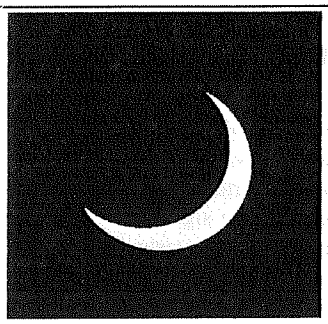
NOVAC

THE NEWSLETTER OF THE NORTHERN VIRGINIA ASTRONOMY CLUB

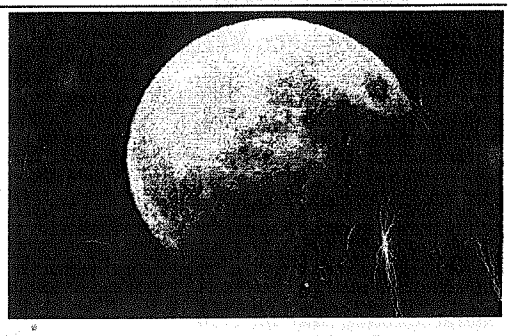
Issue Number 54 | Volume 14 | July/August 1994

Inside this issue:

A Pair of Partial Eclipses in May



Partial solar eclipse May 10



Partial lunar eclipse May 25

Editor's Note

by Thomas S. Parry

The month of May was a great time for amateur astronomers in the Northern Virginia area. Not only did we get some outstanding weather for deep sky observing, but were blessed with an annular eclipse of the sun May 10th followed by a partial eclipse of the moon May 25. We were especially fortunate on the days of the eclipses because both events were threatened by inclement weather early on only to have everything break open just in time for the big events.

Obscuration at solar eclipse maximum reached nearly 86 percent in our area creating spectacular views of a "thin-crescent" sun and an eerie dimming of the sky. I managed to interrupt a seminar I was conducting in Warrenton to have all the participants view the eclipse through my solar-filter equipped 10x70 binoculars. Between my seminar participants and bystanders, there must have been nearly thirty people lined up behind my binoculars to get a look. Many had never seen an eclipse before and some were so taken by the sight that they wanted to know more about how to get into astronomy as a hobby.

Other NOVAC members were fortunate to travel to the eclipse centerline and in some cases view up to nearly six minutes of annularity. Guy Moore experienced such fortune as he describes in his article *A Ring of Silver in Oklahoma*. Back home, Al Schumann obtained some high-resolution images of the eclipse using his eight-inch Celestron that he shared in the May meeting and will report on in the upcoming July meeting. Al also obtained a beautiful image of the partial lunar eclipse (above) and reports on both events in his article *A Pair of Partial Partial Eclipses*.

July marks the long-awaited crash of Comet Shoemaker-Levy 9 into Jupiter. As is the case with events of this magnitude, there is a great deal of media hype. To this day it is uncertain exactly what will be seen in the hours and days following impact and there is a good chance that nothing will be detected. It is, however, worth a close look at Jupiter--especially these weeks before the predicted impact. Bill Burton has carried out an extensive study to map in detail the entire 360 degree surface of Jupiter so as to be prepared to determine any significant changes. He describes his work in his article *Jupiter Before Impact* and includes a full sketch of the Jovian surface.

In his *Astro-Imaging* installment this month, Myron Wasiuta walks us through a typical CCD imaging session. Starting his imaging session at 3:00 a.m., he brings new meaning to the phrase "The early bird catches the worm." This time the "worm" is a *triple egress* of Jupiter's moons! Myron continues to get excellent images from his Electrim CCD camera and 10-inch reflector. A small sampling of his lunar and planetary images appears in this issue.

A high priority for the NOVAC Board of Directors and Officers is to get a sense from you, the membership, of the direction you would like to see NOVAC go in the months and years ahead. To get your input, we are asking all NOVAC members to please fill out and send in the attached membership survey. It will only take a few minutes to do and your responses will provide an invaluable resource for planning NOVAC's future. This is YOUR astronomy club. Please make your voice heard.

On a final note this month, I would like to mention that our contributing editor Jon Stewart-Taylor will be taking a brief respite from *The Recreational Astronomer*. Jon and his family eagerly await the arrival of a new child. NOVAC wishes Jon, Kathleen and his family the very best. Look for *The Recreational Astronomer* to return this fall. Speaking of new additions to the family, it is my pleasure to announce the arrival of Dana's and my fifth child, David Michael Parry, on Father's Day (June 19) at 11:45 a.m. Mom, Dad, David and all of his brothers and sister are doing great.

May we all have clear skies and a great summer observing season! □

Highlights of May and June General Membership Meetings

by Marta Krause, Secretary

NOVAC President Bob L'Hommedieu called the meeting to order at 7:30 p.m. Thirty-nine members and guests attended at the Arlington County Planetarium.

General Meeting May 18, 1994

Announcements

1. A troop of Girl Scouts requested that NOVAC help the girls observe June 3 at Potomac Woods Girl Scout Camp. The scouts are working to earn their Astronomy badges. Anyone interested in helping should contact Bob L'Hommedieu, who has volunteered to observe with the troop.

2. NOVAC's family picnic has been scheduled for October 1, 1994 at Crockett Park. October 1 is a regularly scheduled observing night; members and their families are invited to bring their own picnic dinners and stay to observe. More details will be forthcoming.

3. The NOVAC Membership Survey will appear in the next issue of the newsletter. Everyone is encouraged to respond to provide information that will help current and future officers plan activities for the club.

4. Bob Bolster reported that Disney Corporation has been receptive to information provided about astronomer-friendly lighting. Bolster, Bob Bunge, and Dan Castanza met for one and one-half hours with the planner of the proposed theme park regarding lighting, and Disney has promised to do the best it can with lighting for the facility.

5. Linda Schramm, meteorite curator with the American Museum of Natural History, will speak at NOVAC's June meeting. This meeting will be of interest to youngsters.

6. Brenda Jones reported that the rain date for the Jupiter Watch at the Naval Observatory has be cancelled: there will be no rain date.

Old Business

1. An amendment to Article Two of the NOVAC Bylaws regarding Financial Protection has been proposed and will now be voted on. Currently, Article Two reads: "All checks must be signed by two trustees." In order to allow Treasurer Brenda Jones to more conveniently handle routine bill paying for NOVAC, it is proposed that Article Two be changed to read: "All checks over $300 must be signed by two trustees." A vote was called and the amendment was approved unanimously.

New Business

1. Al Boldt has secured permission for NOVAC members to observe at Sky Meadows Park. Arrangements with the Park require that the supervisor be contacted in advance, that no more than six people observe on a given night, and that observers must be in the park by dusk. Once there, observers may remain in the park all night. NOVAC members interested in observing at Sky Meadows Park should contact Al Boldt, NOVAC's Sky Meadows Coordinator, at 437-4532.

2. Other observing sites are being investigated. More information will be provided as sites become available.

Member Presentations

1. Doug Mistler recommended the *Sky Pointer* and *Finder Chart of Bright Telescopic Objects* as simple, effective astronomy tools for use with children. Contact Doug for more information about these inexpensive items.

2. For eyepiece storage, Bob L'Hommedieu recommended storage cases and foam that can be found at The Container Store, 8508 Leesburg Pike, near Tyson's Corner.

(Continued on page 3)

President's Column

by Bob L'Hommedieu

This issue of the NOVAC Newsletter contains a membership survey. This questionaire will help current and future club officers assure that NOVAC offers the kind of meetings, activities, and services that the members would like to have. Without your imput, the officers are only guessing about what our members want and what the goals of the club are and should be in the future. Please take the time to fill out the survey and return it. NOVAC has paid for the return postage and it will only take about five minutes or so to answer the questions. I thank you in advance for your input and cooperation.

At the July General Membership meeting, we will discuss acquisition of a new observing site near Leesburg. This new site is not a replacement for Crockett Park but a useful supplement. Bill Burton will show a video of the area and Jon Stewart-Taylor will be discussing observing site rules and access. I look forward to seeing everyone there. □

(Continued from page 2)

3. Sandy Sanders provided photos of the May 10 solar eclipse taken at Oberlin College, approximately 25 miles SW of Cleveland, Ohio.

4. Bob Sandy showed astrophotographs taken in the past two months, including slides of the May 10 solar eclipse, several nebulae, M81, M82, and the supernova in M51.

5. Brent Archinal showed slides taken along the path of annularity May 10 during a recent trip to the Texas Star Party, at a site 60 miles from Sierra Blanca, Texas.

Bob L'Hommedieu gave the observing report and the meeting was adjourned at 8:15 p.m. Members and guests moved to the planetarium hall for the NOVAC Swap Meet.

General Meeting June 15, 1994

Bob L'Hommedieu called the meeting to order at 7:30 p.m. Forty-two members and guests were present at the Arlington County Planetarium.

Announcements

1. A new observing site has been identified. The site is unused property held by the Northern Virginia Regional Park Authority and is west of Leesburg off Route 601, about 45 minutes from Reston. Bill Burton found the site about two years ago, and Jon Stewart-Taylor wrote to the Park Authority in April to inquire about NOVAC's use of the property. The Park Authority granted permission for NOVAC to use the site and details are currently being worked out. Details concerning access will be announced at the July meeting. NOVAC thanks Bill Burton and Jon Stewart-Taylor for their efforts in obtaining permission for NOVAC to use the site.

2. The Planetary Society's Jupiter Watch event is planned for Thursday, July 21, at the Naval Observatory in Washington, DC. NOVAC has been given 20 tickets by the Planetary Society for members **without telescopes** or with other limitations who wish to attend the event. Admission will be at either 8 p.m. or 9:30 p.m. Interested members should see Brenda Jones for tickets. Members who wish to bring their telescopes to the event do not need tickets for admission, but do need to sign up with Brenda by July 10. Admission for those with telescopes will begin at 6 p.m. at the Observatory's main gate on Massachusetts Avenue. Anyone with questions about the event should contact Brenda Jones.

3. Ron Ferris announced that the program for the July meeting will offer a video and slides of the recent annular eclipse, a community solar system, as well as other topics, and will be given by NOVAC members Al Schumann, Bill Burton, and Sandy Sanders.

4. Marta Krause reported that NOVAC has a request from a Cub Scout troop in Manassas for assistance in earning their astronomy badges. Anyone interested in helping the scouts with a telescope and an evening of observing in late July or early August should contact Marta.

5. Doug Mistler has two of the Astronomical League's Herschel Observing Guides for sale at $6 apiece. A binocular observing guide is also available. Anyone interested in these guides should contact Doug.

6. Linda Thomas reported that a troop of Boy Scouts in Loudoun County south of Leesburg needs volunteer astronomers to help the troop earn its astronomy merit badges. Anyone interested in helping the scouts should contact Linda.

There was no old business pending.

New Business

1. The Roanoke Valley Astronomical Society (RVAS) is hosting the 1994 convention of the Virginia Association of Astronomical Societies (VAAS) and has scheduled the event for Saturday, October 1, 1994. Featured speakers will include Tom Lorenzin, author of *1000+, A Deep-Sky Guide*; Perry Willmann Remaklus, publisher, Willman-Bell, Inc (*Uranometria 2000.0*); and John Simonetti, a professor of physics at Virginia Tech. RVAS has also arranged admission to the Science Museum of Western Virginia and Hopkins Planetarium, including admission to the grand opening of *One Giant Leap*, an exhibition commemorating the 25th anniversary of the first lunar landing. In addition, there will be an observing session at a dark-sky site on the Blue Ridge Parkway, a telescope display, swap tables, astrophotography contest, a full chicken dinner, and more. RVAS anticipates an admission fee of $13 to $15 per person; anyone interested in attending should contact Frank Baratta at (703) 774-5651. As a reminder, October 1 is the date of the NOVAC picnic and an observing session.

2. The NOVAC Membership Survey will be included as a first-page attachment to the July/August issue of the newsletter. The survey is one page, includes postage, and is easily mailed back. The survey includes questions on a variety of topics of interest to club members, including new observing sites and meetings. Information provided by the survey will be useful to NOVAC officers as they plan activities for the club. All NOVAC members are encouraged to complete and return the survey.

The observing report was given by Jeff Stetekluh, including reminders that on July 16 the first fragment of Comet Shoemaker-Levy 9 will hit Jupiter and that July 20 is the 25th anniversary of the Apollo moon landing.

Member Presentations

1. Jerry Wolczanski showcased a new telescope he has been working on recently. The telescope, which grew out of a meeting Jerry had with a wheelchair astronomer at Stellafane two years ago, is designed for use by individuals in wheel chairs. In addition, Jerry offered old copies of Sky and Telescope to anyone interested.

2. Brent Archinal reported that the Ohio Turnpike Astronomical Association will be holding its annual astronomy convention on September 30 and October 1 at Hidden Hollow in Mansfield, OH (approximately an 8 hour drive). A 31" telescope will be available, and there will be professional speakers. Anyone interested in more details should contact Brent, who knows the Association and recommends the convention.

3. Russ Duke recommended a new edition of *Build Your Own Telescope* as an easy- to-understand guide to constructing a telescope. The volume is available for $24.50. Anyone interested should contact Russ for more details.

4. Bob Bunge reported that the Disney Company has submitted its re-zoning application for the proposed development site near Haymarket, VA. The proffers of the application included a discussion of what Disney will do regarding potential light pollution from the development, and included mention of full cut-off fixtures and possibly low-sodium fixtures. The information has been uploaded to the NOVAC BBS for those interested. Regarding lighting concerns at a race track that is proposed for the area, Bob noted that most events would be held in daylight, and evening events would be over early in the evening. NOVAC expresses its thanks to Bob Bolster, Bob Bunge, and Dan Castanza for their time and effort in coordinating contact with Disney regarding astronomer-friendly lighting at the proposed Disney historical theme park.

The program was given by Linda Schramm, meteorite curator at the American Museum of Natural History, and included a slide show, meteorite samples, and reading materials. Linda encouraged anyone interested in the reading materials, or who has questions about potential meteorite finds, to contact her at (202) 357-1478.

The meeting was adjourned at 9:30 pm. □

Sky Sweep: July/August 1994

Globular Clusters in Scorpius and Ophiuchus

by Kevin Jones

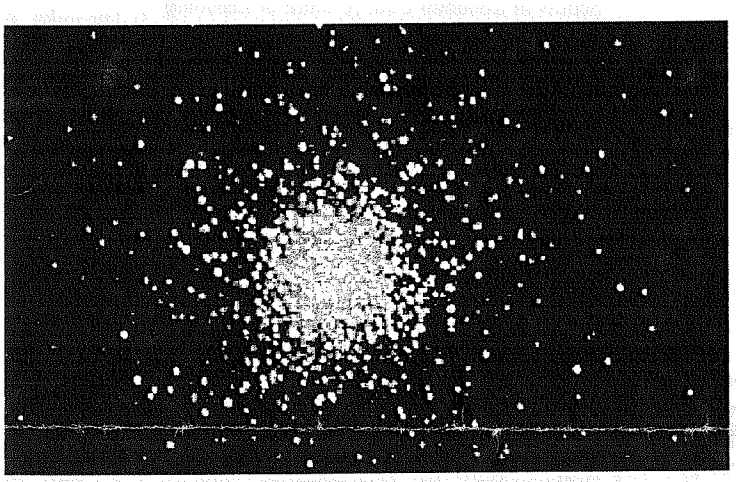
During July and August evenings, the bright band of the summer Milky Way arches high overhead. The brightest portion of this band is located near the southern horizon, between the constellations Scorpius and Sagittarius. This area is particularly bright because it is located in the direction of the center of our Milky Way galaxy. We are positioned off towards the edge of our galaxy, so most of the "stuff" in our galaxy is located in the general direction of the galactic center. This region of sky is rich in stars, nebulae, and star clusters. This month's column will focus on the rich area of globular star clusters in Scorpius and Ophiuchus, just north and west of the galactic center. This area contains nine globular clusters which are Messier objects: M4, M9, M10, M12, M14, M19, M62, M80, and M107.

M4 is probably the easiest globular in this area to locate. It can easily be found just west of Antares in Scorpius. This cluster is about 15 arcminutes across and shines at sixth magnitude. M4 has a strange central bar-like feature that is surprisingly easy to notice. This bar is actually a string of ten 11th-magnitude stars oriented nearly north-south.

The smaller and fainter globular M80 is located midway between Antares and Beta Scorpii (the northernmost bright star in Scorpius). This cluster is eighth magnitude and only three arcminutes in diameter, one-fifth the diameter of M4. Although M80 is two magnitudes fainter than M4, through the telescope its surface brightness is clearly higher than that of M4 because of M80's smaller apparent size. M80 is a very tight, rich globular with a concentration class of II.

M107 is located to the north-northeast of M80, just over the Ophiuchus border. Visually it is pretty similar to M80, about the same size and brightness. M107 is located much closer than M80, however. M107 is thought to be 10,000 light years distant while M80 is over three times as distant. If that is the case, M107 would be a smaller cluster than M80. At the distance of M107, its angular size corresponds to an actual diameter of about fifty light years.

North and west of M107, in the interior of Ophiuchus, are three bright globulars separated by several degrees. From west to east, these clusters are M12, M10, and M14. M12 and M10 are very similar, both shining at 7th magnitude and having diameters of eight arcminutes. These two clusters are both located about fifteen thousand light years from the Solar System and are thought to be just under one hundred light years across. These two clusters are fairly loose and resolvable for globulars, having concentration classes of IX and VII respectively. The diameter of M14 is less than half the diameters of M12 and M10 and is fainter as well, glowing at ninth magnitude. Its concentration class of VIII suggests that this cluster would be readily resolvable, but its component stars are fifteenth magnitude and fainter, permitting resolution only through large telescopes.



A typical globular cluster

Globular M9, very similar in size and brightness to M14, is located about ten degrees to the south of M14. Through the eyepiece, this cluster appears to be very slightly elliptical.

Continuing to the south, cluster M19 is located five degrees past M9. M19 is seventh magnitude and five arcminutes in diameter, brighter and larger than M9, but still a good deal smaller than the relatively huge M4. The individual stars in M19 are sixteenth magnitude and fainter, making resolution nearly impossible with most amateur telescopes.

The final cluster in this area is M62, located a few degrees to the south of M19, still in Ophiuchus but near the Scorpius border. This cluster appears very similar through the eyepiece to M19. Like M19, it is seventh magnitude, but M62's diameter is one arcsecond larger than M19's. Like the cluster M9 mentioned earlier, M62 has been noted to be not quite round, but slightly elliptical. The elongation of M62 is roughly east-west.

I hope you have enjoyed this tour of nine summer Messier globular clusters. I find it useful when observing globulars to observe several in a row while keeping the magnification constant to emphasize the changes in scale between these objects which, admittedly, can tend to blend together and look quite similar. Good luck observing through the haze and humidity of Northern Virginia summer! □

Jupiter Watch Open House at the U.S. Naval Observatory July 21

The U.S. Naval Observatory (USNO), in conjunction with The Planetary Society, will host an Open House Thursday, July 21, from 8 - 11 PM on the occasion of the impact of remnants of comet Shoemaker-Levy 9 (1993e) on Jupiter. Admission to this event will be limited. Weather permitting, visitors will be able to view Jupiter through the USNO 12- and 26-inch refractors as well as NOVAC member's telescopes set up on site. The Master Clock of the United States, the Library and the Main Observatory Building will also be open to the public. Comet co-discoverer David Levy and USNO astronomers will provide presentations on the impact. Although it is unlikely that any effects will be seen from the collision, it will be a good opportunity to study Jupiter during such an historic event. The Open House will be held in cloudy or clear weather.

NOVAC members who wish to help out during this event must notify Brenda Jones NO LATER THAN JULY 14 in order to be put on the list for admission at the gate. Your name MUST be on the list to be admitted. Don't hesitate to call Brenda to double check that your name (or that of someone wishing to attend with you) is on the list! If you don't have a telescope or are unable to bring your telescope but would like to attend, there are a limited number of tickets available for admission. To obtain tickets or for further information, call Brenda at 703-527-7963. □

Sky Calendar for July/August 1994

Compiled by Thomas S. Parry

(Times and dates are Eastern Time. Observations begin at dusk)

July

1 **Observing at C.M. Crockett Park**
2 Jupiter stationary in its orbit
Observing at C.M. Corckett Park
5 Crescent Moon 5° S. of Pleiades (M-45) (AM)
Mars 0.3° N. of crescent Moon (AM)
Earth at aphelion (farthest from the sun)
7 Mercury 1.3° S. of Crescent Moon (AM)
8 New Moon
Observing at C.M. Crockett Park
9 **Observing at C.M. Crockett Park**
10 Venus 1° N of Regulus (PM)
12 Venus 7° N. of waxing crescent Moon (PM)
14 Neptune at opposition
16 First Quarter Moon
Jupiter 3° N. of First Quarter Moon
Observing at Parsells Field
17 Uranus at opposition
Mercury at greatest western elongation (AM)
18 Mars 5° N. of Aldebaran (AM)
20 **NOVAC Monthly Membership Meeting at Arlington Planetarium**
21 **Jupiter Watch at U.S. Naval Observatory**
22 Full Moon
Neptune 4° S. of Full Moon
Uranus 5° S. of Full Moon
26 Saturn 7° S. of waning gibbous Moon (AM)
28 **Observing at Parsells Field** for Delta Aquarid meteor shower
29 **Observing at C.M. Crockett Park**
30 Last Quarter Moon
Observing at C.M. Crockett Park
Observing at Parsells Field
31 Mercury 6° S. of Pollux (AM)

August

1 Crescent Moon 5° S. of Pleiades (M-45) (AM)
3 Mars 3° N. of waning crescent Moon (PM)
5 **Observing at C.M. Crockett Park**
6 **Observing at C.M. Crockett Park**
7 New Moon
9 Pluto Stationary
10 Venus 3° N. of waxing crescent Moon (PM)
12 Perseid meteor shower peaks (AM of 13th)
14 First Quarter Moon
Jupiter 2° N. of First Quarter Moon
Observing at Parsells Field
17 **NOVAC Monthly Membership Meeting at Arlington Planetarium**
18 Neptune 4° S. of waxing gibbous Moon (PM)
Uranus 5° S. of waxing gibbous Moon (PM)
19 Mars 0.7° S. of cluster M-35 in Gemini
21 Full Moon
22 Saturn 7° S. of nearly Full Moon
24 Venus at greatest eastern elongation (46°)
26 **Observing at C.M. Crockett Park**
Observing at Parsells Field
27 **Observing at C.M. Crockett Park**
29 Last Quarter Moon
31 Venus 0.7° S. of Spica (PM)

Upcoming NOVAC Meeting Programs

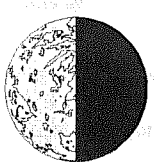
July 20 at 7:30 PM: The July program will feature Al Schumann and Bill Burton who will present a multimedia follow-up on the May 10 Annular Eclipse and May 25 partial lunar eclipse. Sandy Sanders will also give a presentation on the Community Solar System he visited in the midwest.

August 17 at 7:30 PM: At press time, no definitive plans have been made for the August meeting program.

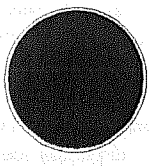
The monthly General Membership Meetings of the Northern Virginia Astronomy Club are held the third Wednesday of every month at 7:30 PM at the Arlington County Planetarium, 1426 N. Quincy Street, Arlington, VA. Admission is free and open to the public. Call the NOVAC hotline (703) 256-8359 for upcoming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

Lunar Phases for July and August 1994

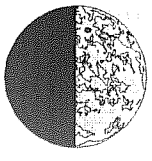
Last Quarter
July 30
August 29



New Moon
July 8
August 7



First Quarter
July 16
August 14



Full Moon
July 22
August 21

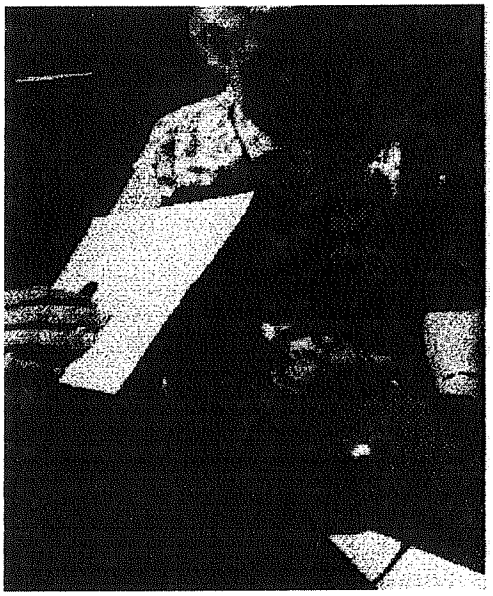
Eclipse Watch: A Ring of Silver in Oklahoma

by Guy W. Moore

When it crossed the sun's face in May 1994, the new moon was near apogee (the most distant point in its orbit around earth) which meant that it appeared slightly smaller than the sun and for those in the path of greatest obscuration the sun became a brilliant ring of light, which astronomy magazines and television newscasters hyped as a "ring of fire." For the vast majority of viewers, I am sure that this was misleading and a little disappointing. For when viewed with eclipse glasses or number 14 welder's shield or any projection method, the effect was in black and white and the ring was brilliant silver.

Where I Viewed the Eclipse

When I discovered that the path of annularity would pass through northern Oklahoma, I was cordially invited by relatives to come visit them. I grew up near Ponca City, Oklahoma and from that location we were promised six minutes of annularity. On eclipse day we were blessed with nearly perfect skies from our location at a rest stop on Interstate Highway 35, eight miles south-southwest of Tonkawa Oklahoma at the 209 mile mark (north of the Texas border) and approximately 16 miles south-southwest of Ponca City.



Forming an image of the sun using projection

How I Viewed the Eclipse

I travel light and my equipment was simple. I had mylar eclipse glasses, of course, and I used the optical projection method described by Chou and Able[1]. By cutting a hole approximately 35mm in diameter in a piece of 8x12-inch cardboard, I was able to use my 7x35 binoculars between two pieces of cardboard taken from the backing provided by the laundry for two boxed shirts. The binocular lens not in use was kept behind the upper piece of cardboard and the magnified image on the bright, white side of the other cardboard was sharp and clear as the binoculars were brought into focus. My first-cousin-once-removed managed the upper cardboard and the binoculars; I held the cardboard upon which the image formed at the proper distance and in the shade of the upper cardboard. My cousin took the photos seen here.

The end of annularity

What We Saw and Felt During Annularity

With annularity scheduled to begin at 11:32 a.m. (central time) in Ponca City, we watched carefully as the thinning crescent sun caused the landscape to begin dimming about 11:15 a.m. Our timing of the annularity phase at this location showed second contact at 11:31 a.m., third contact at 11:37 a.m. for a total of five minutes and 50 seconds. Timings were made with a quartz wristwatch and correlate well with predicted times for Ponca City and Enid Oklahoma.

During annularity, cars and trucks travelling I-35 were using headlights. Daylight looked positively eerie, reminding us of the dusky, yellowish light that sometimes precedes great prairie storms and tornados. We had no way of observing the effect of the eclipse on tree leaves because there were no trees nearby.

At the conclusion of annularity we each noticed a definite decrease in temperature. We later learned that the temperature had dropped four degrees in Oklahoma City. I suspect we experienced at least a 10-degree drop at our observing location. In 1976 Patrick Moore, observing an eclipse under perfect skies from Thira, Greece, reported a fall in temperature of over 30 degrees from 100 degrees. to just below 70 degrees[2]. Our sky had some light cirrus clouds and, at the end of annularity, some cumulus clouds had formed low in the sky and a brisk breeze blew across the open countryside.

Before second contact and at third contact the shadows of lunar mountains seemed like ghostly fingers reaching out onto the ring. The International Occultation Timing Association (IOTA) was positioned at the edge of the path of annularity to try to capture these breaking points of light known as Baily's Beads We were not able to see Venus or Mercury during annularity.

This Observer and Eclipses

I saw my first partial eclipse of the sun at age 10 using a smoked glass for a filter. I saw the great total eclipse of the sun off the coast of Africa in 1973. This, however, was my first annular eclipse. It was a thrill and worth the worry about the weather that haunted us as great storms kept rolling up from Texas and heavy cloud and misting rain blanketed Oklahoma City the day before the eclipse. The skies from our location north across Kansas were nearly perfect on eclipse day and some viewing was possible at the Kirkpatrick Planetarium in Oklahoma City, which enjoyed a little more than three minutes of annularity.

References

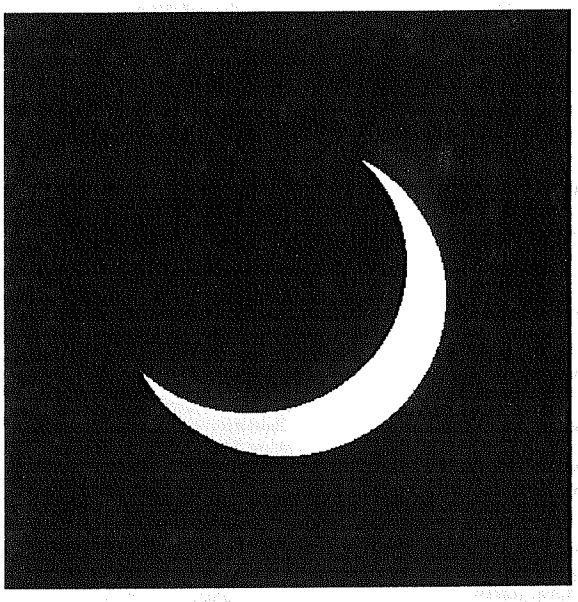
[1] Chou and Abel. *Your Complete Guide to the Solar Eclipse of May 10, 1994*, p.28.

[2] *Sky and Telescope*, July 1976, p. 70. □

Eclipse Watch: A Pair of Partial Partial Eclipses

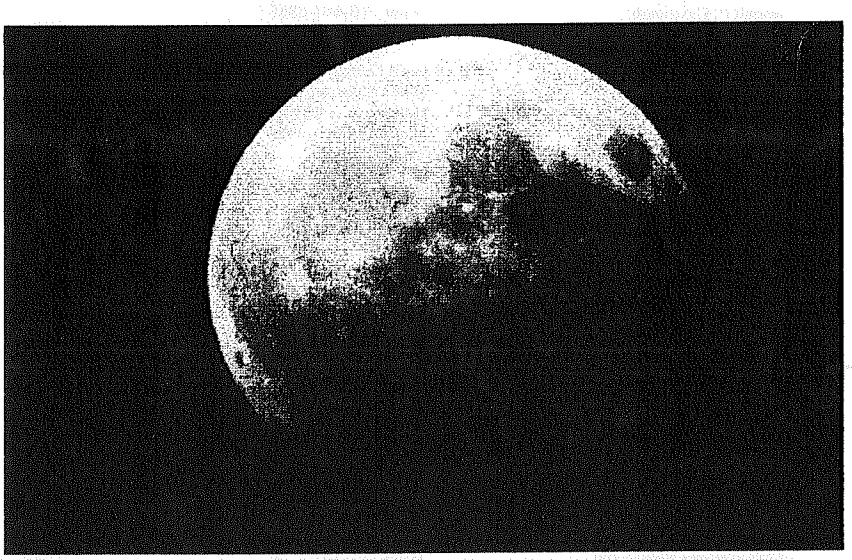
by Al and Lynn Shumann

According to the folks who deal in historical weather data we had less than a 50-50 chance of seeing the 10 May 1994 solar eclipse from our Northern Virginia location. In an odd sense, the weather prognosticators hit the nail right on the head. We missed first contact and much of the early going because of overcast conditions. We did have tantalizing glimpses of the sun through thin spots in the cloud deck, but they were fleeting--maybe 10 or 15 seconds at a time. Not nearly enough time to find the sun in the telescope. Those conditions persisted right on up to the time of maximum eclipse. Adding to our frustration were the clear skies just to the north of us. With agonizing slowness the clouds moved off to the south, and at 1:50 p.m. everything broke wide open. So we were hindered in the first half of the show, and then had pristine skies for the rest. And what a glorious view it was!



Partial solar eclipse as seen over the Washington area

The shadow of the moon was still taking a large chunk out of the sun when we began our program of observing and photography. There were still some thin clouds obscuring the sun, and they made for an eerie sight through the telescope. That eerie look also came through on the first few pictures we took with the print film. The pictures are a knockout: crisp and clear, nice resolution at the terminator, and the color through the Thousand Oaks is a very pleasing yellow-orange. The mylar filters, on the other hand, showed a whitish sun. Both cameras were loaded with ISO 200 film: print film at 1/250 sec. at *f*/10 through the C-8: slides with the 460mm telephoto also at 1/250 and f-stops alternating between 11 and 16--just to be sure. We're really delighted that the photos came out so well because the next solar eclipse visible in the United States is 18 years away. Chances are we aren't going to be in any shape to see it in 2012.



Partial lunar eclipse of May 25. Photo through the author's eight-inch SCT.

We saw no sunspots at all; it was very quiet at the surface. A few weeks ago, during one of our innumerable practice sessions, there were two beautiful spots. In retrospect, they might have had something to do with the aurora some of us observed at Crockett Park on 17 April. It was hard to tell just how much the sunlight was dimmed at maximum eclipse since we still had clouds to contend with. It was, however, definitely darker than one would expect for those clouds. There was kind of a mid to late twilight look about things. It was nice.

Our solar eclipse experience was not without mistakes. The big error was not bringing out the 13-inch telescope. While we were setting up the rest of our gear the weather looked as if we didn't have a prayer, so we went with the basic instruments. When the clouds did break we were so dazzled by what we saw that we didn't want to waste a minute setting up another telescope. The lesson we learned was to get everything ready for action just to be sure.

A solar eclipse is often followed by an eclipse of the moon, and such was the case on the night of 24/25 May. While this did not have the pizzazz of the November total lunar eclipse or the excitement of the solar event, any eclipse is always worth a look. Once again, the weather threw us a curve. The sky was beautiful all day long. Then, about half an hour before the start of the umbral phase, a line of thunderstorms began working its way through the area. First contact took place at 10:37 p.m.--the clouds covered the moon at 10:15. What timing! Now we know what Casey Stengal meant when he said, "it's like deja vu all over again."

Despite the appearance of impending doom we did not panic. We covered the C-8 with a couple of trash bags and were determined to wait it out amid an ever-increasing crescendo of thunder, lightning and rain. Then the squall line went through and the partially eclipsed moon was visible at 11:50 p.m. There were still some low clouds scudding through, but we were able to view and photograph the last 30 minutes of the event (see accompanying photograph). Partial eclipse ended at 12:23 a.m. The shadow, however, seemed to linger quite a bit longer. The only thing we could figure was that atmospheric conditions made the penumbra more pronounced.

Overall, both the solar and lunar eclipses were marred by weather. We are, however, thankful to have seen as much as we did. It isn't often that you have a chance to catch a pair of partial partials. At the July meeting we will give a final wrap-up in the form of a multimedia eclipse extravaganza--35 minutes of action, danger, excitement, education and suspense. There might even be a touch of tongue-in-cheek humor. The program is rated G. □

The 1994 NOVAC Membership Directory

NOTE: This directory not to be reproduced or used for commercial purposes

Brian G. Allen
4603 Highland Avenue
Bethesda, MD. 20814

Mark R. Anderson
7537 Royce Court
Annandale, VA. 22003
Home 703-642-8739

Brent A. Archinal
Earth Orientation Division, USNO
Washington, D.C. 20392
Home 703-448-7466
Work 202-653-1509

Paul A. Baldwin
10481 Butterfield St Apt 11
Manassas, VA 22110
Home 703-361-8013

Ronald S. Bashian, MD
1233 Aldebaran Drive
McLean, VA 22101
Home 703-556-9637

Chuck Beighlea
15508 Yorktown Drive
Dumfries, Virginia 22026
Work 703-670-6291

Steve Bergman
4012 Decatur Ave.
Kensington, MD. 20895
Home 301-949-5943
Work 301-402-0489

Neal Blackwell
13969 Middle Creek Place
Centreville, VA. 22020
Home 703-968-8852
Work 703-704-3899

Donna Blosser
4801 Olley Lane
Fairfax, VA. 22032
Home 323-7853

Stephen W. Bodner
1557 North Danville Street
Arlington, Virginia 22201
Home 703-243-1722
Work 703-557-2721

Al Boldt
531 Florida Avenue, Apt. T-3
Herndon, Virginia 22070
Home 703-437-4532

David H. Bollinger
4877B South 28th St.
Arlington, VA. 22206
Home 703-578-1120
Work 703-308-1142

Robert N. Bolster
6007 Ridgeview Drive
Alexandria, VA. 22310-0000
Home 703-960-9126
Work 202-767-2920

Eric L. Boppe
13303 G Hunter Hill Dr.
Hagerstown, Maryland 21742-0000
Home 301-797-1983
Work 717-597-8121

Guy F. Brandenburg
1316 Randolph St., NE
Washington, DC 20017-0000
Home 202-635-1860

Larry J. Brindza
9701 Harr Court
Burke, Virginia 22015
Home 703-866-4803
Work 301-427-1096

Tom Brosius
454 Virginia Avenue
Herndon, Va. 22070
Home 703-437-3551

William C. Bryson
7833 Aberdeen Road
Bethesda, Maryland 20814
Home 301-986-0437
Work 202-514-4037

Robert D. Bunge
15210 Emory Ct.
Bowie, Md. 20716
Home 301-390-7298
Work 202-543-3991

Michael Burke
12684 Perchance Terrace
Woodbridge, VA. 22192
Home 703-670-5249
Work 703-912-5418

Bill Burton
2034 Golf Course Drive
Reston, Virginia 22091
Work 703-648-6904
Home 703-860-0958

Scott Bush
6917 Essex Avenue
Springfield, VA. 22150
Home 703-451-4861
Work 703-569-3407

Rick Campbell
6102 Franconia Station Lane
Alexandria, Va. 22310
Home 703-313-8290
Work 602-8290

Joseph P. Cavanagh
7 Cross Cut Lane
Fredericksburg, VA. 22405
Home 703-371-6237

Bruce D. Chandler
6557 Kosiara Drive
Burke, VA. 22015-0000
Home 703-455-0178
Messages 703-644-5683

Marty Cohen
14300 Cherry Lane Court
Laurel, Maryland 20707
Work 301-953-2000

Sarah A. Cook
14480 Cool Oak Lane
Centreville, VA. 22020-0000
Home 703-222-0331
Work 703-648-6716

Brenda G. Corbin - Library
NSNO, 34th & Mass Ave, N.W.
Washington, D.C. 20392

Dennis Costa
2733 Gallows Road #204
Vienna, VA 22180-0000
Home 703-207-6571

Ted Covey
3846 Lyndhurst Drive #204
Fairfax, Va. 22031
Home 703-978-4366
Work 202-219-0892

Steven L. Cox
6203 L Summer Pond Dr.
Centreville, VA. 22020
Home 703-847-9821
Work 703-883-6269

G. Adam Crits
1321 N. Troy Street, Apt. 4
Arlington, Va. 22201
Home 703-522-4233

Joan & Steve Crowther
11805 Decour Court
Fairfax, Va. 22030
Home 703-278-8516
Work (Steve) 703-631-9630

Daniel Cruz
6722 Jade Post Lane
Centerville, Virginia 22020
Home 703-631-2969

Russell Davis
336 E. Colonial Highway
Hamilton, VA 22068
Home 703-338-6271

Dean DeLucia
3909 Ellis Street
Capital Heights, MD. 20743
Home 301-568-6039
Work 202-789-2711

Gregory Dillon
2714 Huntington Road
Charlottesville, Va. 22901
Home 804-978-1651
Work 804-295-1000

Bill Dorsey
7802 Cyril Place
Springfield, VA 22153
Home 703-644-1215

Edwin G. Doster
1350 Beverly Road, Apt. 705
McLean, VA. 22101
Home 703-893-6865
Work 703-487-8213

Scott Driggs
10303 Conejo Lane
Oakton, VA. 22124
Home 703-938-0073

Gregory Druga
1305 Boulder Crest Court
Herndon, VA. 22070
Home 703-444-2698

Mr & Mrs Russell Duke
9126 Horner Court
Fairfax, Virginia 22031
Home 703-273-7178

Robert N. Duke
6020 N. First Street
Arlington, VA. 22203
Work 703-522-3288

Pete Dunn
7821 Fort Hunt Road
Alexandria, Va. 22308
Home 703-765-4494
Work 202-357-2720

J. Scott Duresky
216-B 6th St., S.E.
Washington, D.C. 20003
Home 703-642-0358
Work 703-841-9500

Joe D. Edge
7614 Timberly Court
McLean, Virginia 22102
Home 703-734-0825
Work 703-835-8000

Michael Egbert
3300 North Piedmont Street
Arlington, VA. 22207
Home 703-528-6005

Tyson W. Erdman
5803 Quiet Oak Court
Burke, Virginia 22015
Home 703-239-9252

Elliott & Adele Fein
5 Carter Court
Rockville, MD 20852
Home 301-762-6261

Jessica Feller
8206 Winstead Place #201
Manassas, VA 22110
Home 703-361-9160

Ronald E. Ferris
8917 Cross Chase Circle
Lorton, VA. 22079
Home 703-643-0811
Work 301-564-2066

Stanley W. Fletchall
14736 Green Park Way
Centreville, VA. 22020
Home 703-803-8293
Work 730-482-6669

Ray Fobes
10309 Dunn Meadow Road
Vienna, VA. 22182-1325

Leah Foechterle
2226 Carmichael Drive
Vienna, Va. 22181
Home 703-281-6516

Douglas H. Fraser
6801 Cavalier Terrace
Falls Church, VA. 22042
Home 703-534-1838
Work 202-337-5200

Blaine P. Friedlander Jr
304 Pershing Avenue
Radford, VA. 24141
Home 703-633-0255
Fax 703-831-5036

George R. Friedman, MD
15550 Smithfield Place
Centreville, Virginia 22020
Home 703-532-1258

Larry Dambra & Ruth Frischer
3800 N. Fairfax Dr. #1805
Arlington, VA. 22203
Home 703-524-5382

Lance D. Gardner
3727 Richard Avenue
Fairfax, Virginia 22031
Home 703-385-9366
Work 703-385-0282

Harold A. Geller
9823 Pebble Weigh Court
Burke, Virginia 22015
Home 703-644-7403
Work 703-734-5898

David Geyer
12714 Occoquan Road
Woodbridge, Virginia 22192

Arnold A. Goldstein
9706 Schmidt Drive
Burke, Virginia 22015
Home 703-866-6182
Work 301-763-7883

Robert P. Gormley
3311 Wyndham Circle #4199
Alexandria, VA. 22302
Home 703-820-0791
Work 703-824-2614

Peter S. Garal
351 Samantha Drive
Sterling, Va. 20164
Home 703-450-3810
Work 703-351-9191

Eric Hagerstrom
1111 Arlington Blvd, #637
Arlington, Virginia 22209
Home 703-527-5317
Work 202-336-8878

Bob Hambleton
7117 Woodland Drive
Springfield, VA. 22151
Work 370-9032

Sanuh Hanna
10210 Akhtamar Drive
Great Falls, VA. 22066
Home 759-3686
Work 444-4409

Steve Hapland
1414 17th Street, NW
Washington, DC 20036
Home 202-387-8507
Work 202-387-8907

Fred Holmes
2816 Lee Oaks Place #201
Falls Church, VA. 22046
Home 703-207-9653 Work NA

Robert E. Humphreys
300 Willington Drive
Silver Spring, Md. 20904
Home 301-622-4988
Work 301-231-1670

William J. Inmon
1616 Cedar Park Road
Annapolis, Md. 21401
Home 410-268-0665
Work 301-261-8408

Doug Jackson
806 Jackson Street
Falls Church, Va. 22046
Home 703-237-2460
Work 703-487-4800

Mary & Loretta Jay
10255 Racquet Circle
Manassas, VA. 22111
Home 703-335-9534

Bill Jensen
7405 Ridge Oak Court
Springfield, Va. 22153
Home 703-866-1380
Work 301-459-3020

Gary & Alisa Junquin
7821 Winona Court
Annandale, VA. 22003
Home 703-750-1636
Work 202-623-4061

Dean & Dale Johnston
5861 Ridgecrest Avenue
Warrenton, VA 22186
Home 703-349-2013
Work 703-222-1519

Thomas E. Johnston
10939 Harpers Square Court
Reston, Va. 22091
Home 703-860-8219

Brenda & Kevin Jones
883 N. Kentucky Street
Arlington, VA 22205
Home 703-527-7963

Joseph Jurnak
3982 Oglethorpe Street
Hyattsville, MD. 20782
Home 301-927-7045

Ralph Kantrowitz
410-J Blue Silk Lane
Gaithersburg, Maryland 20879
Home 301-990-1183

Tom Kiernin
4001 Nebraska Avenue, N.W.
Washington, D.C. 20016

Eric Klein
9813 Doulton Court
Fairfax, VA 22032
Home 323-8952

Lew Komarow
7721 Inverchum Drive #130
Falls Church, Va. 22042
Home 703-560-1904
Work 703-658-9363

Julie Kopper
3313 Willow Crescent 034
Fairfax, VA. 22030
Home 703-591-8763

Blaine Korcel
5401 Danville Street
Springfield, Virginia 22151
Home 703-256-4430
Work 703-256-4610

Marta Krause
2520 Rocky Branch Road
Vienna, VA. 22181
Home 703-281-9049

Gary Kwolek
P.O. Box 239
Midland, Virginia 22728
Work 703-788-4867

Robert L'Hommedieu
4415 Eastwood
Fairfax, Virginia 22032
Home 703-978-0946
Work 703-378-3028

Daniel Lazich
739 South 19th. Street
Arlington, Virginia 22202
Work 703-692-2988
Home 703-553-3749

Steve LeBel
2113 South Columbus Street
Arlington, VA 22206
Home 931-9436
Work 548-9027

Enid Levine
6823 Spur Road
Springfield, Virginia 22152
Home 703-451-7435
Home 202-586-7823

Rod Linde
2752 Copper Creek Road
Herndon, VA. 22071
703-713-0939

Leonard Lipten
15309 Emory Lane
Rockville, Maryland 20853

Thomas W. Love
1941 Rhode Island Avenue
McLean, VA. 22101
Home 703-563-0936
Work 202-463-5682

Michael Lucas
14651 Forsythia Terrace
Woodbridge, Virginia 22193
Home 703-878-6634
Work 703-642-6889

Howard J. Marcus
1587 Kingstream Circle
Herndon, Virginia 22070
Home 703-481-0074

Ralph T. Marple
5027 Kenerson Drive
Fairfax, Virginia 22032
Home 703-239-1480
Work 703-646-5398

Nicole Mastej
20716 Crystal Hill Cr. Apt H
Germantown, MD 20874
Home 301-540-7117
Work 301-258-6080

Fred Matthies
6368 Lynwood
McLean, VA 22101
Home 703-506-1476
Fax 703-506-9231

Howard McComas
2606 Arlington Mill Drive
Arlington, Va. 22206
Home 703-820-4470
Work 202-383-6064

D. Keith McInturff
14701 N. Birchdale Avenue
Dale City, VA. 22193
Home 703-670-3302
Work 846-9248 (after 4 PM)

Peter Michaud
Bishop Planetarium
PO Box 19000A
Honolulu, Hawaii 96817
Home 808-486-2971
Work 808-847-3511

Doug & Greg Mistler
2775 Manssway Drive
Herndon, Virginia 22071
Home 703-437-0513

Gay W. Moore
224 North Nelson Street
Arlington, Virginia 22201
Home 703-525-3730

James Moore
4806 Carriagepark Road
Fairfax, VA 22032
Home 938-4415
Work 318-1074 X337

Bill Moredock
47078 Southhampton Court
Sterling, VA. 20165

Timothy K. Murray
2727 29th Street, NW
Washington, D.C. 20008
Home 202-483-1785
Work 202-783-8322

Bruce Naugle
7720 Chadds Landing Way
Manassas, VA 22111
Home 335-9596

Robert H. Neff
1905 Kirby Road
McLean, Virginia 22101-5302
Home 703-893-0639
Work 202-767-3968

Tom Nowak
11833 Parliament Drive
Woodbridge, Virginia 22192
Home 703-690-1260
Work 703-697-8631

James L. Olszewski
621 North Armistead Street
Alexandria, Virginia 22312
Home 703-354-9116
Work 703-698-6740

A. Aouani & Rafaa Ouertani
2637 16th St., N.W., Apt. 608
Washington, D. C. 20009
Home 202-387-7718

Robert A. Owen
4856 Woodie Court
Woodbridge, Virginia 22193
Home 703-590-3884
Work 703-590-5678

Thomas S. Parry
12300 Vale Road
Oakton, Virginia 22124
Home 703-758-8224
Work 703-351-2285

Ray Pfaff
4333 Cub Run Rd.
Chantilly, Va. 22021
Home 703-968-0637
Work 703-968-0637

William E. Pierce
4406 Lawnvale Drive
Gainesville, Va. 22065
Home 703-754-2932
Work 703-708-3349

Frank Pruitt
1707 Forest Lane
McLean, VA. 22101
Home 703-241-9387
Work 703-756-4050

James R. Ramser
7816 Piccadilly Drive
Warrenton, VA. 22186
Home 347-5485

John Redlich
711 West Broad Street
Falls Church, Virginia 22046
Work 703-241-4077

Jack Resch
12707 Gordon Boulevard, Apt. 54
Woodbridge, VA. 22192
Home 703-491-0463
Work 321-7811

Robert E. Ridgley
3213 Korte Ct.
Falls Church, VA. 22042
Home 703-641-0152
Work 202-287-3432

David Romeo
9627 Hawick Lane
Kensington, Md. 20895
Work 301-496-8352 or 5391

William A. Roundy
6014 Merryvale Court
Springfield, VA. 22152
Home 703-569-1865
Work 703-550-8112

David Russell
5711 Roundtree Drive
Woodbridge, VA. 22193
Home 703-590-7979
Work 703-695-1278

Bob Ryan
4001 Nebraska Avenue, N.W.
Washington, D.C. 20016
Work 202-885-4539

Christopher R. Ryan
14600 Adel Drive
Manassas, Va. 22111
Home 703-791-2212
Work 703-359-5503

E. E. Sanders, Jr.
12504-C Lake Ridge Drive
Woodbridge, Va. 22192
Home 703-590-8982
Work 703-690-7800

Robert M. Sandy
Rt. 2 Box 458
Amissville, Va. 22002
Home 703-937-3993
Work 703-347-6140

James E. Schaeffer
11505 Ivy Bush Court
Reston, Virginia 22091
Work 703-370-9032
Home 703-476-5624

Mike Schultz
7110 Bonniemill Lane
Springfield, Va. 22150
Home 703-569-2442
Work 202-786-2379

Al Schumann
6121 Rivanna Drive
Springfield, Virginia 22150
Home 703-971-3257

Kinchen Searcy
5220 Gainsborough Drive
Fairfax, Virginia 22032
Home 703-425-4570
Work 703-602-4513

Linda M. Senseney
PO Box 6150
Wyomissing, PA 19610

Mauna Kea Observatory
Sup. Serv. Cent.
177 Makaala St.
Attn: Tom Peek
Hilo, Hawaii 96720

C Marwick & Richard Seymour
4211 River Road, N.W.
Washington, D.C. 20016
Home 202-362-6450
Work 202-371-1212

Jeff, Dan & Ben Shaffer
903 Birch Street, N.E.
Leesburg, VA. 22075
Home 703-777-6441
Work 703-487-8213

Charles P. Shephard
6821 Winter Lane
Annandale, VA. 22003
703-354-8387

Eva E. Sheppard
6142 North Ninth Road
Arlington, VA. 22205
Home 703-237-2769

Bob Shuler
2301 N. Upton Street
Arlington, VA 22203
Home 243-5693

Linda Smaal
4308 N. Henderson Rd, Apt 201
Arlington, Virginia 22203
Home 703-276-0963
Work 703-448-1470

Steve Smith
1426 N. Quincy Street
Arlington, Virginia 22207
Work 703-358-6070

W. Tilford Smith, Jr.
1914 S. Arlington Ridge Road
Arlington, VA. 22202
Home 703-920-1157
Work 703-602-4325

John Somiak
1591 North Village Road
Reston, Virginia 22094
Home 703-471-7461
Work 301-921-7485

Jeff Stetekluh
605 South 23rd Street
Arlington, Virginia 22202
Home 703-979-8249
Work 301-497-2648

William L. Steward
P. O. Box 5
Bowling Green, Va. 22427
Home 804-633-6755 Work same

Jon Stewart-Taylor
2429 Southgate Square
Reston, VA. 22091
Home 703-476-8949
Work 703-689-6726

Bob Summerfield
6233 Castor Avenue
Philadelphia, Pa. 19149
Home 215-831-0485

Gilbert Swift
5911 Dinwiddie Street
Springfield, Virginia 22150
Home 703-451-4610

Tibor Szentendrei
6011 Henning Street
Bethesda, Md. 20817
Home 301-530-4572
Work 202-576-2233

Jim Taylor
Route #1, Box 112-E
Falling Water, West Va. 25416

Jeffrey M. Taylor
7214 Statecrest Drive
Annandale, VA. 22003
Home 703-698-8642

Wayne X. & Belinda Taylor
712 Mentor Avenue
Capital Heights, MD. 20743
Home 301-967-2190
Work 301-948-4991

Linda Thomas
2289 Hunters Run Drive
Reston, Va. 22091
Home 703-620-2791
Work 703-758-2720

Dane J. Toler
916 Cottage Street, S.W.
Vienna, Virginia 22180
Home 703-281-2118

Andrea & Michele de Tommaso
114 Sharpstead Lane
Gaithersburg, MD. 20878
Home 301-590-9273
Work 202-944-7341

P. Chewning Toulmin
418 Summers Drive
Alexandria, VA. 22301
Voice/TTY 703-549-2375 or
1-800-828-1140

Thomas M. Tripp
3514 Majestic Pine Lane
Fairfax, Va. 22033-1511
Home 703-471-7787
Home Fax 703-787-9583
Work 703-558-3219

Wesley John Turk
2001 Columbia Pike #809
Arlington, VA. 22204
Home 703-920-3694
Work 703-841-7768

George Uhl
9039 New Britain Circle
Manassas, Virginia 22110
Home 703-369-4575
Work 703-883-7305

Tom VanFlandern
6327 Western Ave., NW
Washington, D. C. 20015
Home 202-362-9176
Work 202-362-9176

Peter VanRuijen
1327 Thirty-Third St., N.W.
Washington, D.C. 20007

Felicia Wach
6028 Buttercup Court
Alexandria, Virginia 22310
Home 703-922-3870
Work 202-872-4573

Edmund Walendowski
8018 Rovenna Lane
Springfield, VA 22153
Home 703-866-4408
Work 202-479-1925

Michael S. Walker
5211 Richardson Drive
Fairfax, Virginia 22032
Home 703-425-2846
Work 703-756-5787

Charlie Warren
WMAL 4400 Jenifer St., NW
Washington, DC 20015
Work 202-895-2328

Myron E. Wasiuta
11603 Hampstead Dr.
Fredericksburg, VA. 22407
Home 703-786-9276
Work 800-768-0024

Alexander L. White
8610 Queen Elizabeth Blvd
Annandale, Virginia 22003
Home 703-978-9681

Carl Wigginton
6009 Roxbury Avenue
Springfield, VA. 22152
703-569-9555

Jerry Wilcoxen
3653 Malibu Circle
Falls Church, Va. 22041
Home 703-820-7920

Henry Williams
2349 Southgate Square
Reston, Va. 22091
Home 703-860-1991
Work 703-661-6226

Eric Williams
11266 Evans Tr. Apt. 102
Beltsville, Md. 20705
Home 301-595-8394

Ann Wimmers
2710 Glengyle Drive
Vienna, Virginia 22181

Mark C. Wirt
2100 N. Scott St. #104
Arlington, VA. 22209
Home 703-527-6350
Work 703-816-8688

Gerald Wolczanski
Route 6 Box 69
Warrenton, Virginia 22186
Home 703-349-1582
Work 703-255-3489

Barry Wolfe
6203 Stratford Road
Chevy Chase, MD. 20815
Home 301-951-0655
Work 202-687-1420

Kate Yi
9768 Highwater Court
Burke, Va 22015
Home 703-978-9432
Work 703-941-7618

Joanna Yun
6471 7th Street
Alexandria, VA. 22312
Home 703-658-2278
Work 703-920-5412 (mother)

Diane Temple & Paul Ziegenfelder
2805 Jefferson Drive
Alexandria, Virginia 22303
Home 703-329-9270
Work 301-763-8364

John Y. O'Neill
4911 Aurora Drive
Kensington, MD 20895
Home 301-933-6251

Paul Supan
823 South King Street Suite #4
Leesburg, VA 22075
Home 703-771-1222
Work 703-771-1220

1994 NOVAC Officers

President
Robert L'Hommedieu
4415 Eastwood
Fairfax, Virginia 22032
Home 703-978-0946
Work 703-378-3028

Vice President
Ronald E. Ferris
8917 Cross Chase Circle
Lorton, Virginia 22079
Home 703-643-0811
Work 301-564-2066

Secretary
Marta Krause
2520 Rocky Branch Road
Vienna, Virginia 22181
Home 703-281-9049

Treasurer
Brenda Clements Jones
883 N. Kentucky Street
Arlington, Virginia 22205
Home 703-527-7963

1994 NOVAC Board of Directors

Fred Holmes
2816 Lee Oaks Place #201
Falls Church, Virginia 22046
Home 703-207-9653

Doug Mistler
2775 Manswuy Drive
Herndon, Virginia 22071
Home 703-437-0513

Thomas S. Parry
12000 Vale Road
Oakton, Virginia 22124
Home 703-758-8224
Work 703-351-2285

Robert E. Ridgley
3213 Karte Ct.
Falls Church, Virginia 22042
Home 703-641-0152
Work 202-287-3432

Robert M. Sandy
Rt. 2 Box 458
Amissville, Virginia 22002
Home 703-937-3993
Work 703-347-6140

Northern Virginia Astronomy Club
Financial Statement for the Period
January 1, 1994 to June 30, 1994

Submitted by Brenda Clements Jones, Treasurer

INCOME

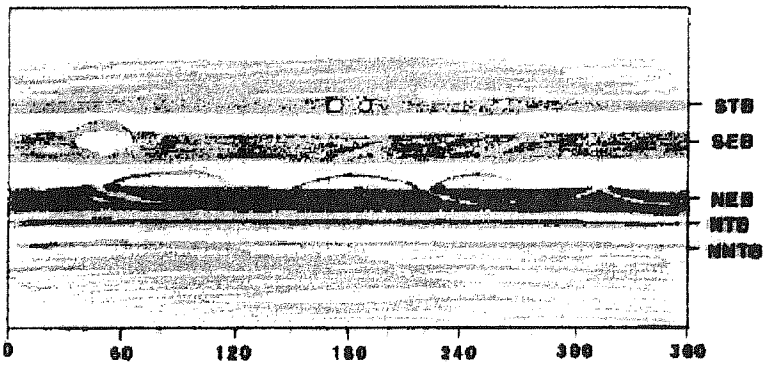
Dues, renewals	1,266.00
Dues, new members	576.00
Donations	858.00
Hat sales	120.00
Astronomical League book sales	32.00
Interest: Savings account	36.53
Interest: Checking account	14.77
Donations to NOVAC	9.00
TOTAL INCOME	**2,912.30**

EXPENSES

NOVAC BBS expenses	649.77
Newsletter printing and postage	436.94
Fauquier Co. Parks user fee	200.00
Activities expenses	129.82
NOVAC Hotline	87.64
Postage	76.85
State Corp Com. reg fee	35.00
Miscellaneous espenses	15.66
Printing	15.46
Supplies	10.04
TOTAL EXPENSES	**1,657.18**
Income	2,912.30
Expenses	1,657.18
NET GAIN	**1,255.12**
Beginning Balance	3,734.21
Net Gain	1,255.12
ENDING BALANCE	4,989.33

Jupiter Before Impact

by Bill Burton



With the impending crash of Comet Shoemaker-Levy 9 with Jupiter this month, the great gaseous planet warrants close scrutiny beforehand in the event that there is noticeable change in its features after the impacts. The impacts will actually take place at a high southern Jovian latitude (about 45° south) where the belts and zones yield little in the way of discernable features (as viewed in my telescope at least). The appearance, therefore, of any distinctive feature at this latitude after the impact could logically be attributed to the comet. Reality is a cosmic show is far from certain and the comet hoopla provides an excuse to get a good look at Jupiter, which is fascinating whenever it is visible.

The illustration above is a map of the Jovian surface based on 18 observations taken through an eight-inch *f*/7 Newtonian reflector between April 28 and June 13, 1994 at magnifications of 210x-256x. I made a sketch of the planet at each observation and noted the time. Using the central meridian tables for Jupiter in the Association of Lunar and Planetary Observers (ALPO) Solar System Ephemeris, I was able to determine the longitude on which each observation was centered as well as the longitude of any features for which I obtained a time of transit. From the individual observations, I then constructed the map in *mercator* projection. South is up to conform with the view in a standard reflecting telescope. Abbreviations for the belt names are on the right and longitudes are shown at the bottom. For the sake of simplicity, the System I (equatorial region) and System II (temperate and polar regions) coordinates are combined. These regions, however, rotate at slightly different rates so that the positions of System I and II features relative to each other will not necessarily appear as shown.

Compared with previous Jovian oppositions, Jupiter's surface is relatively featureless this time around--or perhaps I should say the features are more subtle. In previous years, the North Equatorial Belt (NEB) has appeared to have an irregular border on its equatorial (southern) side with conspicuous projections and festoons. This year the boundary is quite straight, and there are large, very faint loop festoons (darkened for illustrative purposes). Interrupting the south edge of the NEB are the "mouths" of white rifts, which curve a short distance into parallelism with the belt, in response to the differential rotation between System I and System II zones.

Myron Wasiuta reports that the dark regions around the mouths are actually blue clouds. These festoons and rifts are always changing, and by now don't look exactly as shown. The South Equatorial Belt (SEB) is slightly wider and lighter in color (pale brown) than the NEB and has less distinct features except for the Great Red Spot (GRS).

At this time, the GRS appears a ghostly pale orange-yellow with a hint of internal structure visible in my telescope as a slight shading on its south side. A faint white rift was spotted preceding the GRS on the last night of good seeing. The two slanting white rifts shown were coalescing in mid-June into a single horizontal thin white rift.

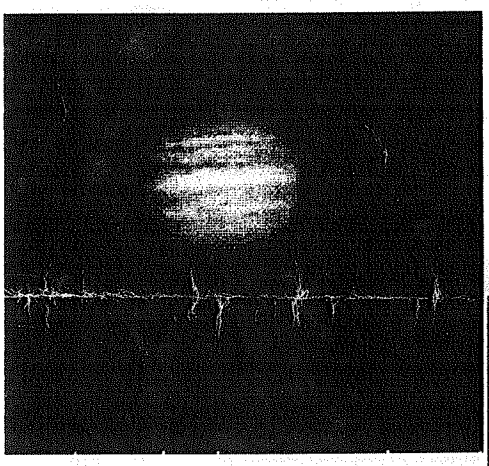
Perhaps the SEB is breaking up into two components, as it appeared to be during the opposition of 1990-91. The most notable features to me during this opposition are the prominent white ovals in the South Temperate Belt (STB). These have been around for a long time and are especially conspicuous this year. The two around longitude 180 are perhaps closer together than usual, while the oval at longitude 260 has picked up a faint companion. Myron reports another faint companion in his ten-inch reflector. The region to the south of the STB, the potential site of the impacts, is very faint and I have not been able to resolve any features. In the northern latitudes, the one feature of note is a dark "rod" in the North North Temperate Belt (NNTB).

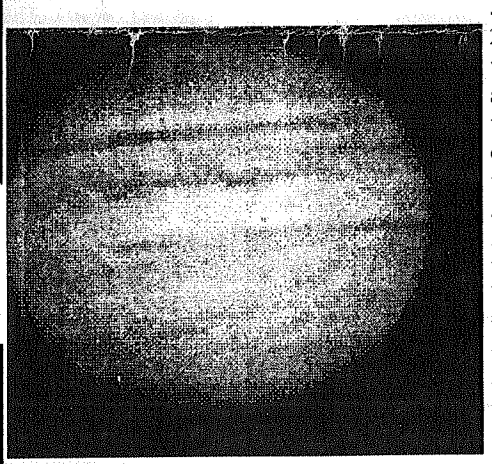
One thing I've learned from this exercise is how many observations and transit timings are required to make a reasonably accurate map of Jupiter. I can credit the large amount of time I've spent observing this year to the free-standing pier I installed on my second-story deck. There is only a sliding glass door between me and the belts of Jupiter. Convenience is everything! I hope everyone can get a good look at the giant planet before the great comet crash in late July. See you at the Naval Observatory! □

Astro-Imaging: The Triple Egress

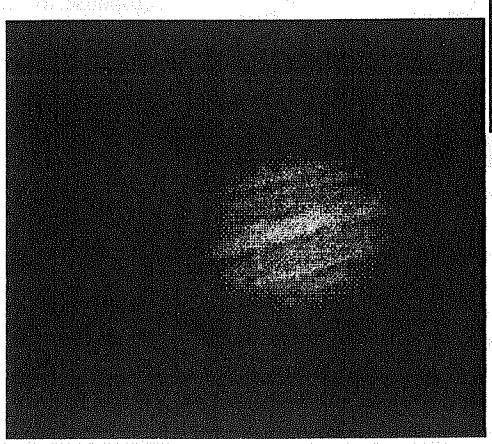
by Myron E. Wasiuta

The alarm chirps at 3:15 in the morning on January 10, 1994. The first thought that crosses my still half-asleep mind is "there's no way it can be time to get up yet." I look over at the clock and sure enough it is time. Part of me wants to stay in bed (actually most of me), but I know my telescope is outside ready for CCD imaging. There is one way to go back to bed without guilt, so I look out the window to see if the sky is overcast. A bright star blazes steadily in the south-east. "Darn" I mutter to myself, "the sky is clear."





All images of Jupiter obtained by the author with an Electrim CCD camera mounted to his 10-inch reflector and processed using AstroIP software.



So began a typical imaging session of Jupiter earlier this year. I walked downstairs into the study and turned the computer on. Calling up VGACAM, the program that operates the Electrim CCD camera, I noticed the thermometer on the other side of the window indicated the temperature was just below 14 degrees F. I turned on the telescope drive corrector so the telescope could precisely track the stars. After putting on my ski jacket and hat, I left the room moving past the full-length floor mirror I use to assist me in locating Jupiter. Outside, the cold air hit me hard and I couldn't help but wonder if perhaps I was a little crazy. But what choice did I have? Jupiter was still three months from opposition, and it would be months before I could observe it at a decent hour. The scope and camera were covered with frost, but everything looked fine. I quickly checked the wires leading from the camera body, focuser, drive, and declination motor to see if they were still attached. The hum of the Byers drive told me the scope was tracking.

I flicked a small switch to a red LED on the guide-scope to illuminate the cross-hairs of the 26x 60mm *f*/13 finder. Centering Jupiter in the field, I noticed only one galilean moon visible. I figured the other three must have been in front or back at this time. Standing up near the front of the telescope, I looked toward the study into the full-length mirror and saw the computer screen glowing blue with a black square in the middle. "Hmm," I thought. "The finder must have settled a little since I aligned it the previous night." Since I was imaging at *f*/35 this morning, the field was only about 1.5 arc-minutes on a side. I slowly moved the scope in little circles until I saw Jupiter flash across the screen in the mirror. I can usually center Jupiter this way within a few minutes. This morning proved the same and after less than a minute, I saw Jupiter's mighty disk nearly filling the four-inch by four-inch window on the monitor.

Running back inside, I proceeded to center the giant planet with the telescope controls near the window. Slowly Jupiter moved into the center of the field. This would be nearly impossible to do at such a magnification manually! Next, I focused the image. As Jupiter was only 15 to 20 degrees up, there was still plenty of atmospheric turbulence. Reaching critical focus under these conditions is somewhat tricky--more like trying to focus for the least amount of blur as opposed to reaching high resolution pinpoint clarity. I set the exposure at default for 200 milliseconds. With Jupiter centered, focused, and the exposure time set, I could begin to image. I watched the monitor with the camera in "live" mode. I could see Jupiter wavering as turbulence passed in front. The seeing was poor on this occasion, but I knew if I'd be patient, I would get a brief spell of better air. Sure enough! All of a sudden Jupiter snapped into clear focus! A press of a key and the image was frozen in RAM on my screen. Using this feature of the image acquisition software allows me to inspect the image before saving it. This image looked good, so I saved it to my hard drive. I made a record in my log book of the image name, time, exposure time, focal ratio, and comments.

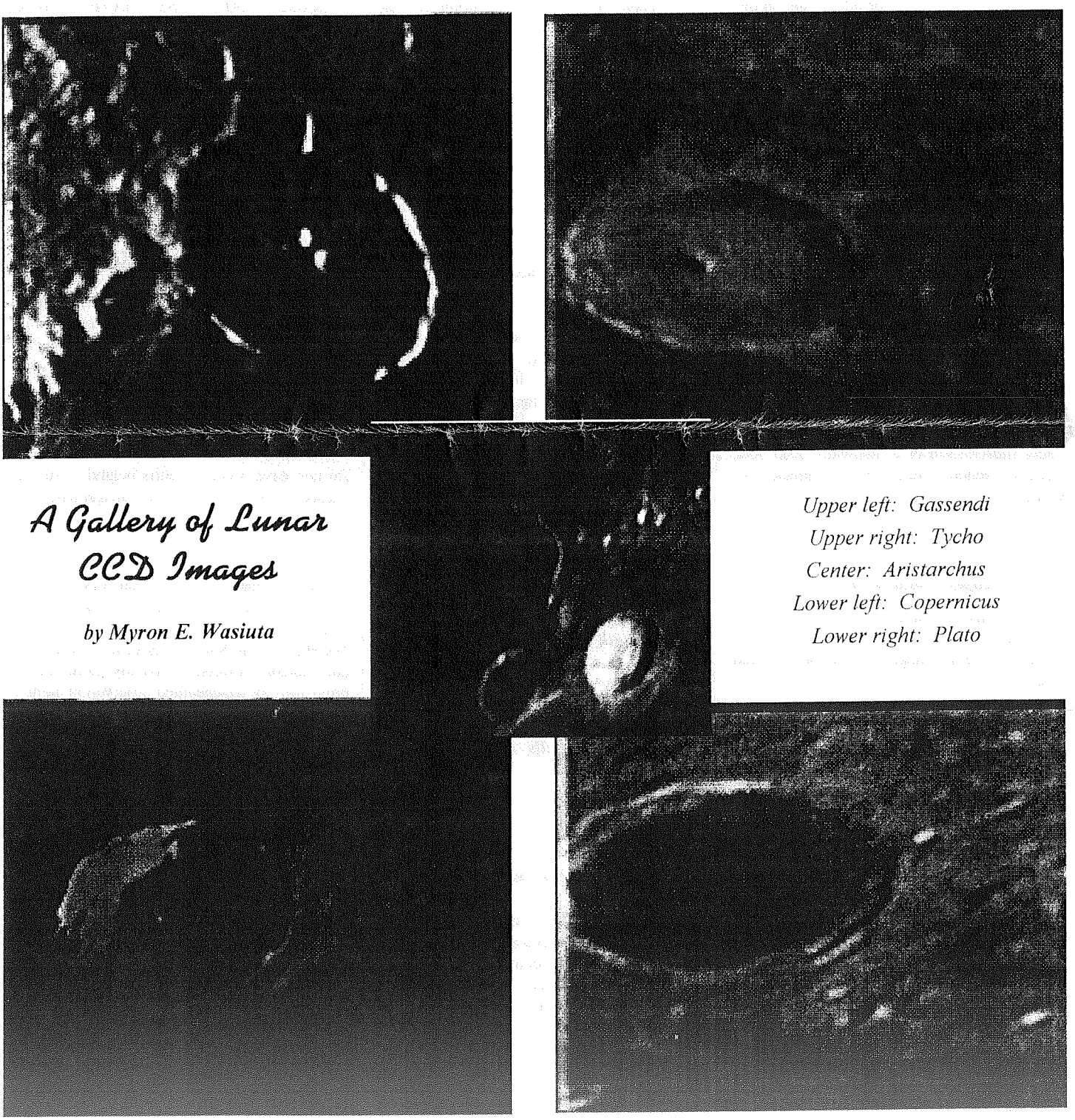
The comments I recorded are as follows:

January 10, 1994
Jupiter1.tif - 5:40am 200ms f/35 fair seeing— Jovian moon on limb.

"How nice," I think to myself. "There's a moon in egress."

Pressing a third key brought the image back to live mode. Jupiter had drifted some, so I recentered it. That is when I noticed something else. On the other side of the limb from the first moon, I saw two more on the limb that had just appeared! Phenomenal! I have never seen three galilean moons on the limb of Jupiter simultaneously before. Quickly I acquired a whole slew of images as described. The seeing, however, was not too good but I could make the moons out quite well! This triple egress occurred from 6:01 to 6:10 a.m. EST. It sure made getting up worthwhile even though I never really obtained any spectacular images of Jupiter. An hour later, as the sky was brightening in the east, I spent the last few minutes getting flat-fields. I shut down the computer, went outside to bring in the camera, and cover the telescope. I didn't have time to take it down because I had to be at work soon.

So ended a fulfilling session of CCD imaging. I could hardly wait until that night when I could process the results. But more about that in a future installment. □



A Gallery of Lunar CCD Images

by Myron E. Wasiuta

Upper left: Gassendi
Upper right: Tycho
Center: Aristarchus
Lower left: Copernicus
Lower right: Plato

NOVAC Notices and Benefits

Discounts on Sky and Telescope

As a member of NOVAC you can get a subscription to Sky & Telescope Magazine 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.

Discounts on Astronomy

Your NOVAC membership entitles you to subscribe to Astronomy Magazine at the annual rate of $16.00. This is a significant discount over the usual $24.00 rate. A two-year subscription costs $32.00. To start a new subscription or renew an established subscription, make your check payable to KALMBACH PUBLISHING COMPANY for $16.00 (one-year subscription) or $32.00 (two-year subscription). 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. NOTE: There are no special 10% discounts offered on publications through Kalmbach Publishing.

Club Telescopes Available for Use

NOVAC makes available two six-inch (*f*/5) Newtonian reflectors for club members to check out free of charge and use for a limited time.

The first 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 second 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, NOVAC President, at (703) 978-0946. He will schedule a time for you to pick the scope up at his home. Bob resides at 4415 Eastwood, Fairfax, VA 22032.

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 check out 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 Meeting & Observing Schedule for July/August 1994

Observing at C.M. Crockett Park

July 1, 2, 8, 9, 29, 30
August 5, 6, 26, 27

Observing at Parsells Field

July 16, 30
August 12, 26

Observing at Parsells Field for Meteor Showers

July 28 (Thursday)
August 12 (Friday)

General Membership Meetings

General Membership Meetings are held at the Arlington Planetarium on the third Wednesday of every month. Meetings will be held July 20 and August 17 at 7:30 P.M. The Arlington Planetarium is located at 1426 N. Quincy Street, Arlington. 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.

NOVAC Observing Site Rules

C. M. 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 PARK MANAGER GARY KWOLEK. Call (703)-788-4867 early in the day on which you wish to observe. 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. 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.

Parsells Field: NOVAC members may use Parsells Field in Loudoun County as an alternative observing site ONLY ON THE NIGHTS DESIGNATED for general observing and meteor showers. Currently there are no provisions for unscheduled observation nights. You must park and set up ONLY IN THE PARKING AREA and not go onto the field itself. Please park to the left near the entrance and set up to the right away from the entrance. No loud radios, alcoholic beverages or loose pets. Do not leave trash or debris behind. We are guests of the Dulles Little League and they reserve the right to revoke our observing privileges any time due to the carelessness of one person.

Directions to NOVAC Observing Sites

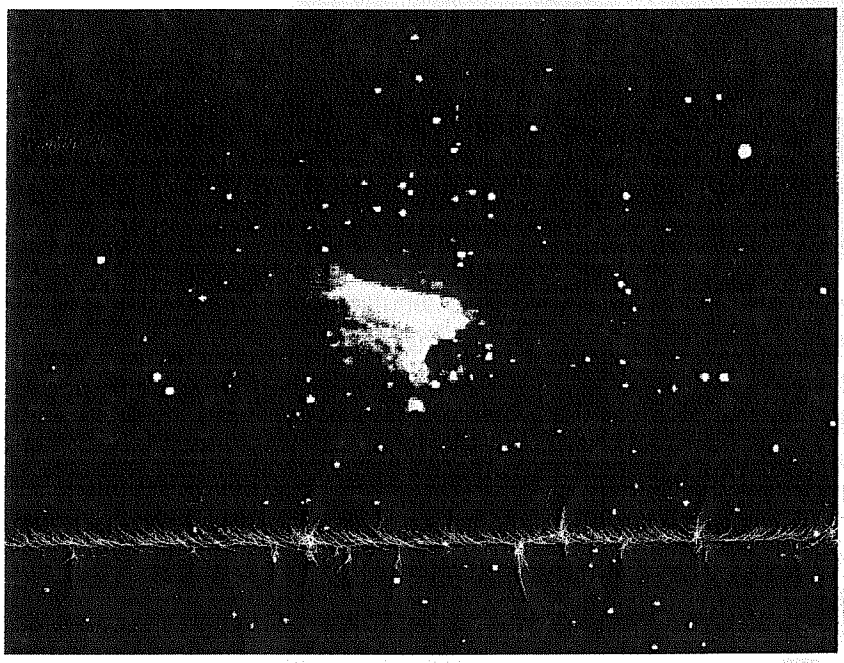
C. M. Crockett Park: From the Washington DC/Northern Virginia area, go west on I-66 to the 47-a exit. This is 234 South to Manassas. Continue on 234 for 2.8 miles then turn right on Godwin Drive at the "Po Folks" restaurant. Follow Godwin Dr. for 1.8 miles to where it

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 Access (Toll) Road until you reach Route 28 (last exit before Dulles Airport). Proceed north on Route 28 until you come to Route 625 (Waxpool Rd.). You may also take Route 7 (Leesburg Pike) to Route 28 and go south on 28 until you reach Route 625. Go west on Waxpool Road passing through the town of Ryan and Route 641 (Ashburn Rd.). Continuing on Route Rt. 625, Parsells Field will be on your left a short distance beyond Ryan. If you make it to Route 659 (Belmont Rd.), you've gone too far. □

Summer Deep Sky Splendor: The Swan Nebula

by Thomas S. Parry



The Swan Nebula in Sagittarius. Photograph by Bob Sandy

The Swan Nebula, or M17 in Sagittarius, is a magnificent object to observe through moderate-sized telescopes on warm summer evenings. The easily visible nebulosity is described as filling an area about 26 by 20 arcminutes and the full dimensions of the faint outer portions are about 45 by 35 arcminutes making M17 one of the largest diffuse nebulae in the sky.

For the visual observer, the main feature of M17 is the long bright comet-like streak across the north edge. When I see the nebula, however, I see it more as a large "check mark" set against a backdrop of jewels in an inky black sky. As I study the appearance of the nebula, the arch in the "neck of the swan," resembling a number "2" becomes very clearly revealed and sure enough, I feel like I'm observing a large fluffy swan gracefully treading the tranquil waters of the infinite universe! Herschel saw the swan's head as the curving top of a Greek "omega" which lead to its other name *Omega Nebula*.

This nebula contains no conspicuous star cluster, though the entire field is sprinkled with numerous starpoints as seen in the photo above from about magnitude nine down to the limit of visibility. It is thought that the illuminating stars for the nebulosity are buried deep within the nebula itself although they have never been detected. The Swan Nebula is estimated to be 5,700 light years away from our solar system.

Take the time this summer to observe M17. It is easy to see through small telescopes and a four-inch will show the distinct swan-like appearance. Details abound in six- to ten-inch scopes and in large-aperture instruments, the view is truly magnificent. □

NOVAC Newsletter is the official publication of the ***Northern Virginia Astronomy Club*** and is published six times per year at 12000 Vale Road, Oakton, Virginia 22124-2321, telephone (703) 758-8224, Thomas S. Parry, Editor and Publisher. NOVAC Newsletter is sent to members of NOVAC as a regular membership benefit.

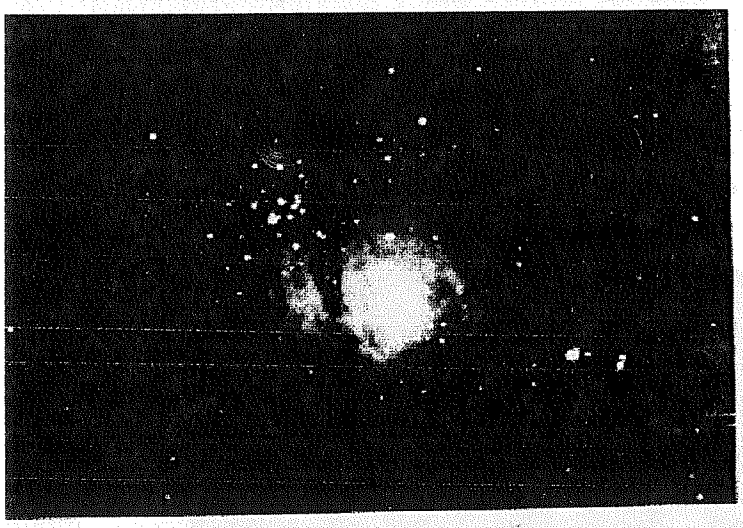
Membership in the Northern Virginia Astronomy Club is $18.00 per year and is open to anyone interested in astronomy or the sciences. Contact Brenda Jones, Treasurer, 883 North Kentucky Street, Arlington, Virginia 22205, telephone (703) 527-7963. All notices of change of address should be sent to Brenda Jones. Please include both old and new addresses.

NOVAC does not knowingly accept advertising for products of inferior quality nor does it accept the responsibility for the quality of such products.

NOVAC members are invited (and ENCOURAGED!) to contribute materials of interest for publication consideration in the NOVAC Newsletter. The editors, however, reserve the right to edit all materials submitted. Ideally, materials submitted for publication consideration should be sent on 3.5" or 5.25" floppy disks in ASCII text format to the address of the editor. Other electronic formats are acceptable as well as double-spaced typed and letter-quality manuscripts. Contributors may post their article submissions to the NOVAC RBBS. Please post them as personal uploads to Tom Parry. Contact the editors for details and/or possible direct electronic file transfer.

Images

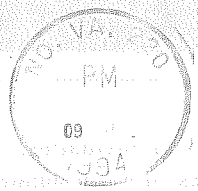
The Lagoon Nebula in Sagittarius



The Lagoon Nebula in Sagittarius is one of the finest of the diffuse nebulae, located about 4.7 degrees west and slightly north from Lambda Sagittarii in the handle of the *Milk Dipper* asterism. M8 is plainly visible to the naked eye under dark sky conditions as a glowing comet-like patch just off the main stream of the Sagittarius Milky Way. In a small telescope it is seen as an impressive irregular nebulosity enveloping the open cluster NGC 6530. M8 is a great midsummer object for the warm evenings of July and August. (*M8 photograph by Bob Sandy*)

NOVAC

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



12/94 - $0.(

Bill Burton
2034 Golf Course Drive
Reston, Virginia 22091

NOVAC Membership Survey Enclosed