00 P.M.) or leave a message on his answering machine. He will schedule a time for you to pick the scope up at his home. Steve resides at 1557 N. Danville Street, Arlington, VA 22201. You will need to show your NOVAC observing pass and leave a $500.00 deposit to take the scope out. Checks should be made payable to NOVAC and will be held until the scope is returned. Checks WILL NOT be deposited and will be returned when the scope is turned in. The scope may be checked out for two to four weeks at a time depending on demand.

Star Party for Homeless Children

A star party is being planned for Friday evening, 29 May 1993 for elementary-age homeless children and their guardians in Annandale Virginia (Rain date is 4 June). Specific time and location will be announced in the May General Membership Meeting. NOVAC has been asked to participate in this event and volunteers are needed to provide telescopes and orientation programs. Members who can volunteer some time and help assure the success of a worthwhile community outreach effort should contact Lynn Haber at (703) 934-3126 (work).

1993 NOVAC Meeting & Observing Schedule

The schedule below lists the NOVAC General Membership Meeting and NOVAC Observing Schedule for the remainder of 1993. The dates in normal text are the observing nights and the dates in **bold** are the monthly meetings. General Membership Meetings are held at the Arlington Planetarium on the third Wednesday of every month. Trustee Meetings are held on an *as needed* basis, usually 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. The NOVAC Observing Sessions

are held at C.M. Crockett Park in Midland, VA.

```
MAY. 14, 15, 19, 21, 22
JUN. 11, 12, 16, 18, 19
JUL. 16, 17, 21, 23, 24
AUG. 13, 14, 18, 20, 21
SEP.  9, 10, 15, 17, 18
OCT.  8,  9, 15, 16, 20
NOV.  5,  6, 12, 13, 17
DEC. 10, 11, 15, 17, 18
```

Observing Site Rules

Crockett Park:

NOVAC members may use Crockett Park for observing on nights other than those scheduled for club observing; However, YOU MUST HAVE PRIOR APPROVAL FROM RODGER PENCE, THE PARK MANAGER. Call early in the day on which you wish to observe; the telephone number is 703-788-4867. If you reach the answering machine, leave a message saying that you are a NOVAC member and you wish to observe that night. Also, leave a telephone number where someone can reach you. 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 please remember to lock it after you leave.

During EDT, you must set up on the large field to the left of the park entrance. During EST, you must 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.

The Kilpatrick's:

NOVAC members may use Jim and Sheree's property for observing on any night - BUT, YOU MUST HAVE PRIOR APPROVAL FROM THE KILPATRICKS. Call early in the day on which you wish to observe; the telephone number is 703-547-3501. If you reach the answering machine leave a message saying that you are a NOVAC member and you wish to observe that night. Also, leave a telephone number where the Kilpatricks can reach you. If you do not receive a return call, you may not use the site, THERE ARE NO EXCEPTIONS! Use of the site is limited to NOVAC members only.

No loud radios, alcoholic beverages or loose pets. Do not leave trash or debris behind. We are guests of the Kilpatricks and they reserve the right to revoke our observing privileges any time due to the carelessness of one person.

Directions to 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 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.

Directions to The Kilpatrick's

From the Washington DC/Northern Virginia area, go west on I-66 to Route 29. Take the Route 29 South exit to Warrenton. Continue on 29 past Warrenton and Culpeper. When you pass the last exit for Culpeper, stay on Route 29 for 8 miles. At Route 631, turn left, and go 2.5 miles. At Route 630, turn right and go 1.5 miles until you come to Route 632. Turn left, go about 100 yards up the hill. On the right there are three mailboxes. Turn right onto the driveway, go straight to the Kilpatrick's home. Let them know you have arrived and they can help you find a spot to set up.

NOVAC Property Inventory

NOVAC is conducting an inventory of all club property. If you currently have any club property, plase contact:

Enid Levine
6823 Spur Rd.
Springfield VA 22152
(703) 451-7435

USNO Centennial Celebration

by Brent Archinal

On 15 May 1893, The United States Naval Observatory (USNO) formally occupied the present Observatory Circle site in the District of Columbia. To commemorate its 100th anniversary at this site, USNO will host a public open house on 15 May 1993 from 10 A.M. to 4 P.M. The twenty-six-inch equatorial refractor (used to discover the moons of Mars), the twelve-inch refractor, six-inch transit circle, and twenty-four-inch reflector/CCD system will all be open to the public. In addition, special displays describing the history of USNO and its current site along with ongoing work of the observatory in the areas of Earth Orientation, Orbital Mechanics, and almanacs will be available in buildings throughout the compound.

Several vendors including Willmann-Bell Inc., Celestial Products, Company Seven, etc. will have items on display and for sale. The USNO recreation committee will sell astronomy-related items as well as food and drink. A ceremony is scheduled for 12:30 P.M. to commemorate the centennial and will include dedication of a new sundial, plaque, and oak tree, followed by a Navy Band performance at 1 P.M.

NOVAC, along with the National Capital Astronomers (NCA) and the Triangulum Astronomy Club (Fredericksburg), has received a special invitation to participate in the celebration and to provide information to the public on astronomy in general and the club in particular. Members are invited to bring telescopes for display outside as well as white-light solar filters for public solar observing. Displays including astrophotos, books, atlases, charts, magazines, mirror-making apparatus, etc. are encouraged (please bring a card table for your display). If the weather is nice, USNO expects several thousand people in attendance at the open house. In the event of inclement weather, space will be provided for NOVAC to set up a display indoors.

If you would be interested in participating in the NOVAC display, contact Myron Wasiuta at (703) 786-9276 (Fredericksburg). Let him know if you will be bringing telescopes or display items. Myron will coordinate the displays and provide last-minute directions and information. If you plan to bring a telescope on the day of the event, you may enter the observatory grounds through the main gate at 34th and Massachusetts Ave N.W. from 9-9:30 A.M. After that time the main entrance will be open only to pedestrian traffic from 10 A.M. until 4 P.M. The Observatory Circle gate (near the New Zealand Embassy) will be open the same hours to vehicular traffic.

USNO encourages club members to come and set up during the 9-9:30 time period and leave in the 4-5 P.M. period. The 9-9:30 time period is the only one in which cars will have easy access to (or can be left in) the area near the main building where displays will be set up. Individuals wishing to arrive later or leave earlier may do so with the general public.

Even if you are not able to help out with the NOVAC display, this event is still free and open to the public. You, your family and friends are welcome to attend. The gates will be open from 10 A.M. to 4 P.M. to admit the general public and the open house will be held rain or shine. We hope to see you at the USNO Centennial Celebration on May 15. There may not be an event like this for another hundred years!

The NOVAC Newsletter is published six times a year. Subscriptions are available through membership in NOVAC. Dues are $18.00 per year.

For club membership information contact:
Brenda Jones, Treasurer,
883 North Kentucky Street,
Arlington, Virginia, 22205,
telephone: 703-527-7963.

NOVAC

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

NO. VA. 220
PM
1993

12/93 - $0.00

Bill Burton
2102 Whisperwood Glen Lane
Reston, Virginia 22091