

NOVAC

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<http://astro.gmu.edu/~novac>

President's Message

Tilly Smith

Lot of things going on at NOVAC over the spring and during the summer. It seems that everyone (Boy Scouts, Girl Scouts, Cub Scouts, Civic clubs, and the Washington Country Club to name a few) wants NOVAC to do slide shows and other public programs, all at the same time. I am sure Pete would agree, as he has been running every which way to cover all the requests. However, I would like to touch briefly on three specific things that we are doing.

First, please note the date of Saturday, September 26, 1998 on your calendar. That is the NOVA Star Party at Crockett. Jeff Cook is cooking up a gala package of events for that weekend, which should go a long way in really putting this star party on the map. More to follow from Jeff, I am sure.

Second, we are making a strong push to improve our new-member-orientation

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Observing in Arizona

Tim Cox

I recently spent several days observing under dark skies in Arizona. I had wanted to visit Arizona again, ever since my family and I enjoyed a vacation there three years ago. Arizona offers visitors beautiful, varied scenery, and a dry, sunny climate. But what really inspired me to visit Arizona again was Tom Polakis' excellent web page (www.psi.az.com/polakis), which makes observing in Arizona sound enticing, to someone accustomed to the haze and clouds of Northern Virginia. His page provides descriptions of, and directions to, ten popular observing sites in Arizona, which was exactly the kind of practical information I needed to plan my trip.

To transport my 10-inch Dob, I built a plywood crate, and I carried the truss tubes in a separate cardboard box. The dimensions of these boxes very slightly exceeded the size limitations for free checked baggage on United Airlines, but they were close enough that United did not charge me for excess baggage. I carried the telescope's mirrors, as well as eyepieces, Telrad, and 8x40 binoculars in my carry-on bag.

My first night of observing was spent at a site in Tonto National Forest, about five miles north of the town of Payson. The site is more than 6,000 feet above sea level, and on this night, seeing and transparency were excellent. There was some detectable light pollution to the South, coming from Payson and Phoenix, but that did not intrude significantly on what

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Dr. Huddle, Naval Academy

August 19

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Astronomy on the Internet

Observing in Arizona

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was almost a perfect sky. I noticed, for example, that M13 was easily visible to the naked eye.

I spent most of the evening looking at galaxies in Leo. The objects I was looking for were mainly 10th-, 11th-, and 12th-magnitude galaxies, but I was surprised to encounter many fainter galaxies which were not plotted in Sky Atlas 2000, or even in some deeper charts I had prepared using Guide 5.0 software. Many of the NGC galaxies that I saw showed more contrast and detail (dark mottling) than most Messier galaxies show from Crockett or Savage in Northern Virginia. All of the objects I looked for were quite obvious, even when I was just panning around without checking the object's exact location beforehand.

I also spent two nights observing at a Lowell Observatory site, 10 miles south of Flagstaff. I used my telescope, not theirs. Although a light dome from Flagstaff made the sky marginal above the northern horizon, the rest of the sky at this site was extremely dark. This site is more than 7,000 feet above sea level, which contributes to excellent seeing and transparency. Flagstaff has excellent street lighting, with a full cutoff design used for the great majority of street lights. The residents also seem to exercise great restraint in outdoor lighting. This gives many neighborhoods within the city itself a rural feel.

On these nights, I continued working my way through the galaxies in Leo. I was struck by how many of the fields I examined in Leo, which in a mediocre sky can be sparsely populated or even blank, here resembled the crowded fields of galaxies in the Virgo cluster. I also had what was my best view ever of M101, which is one of my favorite objects. With the galaxy favorably located at the zenith, and with a hood covering my head and the eyepiece, I could clearly see the orientation of five of the galaxy's spiral arms.

Scorpio and the summer Milky Way clouds were pretty high these nights as well, so I had my first look at many favorite summer objects. The first look each year at the summer Milky Way is an impressive spectacle, and it was quite striking to look first at the bright, dusty disk of our galaxy angling up from the southern horizon and then to look up into darker intergalactic space near the zenith.

On my fourth and final night of observing, I visited Vekol Ranch, a desert site on BLM land about two hours' drive southwest of Phoenix. This is where Tom Bopp co-discovered Comet Hale-Bopp. Sky conditions this night were not exceptional: thin stratus clouds covered 40 percent of the sky to the north, and a fair amount of dust obscured everything within about 10 degrees of the horizon. Still, the view to the south was quite useable. After a few nights of shivering at higher altitudes, it was nice to sit in the back of my rented pickup truck in shirtsleeves and scan the Milky Way with binoculars.

President's Message

(Continued from page 1)

activities. Nicole has done a great job in putting together some ideas that will give us direction for the remainder of the year. One specific action, which unfortunately will be over by the time you read this, is to have the new members be the guests of the club at the NOVAC Picnic on Saturday, June 20, and at a special New Member Observing Session that evening. We plan to send special invitations, with more details, to each new member. Hope we have a big crowd - it should be fun.

Third, anyone who has been to the last couple of general meetings will note that we have initiated a 1/2 hour social period, from 7:00-7:30, prior to the start of the general meeting. Many of you have commented that there is no room in the meeting area to just socialize prior to the meetings. We are holding the social in the reception area directly behind the normal meeting room; in fact the general entrance to the meeting will be through this reception area, rather than directly into the meeting room itself. There will be some snacks (cheese, cookies, etc.) and sodas for your enjoyment. I hope you will join us there prior to the meetings.

As I said, there is a lot going on. Anyone who would like to help on some of these activities, please contact me. We can use your ideas and help.

// tilly

Binocs to Lend

Craig Tupper

NOVAC now has a pair of 10x50 binoculars available for members to borrow. Great for beginners who want to learn the sky, or for anyone who just wants to try out the view. These binoculars will be kept in the club library, located in the back of the planetarium, and can be checked out after the regular monthly meeting, for a period of one month. They must be returned at the next month's meeting. You might like to check out one or two of the club's four books on binocular observing at the same time. See Pedro Martinez or Craig Tupper, club librarians, after the meeting to borrow them. Please show your observing pass.

It is possible to get clouded out in Arizona. Two nights in Payson were obscured by high cirrus clouds, and my final night in Phoenix was a swampy, hazy night that reminded me of home, but the odds are that a visitor will have at least a few clear nights under the stars.

For planning an observing trip to Arizona, Tom Polakis' page is a must. More general information on vacationing in Arizona can be found at Spider's Arizona Pages (www.seds.org/~spider/spider/az/az.html) and the Ultimate Arizona Vacation Guide (www.webcreationsetc.com/Azguide).

51st Astronomical League Convention

David Stephens

Observer Editor

Evansville Astronomical Society

(via John Avellone, ALCOR/NOVAC)

This summer, July 21-25, the gently rolling hills of Southern Indiana will be the hot spot for amateur astronomers from around the country, as the 51st annual convention of the Astronomical League (ALCON '98) gets under way in the town of French Lick, at the French Lick Springs Resort. Headlining the event will be Space Shuttle astronaut, Dr. F. Story Musgrave. Dr. Musgrave, who is tied for the most number of spacewalks by any person, six, commanded the Hubble Space Telescope Repair Mission. He will be the main banquet speaker (for registered guests) and will relate his experiences dealing with repairing the famous telescope. For a small admission charge, the public may also attend Dr. Musgrave's lecture.

Jack Horkheimer, *Stargazer*, is another main attraction of ALCON '98. Jack is that enthusiastic man you see talking about the night sky just before your Public Television station signs off. He will be making two appearances. During one, he will present the first Jack Horkheimer Award. This annual award will be to the amateur astronomer, 18 or younger, who provided outstanding service to the league or to a member society the previous year.

Several other speakers will be on hand, covering a number of diverse subjects, from the next Martian probe to bird navigation. There are a variety of workshops to involve yourself in, and of course, the annual Star-B-Que. Bring your want list too, as several vendors will be on hand to help you round out your collection of astronomy items. Of course, there'll be plenty of observing. Our quality site is only 25 minutes from the hotel.

For family members who may not care so much for astronomy events, there are many area attractions. There are several terrific caves nearby waiting to be explored. The Lincoln Boyhood National Memorial in Lincoln City, hosts costumed interpreters working the land just as Abe did. Across the road is the Lincoln Amphitheatre, featuring the Young Abe Lincoln Musical. The Gus Grissom Memorial, honoring one of America's early astronauts, is close by. And within walking distance of the hotel, you can take a ride on a historic train, or tour the area on a 1930 electric trolley.

The resort rests on 2600 acres and features many quality activities for its guests: two golf courses, a tennis court, horseback riding, a six-lane bowling alley and two swimming pools. There is also a spa on the premises in which to relax your aching muscles after all that fun. All the daily activities will cause you to work up an appetite, and there are several wonderful restaurants at the hotel, and in the area, to satisfy any size hunger.

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An Astronomical Night of Fun

Ron Cook

All day Friday, March 27, I watched the clouds in anticipation of clear skies that were forecast for that evening. After the six-month onslaught of El Nino related clouds, there had been only a few rare opportunities for viewing the celestial sphere, and I had been waiting another three to observe a particular celestial phenomenon that had eluded me for my Astronomical League Lunar Certificate. For amateur astronomers and many others, circumstances like these can produce depression, sometimes severe. During the day, there had been waves of offending translucent substances passing overhead, but as dusk approached, the apprehension waned; the work day was over, and I hustled home and loaded my tripod, binoculars, and star charts. After getting gas, I beat a path down Route 28 from Herndon to Crockett, stopping at McDonald's south of Manassas to grab a bite and liquid refreshment for the evening. Often, I get very thirsty when observing, and a little sugary water helps with an energy boost. Further south, but a couple of miles north of Catlett, I could hear the tree frogs singing to the warmth of the approaching evening and their potential mates. The Doppler modification of their songs was quite apparent as I passed them. My spirits were also lifting as the skies were becoming even more transparent for much shorter wavelength optical observations.

Pulling into Crockett, I parked beside a little black, six-inch Celestron (Dobsonian) set up by a small table. Jon Stewart-Taylor appeared shortly, thereafter. I set up my binoculars and waited, since it was not yet dark, though the sun had set some time ago. There was no Moon; over the course of the next hour or two, after dark, I observed 33 Messier objects, eight of them through Jon's scope, thank you, Jon. This was Messier Marathon season, an annual event of the Northern Virginia Astronomy Club. During this time of year, all the objects listed by M. Charles Messier as nuisances to comet hunting, can be seen during the course of a night. Most are easily obtainable with binoculars, but typically galaxies, excluding the apparently big ones like M31, M33, are much better observed through a telescope. That is especially true in Virgo, where quite a few Messier galaxies lie in a relative small area. I had hesitated about trying to garner a significant number of these by staying up, but I need not have. We were all shut down by an opaque blanket of clouds about two hours after dark. Twenty cars had shown up. I left as Jon was setting up his sleeping bag to await a clearing sky.

Saturday morning, I arose to skies very clear, and after seeing weather on the Internet, I did not see how the transparency would not endure through the coming night. After fooling around with the computer more than I should have, I repeated preparations and included my solar filters, in hopes of using them at Crockett by arriving before sunset. Well, I gauged that

poorly and watched the Sun set about seven kilometers before arriving. A few days later, I was to discover there was a very observable, large sunspot, possibly the same large spot I had seen at my sister's a few weeks previous. As I was setting up, somewhat disappointed with my planning, I recalled that the New Moon had occurred very recently, thinking it to have been about 11 am EST Friday.

I had setup by pre-arrangement with Jonathan Bein and Barry Wolfe. Neither Barry nor I were particularly set on staying all night. Here, it was still light, so after advising the nearest 20 or so people that the Moon was recently new and a challenging object to find, I started scanning the skies near where the Sun had gone down. Eight or nine months ago, I had started on my Astronomical League Lunar Certificate, and almost every month since then, I tried to find the moon within 40 hours of new crescent waxing and within 48 hours of new crescent waning. Both sightings can each be used to acquire a point toward the 100 necessary for the certificate. Something always was in the way when I tried, e.g., weather. After about 10 or 15 minutes of scanning the horizon and with increasing darkness, I yelped and hollered "I found it, I found it" as I ecstatically ran up the slope. It turned out, those who shared the sight did pretty well, as this table shows:

New Moon Mar 27	22:14 EST	USNO
Sunset Mar 28	18:06 EST	USNO
Waxing crescent (obs)	18:45	Crockett
end civil twilight	18:55	USNO
set	19:20	USNO
difference: obs-new	20:31	me

Wow, what a beginning! See the *Sky & Telescope* article "In Quest of the Youngest Moon" by Edwin L. Aquirre, December 1996, page 104. It would seem the Messier Marathon would be anticlimactic after this. The wait for suitable darkness began. While looking for the Moon, a fellow beside us located Saturn and we looked at that.

My 20mm x 80mm Swift binoculars have been a great source of viewing pleasure for both birding and astronomy. I saw many Bald Eagles through them at the Conowingo Dam on the Susquehanna River. I originally tried them on my camera tripod, but the much heavier Samson I purchased with the binoculars at an estate sale has proven much more stable, with smoother rotation on each axis as well as elevation adjustment. For a Messier Marathon, I have found *Sky and Telescope's* "Messier Card" to be extremely useful. The 42.5cm by 60cm Velcro attachable board I stick to the tripod legs holds two ordinary clipboards. On the left, I place the Messier Card, and on the right, a sheet of gridded paper I have laid out in a 10 x 10 matrix. The very first object is Messier #110. All the others intersect in the grid which runs 0-9 both vertically and horizontally. The grids need only be large enough

to hold a time.

As we tried to push the dusk to dark, I began scanning to find M31 and its companion galaxies M32 and M110. It wasn't dark enough. These objects are at the very bottom of the Messier Card, its right ascension appropriately split for the purpose of the evening. A growing problem with the Crockett site for astronomy is the skyglow in the west, created by cities of Warrenton and Culpepper, VA as well as the airport beacon at a local airstrip. Then too, there is the strobe on the communication tower about a mile north of the airport, increasingly noticeable with increasing water vapor in the air. It is a blinking fog when there is fog. Jonathan, Barry, and I all saw M31 and M32, but were unable to decide on M110, and they disappeared into Warrenton's glow. I thought I saw M33, but was not certain. Because of the glow of Culpepper, we could not acquire M74 and M77. Well, that was a less than auspicious start. Scanning the Messier Card much like a computer scanner by the time we arrived at M77, there were nine objects: 110, 31, 32, 103, 76, 33, 74, 77, and 34. We had not been able to acquire 110, 33, and 74 and I missed 77 and 103. M103 I would acquire the following morning, as lying in Cassiopeia; it rotated into view again though below Polaris. Finding an object, Jonathan and Barry would come look at it, or they would and I would go look at theirs, but all three of us generally looked at each object twice, once in Barry's 37.5cm Obsession light cannon and once in my 20x80's. It was great. We did those near and in Ursa Major. The few there and the many galaxies behind Leo's rump that I could not find with the binoculars, I saw with Barry's scope. After we finished the galaxy cluster, for which the back of the Messier Card has a detail enlargement, we drifted into Hydra, picking up M104, M68, and M83 on the way. It was relaxation time and after midnight. The back of the card also has a list of properties for each Messier object, giving right ascension, declination, constellation, type, magnitude, and size, along with short notes. Messier objects were not all that we observed. Several NGC objects were identified by Barry when they were in the field of view and pointed out. Apparently Barry and I had committed to completing the marathon at this point and Jonathan had always been.

Someone familiar with supernova SN1998s came to the giant Celestron scope set up beside us, and helped find it for all in the vicinity to view. That was spectacular. In Ursa Major, and recently discovered March 3, I believe, it is difficult to see how a little star in a galaxy far away can glow as bright as the core of the galaxy itself (NGC3827). Pity any civilizations nearby, though in the 30 or so million light years it has taken for light to get here, the imagination can conjure scenarios of regeneration, initiation, etc.

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Soaking Up the Northeast Astronomy Forum

Bill Jensen

The Northeast Astronomy Forum (NEAF) was held on May 3, 1998 in Suffern, NY, once again this year. I coned, er, convinced my spouse of the need to travel to NY to attend, and we fought Noah-like conditions there and back to join hundreds of other folks who were shopping and listening at the Holiday Inn at Suffern.

Last year, the speaker roster was a bit better, especially since it included NOVAC's Brent Archinal. But despite that, this year's offering included David Eicher of Astronomy magazine, Roger Sinnott of *Sky and Telescope*, Fred Espenak of NASA Goddard, Phillip Harrington of Starware fame, and my favorite speaker in '98 -- Terrence Dickenson, author of many astronomy books.

David Eicher's presentation was on the "Wonders of the Southern Milky Way". He began his presentation with slides of familiar sights in Sagittarius, and then moved into southern hemisphere objects. He kept the talk lighthearted, while making us all want to visit Australia or Chile on an expedition. Harrington provided a guide to beginner's-telescope jargon, which was of questionable use to most of the audience. In fact, some of the NOVAC sessions helping beginners seemed more useful. Roger Sinnott's talk was entitled "Stars and Starbucks - Making of the Millennium Atlas", which was the most disappointing presentation. Just imagine an hour-long advertisement for a Sky Publishing product. Yawn. But Terrence Dickenson was the highlight, and his slides captured the audience as he spoke on "Galactic Odyssey: Exploring the Night Sky Through Wide-Angle Photography." Combining a quiet sense of humor, stories of his Canadian backyard, and those beautiful pictures, his speech alone was worth the price of admission. OK, so it only cost \$10 to get in, but seriously, it was well worth it.

All this talking was great, but the real attraction of NEAF is the vendor display. Last year, it was crowded into one large hall at the hotel, but this year they added a large tent in the parking lot, to house fifty-five vendors sucking our wallets dry. Yes, the longest line was for the TeleVue cosmetic seconds, and oddball accessories. I waited over an hour to pay cash for a couple of eyepieces including one Panoptic at approximately 50% off the mail order prices. Meade, Vernonscope, Questar, Mag 1, and Kendrick were some of the manufacturers represented, with many more dealers such as Pocono, Meichsner, Tuthill filling the spaces. I managed to restrict my other purchases to some high quality cleaners, but being able to look at (drool over ?) the newest astro stuff was a lot of fun. TV's 85mm and Bizzarro scopes were very hot.

Al Nagler was having a ball demonstrating his wares in his own backyard. (TeleVue is based

Caveat Emptor - Buying Recycled Scopes!

Bill Jensen

I am a firm believer in letting someone else pay for depreciation. My last car was three years old when I bought it (with a long warranty) And my first scope was a used Jeager 5-inch f/5 refractor, that proved to be a faithful cluster-buster for over 20 years. But as someone who has sampled more scopes, than Messier objects, I have learned that buying from someone else on *Astromart* or the *Starry Messenger* should be something done with a bit of caution.

My best purchase on *Astromart* was my used 12.5-inch Mag 1 Portaball. The seller insisted that I come to North Carolina to buy it, and since used P-balls are rare, I was happy to make the trip. Driving six hours one way meant that I could actually kick the tires prior to buying. So if you can, see the scope in person prior to buying. My worst purchase was from an ad in *Astronomy* magazine, buying an old C5 Celestron SCT that was covered with a dark gooey substance. After cleaning it for hours, stripping and repainting it, I finally sold it to a dealer for next to nothing. I had not gotten the seller to agree to a 3-day right of refusal. And since he was in California, I could not easily drive there to see it first.

I did not learn my lesson when I purchased a used TeleVue Oracle telescope (a triplet apo with a 76mm lens that predated the Pronto) from a guy in Connecticut. Advertised on *Astromart* as in great condition, it turned out to need \$100 in repairs at TeleVue for an obviously faulty focuser. I did not insist on the right of refusal, which is really dumb on my part after my earlier disaster. But I had thought that someone who owned an apo refractor would care for it. As it turned out, he had purchased it only months ago from someone else, and then dumped it on me. The nice part is that Al Nagler himself called me concerning the repair, and on the same day that it was received at the company. He even promised me that the repair would be completed in a week. Try getting that kind of service from the president of any other company when returning a used product. TeleVue has earned my loyalty. And bottom line, I could not purchase a new apo for the price of my recycled, reconditioned Oracle. So despite the bruises, I still get tempted by the arrival of the *Starry Messenger* or *Astromart* ads. Just have to remember to see it first, or insist on an evaluation period in the future. So learn from my mistakes, folks, when you buy used!

in Suffern.) CCD stuff also appeared to be very popular. Unfortunately, it was in NY, so it was not unexpected that something would grow legs and walk away: Hands On Optics reported that a Brandon 80mm apo telescope was stolen.

The best news of all is that security next year

51st Astronomical League Convention

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Your hosts for ALCON '98, the Evansville and Louisville Astronomical Societies, want you to have the best ALCON experience ever. Make ALCON '98 your astronomy vacation. For registration information, see the ads in the February and May issues of the *REFLECTOR*, the newsletter of the Astronomical League. Visit our web site at <http://ourworld.compuserve.com/homepages/sconner/> where you can download a registration form. Join our e-mail newsletter by sending mail to alcon98@gs1.revnet.com. Type "join" in the body of your message, to receive updates as ALCON '98 draws closer.

The Evansville Astronomical Society Host Chairperson is Mitch Luman 812-985-7739. E-mail Mitch at mluman@aol.com.

The Louisville Astronomical Society Host Chairperson is Sally Lambert 502-587-7711. E-mail Sally at 105153.2244@compuserve.com.

ALCON '98 Fast Facts

WHAT IS ALCON?

The annual convention of the Astronomical League. It marks the gathering of amateur astronomers from all over the United States and other countries.

Who is hosting ALCON '98?

This year's event is co-hosted by the Evansville Astronomical Society (Indiana) and the Louisville Astronomical Society (Kentucky).

Where Is ALCON '98 being held?

ALCON '98 will take place in the vacation resort town of French Lick in Southern Indiana. French Lick is centrally located between St. Louis, MO., Indianapolis, IN., Louisville, KY., and Nashville, TN.

When is ALCON '98?

The dates for ALCON '98 are from Tuesday, July 21 to Saturday, July 25, 1998. Registration starts each morning at 8 a.m. and activities will last late into each evening.

What is there to do?

Astronomy-related lectures and workshops will be held 9-5 daily. Door prizes will be given away and vendors from around the country will be on hand to sell their wares. Special recreational events are part of ALCON '98: a "Star-B-Que" on Thursday; a silent auction and banquet on Saturday. For family members who want something else to do: Friday is a "free" day for convention attendees to drive to area attractions such as visiting nearby Louisville where they can tour the Kentucky Derby Mu-

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will be better, as will the show: it's scheduled for May 1 and 2 at West Point. This will allow more west coast vendors, and maybe even the possibility of overnight stargazing using the best stuff in the business. I know I will be joining the army for two days next year!

Jeff's Observing Report

Jeff Stetekluh

Jeff's astronomical calculations are made for the Northern Virginia area.
See credits at the end of this article.

The Sun	rises	sets
July 15	5:55 AM	8:33 PM
August 19	6:25 AM, 7:58 PM	
September 16	6:50 AM, 7:15 PM	

The Moon

July 1	First Quarter
July 9	Full Moon
July 16	Last Quarter
July 23	New Moon
July 31	First Quarter
August 7	Full Moon
August 14	Last Quarter
August 21	New Moon
August 30	First Quarter
September 6	Full Moon
September 12	Last Quarter

Events

July 16 Mercury at greatest elongation: 26.7°E (from Espenak)
July 23 Neptune at opposition (from Espenak)
July 28 Southern delta-Aquarids ZHR=20, active July 12 to August 19 (from IMO)
August 3 Uranus at Opposition (from Espenak)
August 5 Mars is 1 degree northwest of Venus (from S&T)
August 7 Pen. Lunar Eclipse; mag=0.118 (from Espenak)
August 12 Perseids ZHR=90, active July 17 to August 24 (from IMO)
August 13 Mercury at Inferior Conjunction (from Espenak)
August 21 Annular Solar Eclipse; mag=0.969 (from Espenak)
August 22 Annular eclipse of the Sun in a path across Indonesia (from S&T)
August 31 Mercury at Greatest Elong: 18.2°W (from Espenak)
September 6 Pen. Lunar Eclipse; mag=0.804 (from Espenak)
September 11 Mercury is ? degrees northeast of Venus (from S&T)
September 16 Jupiter at Opposition (from Espenak)

The Planets

July 15	Magnitude	Rises/Sets
Mercury	0.4	W, 15*
Venus	-3.9	rises 3:53 AM
Mars	1.6	rises 4:35 AM
Jupiter	-2.7	rises 11:32 PM
Saturn	1.9	rises 1:07 AM

August 19	Magnitude	Rises/Sets
Mercury	2.9	rises 5:49 AM
Venus	-3.9	rises 4:50 AM
Mars	1.7	rises 4:08 AM
Jupiter	-2.9	rises 9:11 PM
Saturn	1.8	rises 10:48 PM

September 16	Magnitude	Rises/Sets
Mercury	-1.4	rises 6:08 AM
Venus	-3.9	rises 5:53 AM
Mars	1.7	rises 3:47 AM
Jupiter	-2.9	rises 7:13 PM
Saturn	1.6	rises 8:56 PM

(* degrees elevation sunset taking into account atmospheric refraction)

Jupiter Eclipse Events on Club Observing Nights

May 30 4:33 AM Europa eclipse starts (S -12 J 122 23)
June 21 2:31 AM Io eclipse starts (S -25 J 113 16)
June 28 4:25 AM Io eclipse starts (S -13 J 143 39)
July 26 1:15 AM Europa eclipse starts (S -32 J 124 26)
August 13 4:47 AM Io Eclipse Start (S -17 J 214 45)
August 14 11:15 PM Io Eclipse Start (S -30 J 117 19)
August 19 10:23 PM Europa Eclipse Start (S -25 J 112 13)
August 22 1:10 AM Io Eclipse Start (S -39 J 151 42)
September 14 1:21 AM Io Eclipse Start (S -47 J 190 47)

References for Jeff Stetekluh's Observing Report: Galilean moon events are calculated using his software that is based on algorithms from the book *Astronomical Algorithms* by Jean Meeus, 1991. This includes Bretagnon and Franco's VSOP87 planetary theory and Lieske's theory E2 of the satellites. Sun and Moon rise and set times are calculated using software he converted to the C language from the basic program SESSION. BAS. SESSION.BAS is available through Compuserve and is by Michael A. Covington, 1984 and revised by Leonard Abbey, 1986. The Moon's phase values are calculated by software he adapted from lunisolar.c by John D. Ramsdell, May 1990. Lunisolar.c is available on the Internet.

Editor's Note

Elliott Fein

Please keep those articles coming in!

And a reminder, the 10th of the month preceding publication is the cut-off: material that I receive after the 10th will appear in a later newsletter. Copy (in ASCII, please) for the September/October issue must be in my hands by August 10. Copy received on August 11 or later will not make it into the September/October issue.

An Astronomical Night of Fun

(Continued from page 3)

I had purchased a laser pointer at Radio Shack, for the purpose of indicating objects of interest during talks I attended or gave. I was amazed at how this little red beam of coherent light energy could be seen half a kilometer or more by the naked eye. It would set dogs to barking. After tiring of playing with it, I took a short nap.

While Barry snoozed, Jonathan and I tugged at Hercule's arm to acquire M13, M92, and then down to Ophiuchus to get M5. When Barry arose, he quickly caught up and found the Ring Nebula, M57, and we finished the objects found in Ophiuchus. Cygnus was rising to the sounds of Great Horned Owls calling in the distance to each other. As they alternated flight, progressing through the woods, they too scanned, but back in the frequency domain of the frogs. Jonathan and I both heard them and an indigenous species on the other side of the lake apparently had an uncomfortable experience as he blasphemed the heavens and the earth in an effort to make a less than subtle point to an acquaintance about two or three in the morning.

Scorpius was climbing ever higher, and we started on the cornucopia of Messiers in it and Sagittarius' teapot. Able to observe M15, M2 and M52, we were unable to access the Messier objects in Capricorn. Dawn had come, it was 5:30; I packed up and headed home very tired, but satisfied with the achievement. It had been a fun night.

51st Astronomical League Convention

(Continued from page 4)

seum, see the Louisville Slugger Museum, visit an IMAX theater, or go to the Science Center.

Conventioneers can take a trip to Holiday World in Indiana, or visit the Gus Grissom Memorial. And, of course, there's observing every night.

How much does it cost?

Prior to ALCON '98, \$60 individual/\$100 family. At the door, \$70 individual/\$110 family.

For registration and event information registration: Charles Miller, ALCON '98 Registrar, P.O. Box 3474, Evansville IN 47733
Louisville host: Sally Lambert (502) 587-7711 or e-mail at 105153.2244@compuserve.com

Evansville host: Mitch Luman (812) 985-7739 or e-mail at MLuman@aol.com

For hotel room reservations, call the French Lick Springs Resort at 1-800-457-4042.

Tell them "I'm with ALCON '98" for a special room rate of \$79 per night.

A Swan in a Milky River

Marc DeFrancis

For Young Astronomers ages 8 and up

Keep your fingers crossed that soon you can stay up late on a clear, moonless night—at the seashore maybe?—far from the bright lights of Washington. With mid-summer, the Great Swan Cygnus arrives, flying with spread wings and outstretched neck through the starry stream of the Milky Way. You might never see a more beautiful bird.

Even under suburban skies you can usually see the Swan's five brightest stars. These five make a simple cross, the short crossbar outlining the swan's wings, and the farthest star representing her south-facing head. The brightest star of all is named Deneb, the Arabs' word for "tail," which is just where you will find it.

Perhaps the stars love summer picnics as much as we do, for during this season, a bright triangle is laid out across the sky's middle like a three-cornered picnic blanket. Can you find it? Deneb holds down one corner. Just west of the Swan's head is the bright star Vega, which marks the sky's center in July. The third corner is held down by the bright star Altair, which you can reach by tracing a straight line from Vega through the Swan's head and continuing an equal distance. Once you've found it, you can show your friends how to spot this so-called Summer Triangle.

Hollywood has given two of the Summer Triangle's members "starring roles" in its films. Altair is featured in *Forbidden Planet*, a classic '50s sci-fi epic that your parents might recall. (It uses very little real science, but the robot is just great, and it's got one terrific monster.) And of course Vega was very important in last year's film, *Contact*.

HOW FAR AWAY?

Looking at these summer stars, how far do you think your eyes can see? To gauge the distance to Vega, recall that the alien civilization in *Contact*, which sent us messages from there, had grabbed the first television broadcast they received from earth and sent it back to us with a coded message. Television waves, which are another form of light, travel through space at light speed, about 186,000 miles per second. That's fast enough to reach the moon in less than two seconds.

Unfortunately, one of the first TV broadcasts ever made, and therefore one of the first to ripple out of our solar system, happened to be from cameras at the Berlin Olympics of 1936, when Germany was ruled by Adolf Hitler. *Contact*, a fictional film, added the part about the aliens from a Vegan planet who spent seven years encoding their message in the Hit-

ler broadcast after they got it and then bounced it back to us. Supposing that such a thing did happen, and that we received the message last year, try a little algebra to find out how far away Vega is:

(1997 - 1936) years = A years (going) + A years (returning) + 7 years (encoding the message). That is . . . 61 years = 2A years + 7 years.

Your answer for "A" tells you how far away Vega is in light-years, the distance light travels in a whole year. Look at Deneb now: it seems just as bright as Vega, yet it is no less than 1,600 light years away. Here's a rule about light: it gets dimmer by the "square" (number times itself) of its distance. For example, if my light bulb is 2 times farther away than yours, its light will appear 4 (that's 2 x 2) times dimmer than yours. If 10 times farther, 100 times dimmer, and so on. Deneb is about 64 times farther away than Vega, which means, if it is the same kind of star, it should appear [64 x 64] times dimmer. Can you multiply and get the answer? In fact, Deneb does not look any dimmer than Vega. The reason must be that Deneb is a super-powerful, super-bright star. How bright? It must be [64 x 64] times brighter than Vega, to make up for its greater distance. That's one very big, very hot star.

THE MILKY WAY

Moving your gaze from the Swan's tail star to her head, you can't help noticing the sparkling clouds of the Milky Way, which continue southward in broken patches that finally seem to be puffing out of the spout of a tea kettle near the horizon. That teakettle is the constellation Sagittarius. This great band of glowing light awed and puzzled ancient people, and for a very good reason. Here is a cloud you can only see on the darkest nights, and unlike the clouds of daytime, it always appears in the exact same shape! The ancient Chinese called it the Heavenly River, the ancient Jews called it the Bandage of the Sky, and the Algonquin and Iroquois Indians considered it the pathway that men's souls must travel after death. Only with the invention of the telescope, could people begin to see that the Milky Way is made of stars too distant to separate. Astronomers today estimate there are more than a hundred billion of them, and we in our little solar system are part of it all, part of our Milky Way galaxy.

Since many of these stars are hotter and brighter than our Sun, why, you may wonder, doesn't the galaxy glow brighter than our day-

time sky? It is for the same reason that Deneb doesn't shine much, much brighter than Vega—because of the great distances. Our galaxy is known as a spiral galaxy, shaped roughly like a wagon wheel with a thick hub of dense stars at the center. Look toward the Sagittarius teapot again, in a dark night from a dark location. The thickest part of the Milky Way cloud you can see there rests at the hub of our galaxy, 26,000 light-years away.

INFINITE STARS?

Is our Milky Way the only galaxy? It's certainly big enough to call a universe. When the great Isaac Newton thought about this question, he saw only two alternatives: either the stars continue infinitely, in all directions, or our Milky Way is like an "island universe" floating in a sea of empty space. An astronomer named Olber suggested that if the number of stars were infinite, no matter how far away they were, their combined light would add up to an infinite flash, and we would all be blinded even in the middle of the night. (But here's another question: What if an infinite number of stars were mingled with an infinite amount of dark dust between them? Which would win, the light or the darkness?)

Newton had discovered that gravity was a force which pulled in all directions from any heavy object. The earth's gravity, for instance, not only holds us in place, but the Moon too, and although it gets weaker and weaker, it does extend beyond the moon forever. Here was a new puzzle: if there were an infinite number of stars, the force of gravity pulling from all of them in every direction would either tear you and me apart or keep us frozen, as if held between an infinite number of infinitely strong tug-of-war ropes. (Please check and let us know if this is happening in your household.)

So Newton concluded that we must be part of an island universe, a single galaxy in a sea of emptiness. After Newton's age, scientists began to think that while there were not an infinite number of stars, time was infinite, that is, the universe could not have had any "beginning." But this left us with another paradox: Why hadn't the gravity of all the stars already caused them to collapse into a heap? The answer to that question came 250 years after Newton, when Albert Einstein set in motion a whole bunch of new ideas, including the Big Bang.

New Members April 6 through June 6, 1998

Pedro Martinez

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Invitation to West Virginia Observing Site

Brent A. Archinal (and Joe Macrie)

Mark your calendars for Friday and Saturday, August 14 and 15th! NOVAC members have once again been invited by fellow member Joe Macrie out to his dark-sky observing site in West Virginia. We made an organized attempt to do this last October, but were clouded out. Joe has a undeveloped mountain-top plot of land in very dark skies, with a small observatory and 11-inch Schmidt-Cassegrain telescope. He has again offered to let NOVAC members come out and observe. Members are welcome to contact Joe concerning other dates, but in particular, the August dates above have been chosen expressly to have members out. There are no known star parties or conventions on that date. The Moon will be just past last quarter, so it should be possible to get several hours of observing in before Moonrise. The Perseid meteor shower will have just peaked on Friday morning, so both nights should be pretty good for Perseid "hangers-on" meteors. Saturday night may be the preferred night though, as the Moon sets later and it should be an easier drive out on Saturday afternoon.

Joe's site is near Moorefield, WV, out VA/WV Route 55 on the other side of Front Royal. This is a pretty good dark-sky site. It is not perfect, as there are some houses visible in the distance, and the town of Moorefield causes some skyglow to the northwest. It is a 3000-foot plus altitude site, with a relatively low horizon all around, and an excellent southern horizon. While observing there under not quite ideal conditions in July of last year, I had one of the best views of the Milky Way I'd ever seen from the Eastern U.S. There are some other amateurs with observing sites there, and lots are still available for persons or

clubs ("hint, hint!") who would like to buy a excellent observing site.

Being a dark site, this is of course a good drive out from the Washington, D.C. area. The total distance is about 130 miles from the beltway, with travel time being about 2 1/2 hours.

Directions:

- 1) Take I-66 west from the beltway until it ends (63 miles).
- 2) Take I-81 south to VA 55 west (2.7 miles).
- 3) Take VA/WV 55 west into West Virginia to WV 259 south (32 miles).
- 4) Take WV 259 south 13.2 miles to Mathias, WV. Turn right just before *See's Auto Body Shop* (on left) toward Lost River State Park.
- 5) Continue on this road (passing through the park) for 9.5 miles. Note that the last several miles are on a good gravel road.
- 6) On the right will be an entrance with a metal gate and a sign saying "Mountain Meadows - Ronald Turner Properties".
- 7) If you have the combination (see below) go through the gate and lock it behind you. Otherwise, park there, and walk in (for now) to the site.
- 8) Make the first right turn, and follow this road to *lot no. 8*, Joe's site, on the left. His telescope dome should be obvious, although you may have to drive or walk past a slight rise to see it. Park anywhere on the grass. The site is fairly easy to find, although arriving in daylight is certainly to be recommended on your first visit there.

If you know you're coming for sure, or want to arrange a visit at another time, please give Joe a call at 301-868-5322. He can answer

any questions and provide the gate combination. You can also contact Joe if you have any doubts about the weather, as there is no point in going if weather conditions are bad.

Some cautions are in order. Although there are a few houses nearby (so far, with essentially no outdoor lighting), Joe's site is completely undeveloped, with no restrooms, water, or electricity. Observers should bring water and food as desired. Restrooms are available at Lost River State Park. Although no camping is available there, you may wish to rent a cabin at the park. For more information about the park, or reservations, see http://wvweb.com/www/travel_recreation/state_parks/lost_river/lost_river.html, or call 304- 897-5372 or 1-800-CALL-WVA. There's a location map at <http://www.state.wv.us/tourism/parks/lostloc.htm> that might be useful in helping you to locate the observing site. This is a mountain top site, so dress warmly - it can get cold even in August. There is plenty of room for camping, so bring a tent, etc. if you wish. And certainly, all are welcome to bring any telescopes or other observing equipment they may wish to use. Of course, from such a dark site, scanning the Milky Way with binoculars or looking for Perseids may easily fill up your night's observing, so a telescope is not really necessary.

As I've mentioned before, many NOVAC members in the past have expressed their wish to observe at a good dark-sky site. Well, now you've all been invited to one. So hope for good weather, and come on out to wild, wonderful, and - **dark** - West Virginia!

Minutes OF NOVAC General Meetings and Board Meetings

Ronald W. Cook

April 15 General Meeting

17:30-18:45 There was the usual pre-meeting social gathering in the *Santa Fe* restaurant at Wilson & Clarendon in Arlington. As I recall, there were about eight present, pretty good considering it was Tax Day.

19:30 **Tilly Smith** called the meeting to order. First time NOVAC meeting attendees introduced themselves.

Announcements:

May 2 - Astronomy Day. Flyers are available; the general public is to park in the parking lot. There is a twilight slide show planned. Need table.

June 20 - The NOVAC Picnic & Observing event will be dedicated to new members.

Jon Stewart-Taylor handed out Messier Marathon certificates to those achievers that were present.

Marc DeFrancis reminded us of the Abington school presentation. It would be about two hours.

Tilly Smith reviewed the previous Board Meeting and the effort to develop a 5-year plan.

Officer's Reports:

Pete Johnson, VP

NOVAC hats were still available.

Upcoming topics:

April - Celestial Mechanics - Roger Firestone

May - CCD Astronomy - Craig Tupper

June - Amateur Telescope Making - Bob

Bunge, et. al.

July - Hubble?

August - Mirrors

September - Internet Astronomy

Ron Cook, Secretary

Outreach Meetings for scouts.

Pedro Martinez, Treas.

There are many new members. A new member membership directory will be published soon.

Jeff Stetekluh gave the Observing Report

Brent Archinal gave the Sky Tour with an overly bright laser.

Roger Firestone gave a wonderful down-to-earth talk about Celestial Mechanics.

53 signed the register, 6 indicating they were not members.

Submitted by:

Ron Cook, Secretary

May 13 Board Meeting

19:30 **Tilly Smith**, President, called the meeting to order, and distributed a meeting agenda, as well as an outline of the results of the previous board meeting's 5-year plan development, that being a list of the club's goals.

A larger meeting place was discussed for the growing club. **Ron Cook** mentioned the tremendous advantage of using the planetarium. **Bill Burton** inquired about anyone being turned away. **Tilly Smith** emphasized not getting fixed to the planetarium if we become large enough to require another facility. **Pete Johnson** mentioned the potential use of school auditoriums. **Tilly Smith** stated the Navy frequently does similar programs in an auditorium with a flat screen & projector.

Observing management is necessary for Savage.

The Astronomy Day event at Crockett was successful even with undesirable weather conditions. **Pete Johnson** did the slide show.

Name tags should probably be worn, particularly by the officers of the club.

Better club software is needed for the club accounting. A new, faster computer might also be necessary. We are currently using an old 486 IBM PC type.

New observing sites are necessary. First, a replacement for Parsell's is sought. **Pete Johnson** mentioned a place called Bramberton and that he had talked to someone and if we write a letter, we might gain access. **Bill Burton** mentioned we might as well use the Franklin Park facility under development. Pete mentioned we might be able to use the Central Baptist Church facility with a small contribution.

Savage as a site is under 5-year review by the park, and **Tilly** thought we might be able to upgrade it.

The members of the board took a break to proceed to the rooftop of the adjacent building in an effort to observe Comet Soho. The effort did not succeed, although an aircraft so distant it took 5 minutes to determine that it was moving, showed landing lights that we initially thought was the comet. Its rising with the sunset however, ruled it out.

An orientation package was discussed with perhaps a new hat design. A social pre-meeting time was discussed and planned for the next General Meeting, May 20, in the back room of the planetarium.

Bill Burton gave an update on the FPO (Franklin Park Observatory). They are in the waiting mode for grants, sponsorship, etc. They

need 50-100K.

At the picnic, **Tilly** wants to treat with hamburgers, hot dogs and sodas. There will be a twilight slide show and new member programs. **Tilly** purchased a screen, and a projector was donated by **Steve Smith** for the club.

Pedro Martinez gave the financial report. We need to pick up on the hat sales. The last newsletter was more expensive because of the directory of new members. Some CD's were soon to be cashed. The financials should be in the newsletter.

The club now has a heavy Byars mount, originally planned for the FPO.

Upcoming programs arranged by **Pete Johnson**:

May - CCD Astronomy - Craig Tupper

June - Amateur Telescope Making - Members

July - Solar Eclipse - Dr. Hubble

August - Mirror Making

September - Astronomy on the Internet

John Avellone said we have to decide whether or not we are going to stay in the Astronomical League. Renewal is this June. By July 5 they are going to have their next election. No members-elect are from NOVAC. Are we going to replace their programs with our own? \$1000 is an awful lot to pay for their quarterly newsletter (*Reflector*) and the programs, considering how many actually pursue their programs. Is their newsletter worth \$3.00/year?

Phone mail - is it useful for board members as a messaging service? We can post messages when we go observing.

No one has accessed the educational outreach page.

The RA on the web page may not mean anything to new members. It means Recreational Astronomer and is a link to some tremendous articles - so saith **Tilly**.

Bill Burton mentioned that the Piedmont Environmental Council may be able to help with the "Dark Sky" efforts. Also, "Friends of Bull Run Mountain" may be able to help.

Some club slides, available for use by members, were reviewed.

Submitted 1998 May 24

Ronald W. Cook, Secretary

1998 May 20 General Meeting of NOVAC

17:30 About ten gathered at the Santa Fe Restaurant at the intersection of Clarendon and Wilson Blvds. in Arlington, VA.

19:00 The first NOVAC pre-General Meeting Social time kicked off with a fruit tray and snacks served in the back of the planetarium. To that end, the entrance was switched to the side. The time is intended to permit idea exchange and a more relaxed environment for introduction of the club to new members.

19:30 **Tilly Smith, President**, called the meeting to order. He advised that the Boy Scouts would be at Crockett, Saturday, May 23. No special arrangements were necessary. The Cub Scouts would be at Crockett on May 30 and a slide show is planned. NOVAC would also help the Girl Scouts at Camp May Flather.

Nicole Mastej presented plans for new members that the club will try to follow. Those needing assistance at that level should contact her. She would be interested in any ideas along these lines.

New members introduced themselves.

Jonathan Bein is planning to do a program for the town of Herndon on July 17 at their request, and solicited help.

Announcements: The *Sky & Telescope Weekly Newsletter* was mentioned as a weekly e-mail. A member noted he had brought a copy of the *Stellafane* bulletin, if anyone was interested.

John Avellone discussed the Astronomical League candidates for election, the club's participation in same. Tilly said that the club's participation in the AL would be subject to an upcoming review in the fall.

An announcement was made, but not loud enough to be recorded.

Observing sites were discussed. Parsell's increasing light pollution appears to be causing a fading in popularity. The Fairfax Co. Reservoir was discussed.

Marc DeFrancis mentioned that a site near Mt. Vernon might be useful as an observing site for those in the eastern area of club membership.

Officers Reports: **Ron Cook, Secretary**. About 12 attended the Potomac Woods Girl Scout's outreach program, for which the club received a \$50 donation. He also mentioned the board meeting rooftop search for Comet SOHO on the school building adjacent to the planetarium.

Pedro Martinez, Treasurer, mentioned

Dinner Before the Meetings

Brent A. Archinal

Summer is finally here, and you all know what that means. That's right, Crab Cake Quesadillas are in season!! So why don't you come on out to the NOVAC "dinner before the meeting" and try some?

For those of you who are newer members, we've planned these dinners as a place where NOVAC members can get together and meet their fellow members, in a nice, relaxed, unhurried atmosphere. Our regular meetings are nice, but there is little chance to sit around and discuss things, astronomical or otherwise (particularly when most folks have to get home and get up early the next day). Sometimes there is a chance at our observing sites, e.g., while sitting and watching the clouds roll by at Crockett Park. But in this case, you'll also be able to see who it is you're talking to, and later, you will be able to recognize them other than by voice.

The next dates for dinner and the regular meetings are Wednesdays, July 15, and August 19. So come on out and join the dinner and discussion. Tell us of your summer plans, latest observing feats, convention trips, etc. In August I'm sure a lot of you will be able to regale us with stories of *Stellafane*.

The place to meet continues to be the *Santa Fe Cafe* in Rosslyn. You should plan to arrive at about 5:45 P.M., in order to have time to make it to the regular meeting at the Arlington Planetarium at 7:30 P.M. This is particularly true with the larger groups of members we've had attending lately. The *Santa Fe Cafe* is a nice Mexican restaurant with good food, usually some worthwhile specials (like the afore-mentioned crab cake quesadillas!), and reasonable prices, although credit cards are not accepted. Smoking is allowed in one part of this (large) one room restaurant, but so far NOVAC members have not been smoking and the few others dining at that time have rarely

his new e-mail address (see front of newsletter) and the publication of the budget in the newsletter.

Tilly mentioned the existence of the NOVAC web page, and cards in the rear printed for same.

Tilly did "Jeff's Observing Report".

Jon-Stewart Taylor did the "Sky Tour" though having a bad cold.

Craig Tupper did the talk "CCD Astronomy"

Submitted May 24, 1988,
Ronald W. Cook, Secretary.

smoked. If you do arrive first, we would appreciate it if you'd try to sit in the front in the non-smoking section.

Directions: The *Santa Fe Cafe* is located at 1500 Wilson Blvd., in Rosslyn, with entrances off of both Wilson Blvd. and Clarendon Blvd. This restaurant is easily found, just west of "downtown Rosslyn", on the southwest corner of Wilson Blvd. and N. Oak Street, where Wilson splits becoming Wilson one-way west and Clarendon one-way east. From I-66 eastbound, take the Rosslyn exit to Lee Highway, and turn right at the second light onto Fort Myer Drive. Go two blocks and turn right onto Wilson, and the restaurant will be one block ahead on your left (on the corner across Oak/Clarendon from a big outdoor sculpture). On street parking is often available in front of the restaurant, on the other side of the street up the hill, or around the long block (make two left turns) on Clarendon, just before it ends by the restaurant. However be sure to feed any parking meter if you arrive before 6 P.M. This location is also quite close to the Rosslyn Metrorail station.

Reservations are not necessary, although it helps a great deal to know who's coming so we'll know how big a table to get or how many tables to get. We've recently been filling two or more large tables so this information does prove useful. Also should it be necessary to cancel, I can let you know. That's never been the case yet, but who knows what the weather will bring. So if you know you're coming or if you need a ride to the meeting and back to the Metro, or just for more information or directions, please e-mail me at baa@casa.usno.navy.mil, or give me a call (evenings) at 703-237-0201.

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Tucson, AZ 85716-1241

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NOVAC Notices and Benefits

Discounts on Sky & Telescope and Astronomy.

As a member of NOVAC, you can get astronomy magazine subscriptions at a discount. To obtain *Sky & Telescope* for \$27.00 (instead of the standard \$36.00), make your check out to "Sky Publishing Co." You can subscribe to *Astronomy Magazine* for \$24.00 (one year). Make your check payable to "Kalmbach Publishing Company". In each case, note on the check: "new subscription" or "renewal." If a renewal, include your customer number. Send your check to Treasurer Pedro Martinez, Jr., 6319 Anneliese Dr., Falls Church VA 22044.

The treasurer will send the checks in to Sky Publishing and Kalmbach once a month, on the first of each month. To have your renewal included, be sure to have it in his hands by the last day of the preceding month.

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.

There are no special 10% discounts offered on publications from Kalmbach Publishing, but read what follows.

Discount on Books

NOVAC is participating in the discount book sales program offered by Kalmbach Publishing. They will sell our members any astronomy-related book in their catalog for 25% off the list price when we send in a group order. Nicole Mastej is coordinating the sales. If you are interested, please see her at a meeting, or call her at home (703) 435-8724 to place an order. Make your check payable to "NOVAC" for the price of the book minus the discount, when you place the order. We anticipate doing this 3 - 4 times a year if demand warrants.

Club Telescopes and Binoculars

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.

One telescope is a Celestron model SP-C6 on a Super Polaris German equatorial mount and wood tripod. It will readily fit disassembled in any car, is easily transported, and can be set up quickly at remote observing sites. The telescope comes

with Orion Ultrascopic 10mm and Meade MA 25mm eyepieces with 1.25-inch barrel sizes.

The other telescope is a homemade 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 a telescope you will need to show your NOVAC observing pass and leave a \$500 (for the Celestron) or \$250.00 (for the Dobson) security deposit. To borrow the Celestron, contact Doug Mistler at (703) 437-0513; for the Dobson, contact Bob L'Hommedieu at (703) 978-0946. 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 telescope 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.

The club also has a pair of 10x50 binoculars available for members to borrow. They are kept in the club library in the back of the planetarium, and can be checked out after the regular monthly meeting, for a period of one month. Please show your observing pass.

NOVAC Library

NOVAC has established a library at the Arlington Planetarium for use by NOVAC members. Books may be checked out and returned only at the monthly meetings. Members may check out books for one month at a time. To borrow books, see NOVAC Librarians Pedro Martinez or Craig Tupper at the monthly meeting.

The NOVAC library seeks book donations to the library. If you have any astronomy books or materials you are thinking of discarding, please consider a donation to the NOVAC library.

A complete list of all library holdings is available upon request.

NOVAC Observing Schedule for 1997

Observing at Savage Farm, C.M. Crockett Park, and Nichlason site: see the back cover of this newsletter.

Observing at Parsells Field: any evening.

General Membership Meetings

General Membership Meetings are held at the Arlington Planetarium, 1426 N. Quincy

Street, Arlington, VA, on the third Wednesday of every month. To reach the Planetarium, take Interstate 66 to exit 71 West, North Fairfax Dr. (Rt. 237). Go east on Rt. 237 to the 5th stoplight, N. Quincy Street (about 0.8 miles). Turn left onto N. Quincy Street (at the funeral home). Go 6 blocks (about 0.5 miles). The planetarium is the low white domed building on the left.

Trustee Meetings are held the Wednesday before the week of the General Membership Meeting. Non-trustees interested in attending should contact a club officer or board member for further information.

NOVAC On-line

NOVAC maintains an e-mail mailing list. Messages sent to the list include reminders about scheduled observing sessions, announcements for unscheduled sessions, requests for quick observing session summaries, MIR observability predictions, etc.

For more information, send a message to Chewning Toulmin, pct@his.com.

NOVAC Observing Site Rules

C. M. Crockett Park: Any night that NOVAC observes at Crockett Park, the observing session will be open to the public. The gate will be locked and will not be unlocked unless a NOVAC member enters the park, at which time the gate should remain unlocked until 10 o'clock (or some other prearranged time), when the Assistant Park Manager will come out and ask members of the public to leave. The gate will then be locked, and should remain locked through the rest of the evening. NOVAC members may remain until they are finished with their observing session. There is now a 2-week lead time requirement for permission to observe at Crockett Park on nights other than those listed on our schedule at the back of this newsletter. Gary Kwolek recommends that anyone interested in observing in that area on unscheduled nights drive out to the Crockett Park gatehouse, turn left and drive down to the cul-de-sac, where you can set up your telescope on the public road.

If any NOVAC member out observing at Crockett Park notices any member of the public violating park policy, he or she is requested to notify the Assistant Park Manager, who lives in the house adjacent to the end of the parking lot.

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During EDT, set up on the large field to the left. During EST, set up on the paved cul-de-sac 200 yds. past the gate. No loud radios, alcoholic beverages, or loose pets. Do not leave trash or debris behind. We are guests of the park; park management may revoke our observing privileges at any time due to the carelessness of one person.

Parsells Field: In addition to scheduled nights, NOVAC members may observe at Parsells field ANY evening, with no prior notice. See directions to Parsells Field, next page, for parking instructions. The usual NOVAC observing site rules apply: no loud noise, alcohol, or loose dogs, and pick up after yourself. We are guests of the Dulles Little League, and could have our access to this site revoked at any time if it is abused.

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

Directions to NOVAC Observing Sites

C. M. Crockett Park: From the Washington, D.C./Northern Virginia area, go west on I-66 21.7 miles from I-495 to Exit 43A in Gainesville onto Rt. 29 South toward Warrenton. After 11.8 miles on Rt. 29, stay left (toward Culpeper), to bypass Warrenton (but still on Rt. 29 S.) Go about 1 mile to the Rt. 643 exit, Meetze Road. At top of ramp, turn left to go East on Rt. 643. Go 7.5 miles on Rt. 643. Watch for the C. M. Crockett Park sign on your right, and turn right into the Park Entrance Road. Once on the park entrance road, go one-half mile to the park gate.

Alternate directions to Crockett.

From Washington, D.C./Northern Virginia, go West on I-66 to exit 44. (234 bypass around Manassas). Take 234 bypass to Rt. 28 West. Stay on Rt. 28W for about 13.7 miles, through Nokesville, Catlett and Calverton. Turn right at Rt. 643 (Mayhugh's store on corner). Go 1 mile to Crockett Park entrance road on left. Park is 1/2 mile up the road

Parsells Field: (Steve Blake/Ron Cook)

From the Northern Virginia area go West on the Dulles Toll Road until you reach Route 28. Go North on Rt. 28 for 2.8 miles to Route 625, Waxpool Road. (You may also take Route 7 West to 28, then go South to Waxpool.) Turn left (West) onto Waxpool Road (Route 28), and go 1.8 miles to the Waxpool/Farmwell intersection. (The intersection has a small sign on the right pointing the way to the Broadlands development on the left.) Turn left onto Route 625, Waxpool Road (!), heading towards the Broadlands and go 1.6 miles to the Waxpool/Ryan/Shelburne intersection. Continue straight on Waxpool, through the more developed part of the Broadlands on the right, for about 1.4 miles watching for a left turn onto Waxpool Road (!!) which is a gravel road. Once on gravel go only about 200 yards straight ahead. You will pass a sign showing kids on a seesaw. Parsells field is right where the road turns right. As you round the turn, go into the gravel parking area instead of completing the turn. Note: there are no signs marking the field at this time.

Savage Site: Use some combination of Routes 7, 267 (Dulles toll road), and 28 to get to the Route 7 Leesburg bypass. Go around Leesburg on the bypass until you reach "regular" Route 7 again. From the intersection of the bypass and "regular" Route 7, continue on Route 7 west 18.5 miles to Route 601, at the top of Snicker's Gap.

Turn left onto Route 601 south and go 2.4 miles to the park entrance. The park entrance is past the driveway on the left whose gatepost reads *Ben Lomand*. The park entrance is the next driveway on your left. There will be a sign on a tree saying *Wildlife Sanctuary*. If you come to gateposts on the left that say *Belle Allee* and *Ball Alley 1875*, you have gone too far.

You may also take I-66 west to Route 17 North. Stay on Route 17 North until it intersects with Route 50 at Ashby Gap. Turn left onto Route 50 and go 1.0 mile and turn right on Route 601. Continue on Route 601 (Blue Ridge Mountain Road) and go two miles past the main gate of the FEMA installation. Turn right at the park entrance after passing the gateposts with *Belle Allee* and *Ball Alley 1875* on your right.

The park entrance on Route 601 is marked by a small brown and white NOVAC sign. The neighbors periodically pull up the sign, so it may not be there. As you turn into the park, go straight ahead until you reach the gate, which is secured by both a keyed padlock and a combination lock. These locks are located to your left behind the gate as you face it from the outside. The

combination is on your NOVAC observing pass. **Always** lock the gate behind you. The NOVAC lock **must be locked to the keyed lock, not to the chain**, to allow emergency access by the fire department. Drive to the observing area (the stone patio next to the house). There is very limited parking at the observing area itself, so please park in the parking area on the right as you face the patio.

Site Locations

Here are the locations of our four observing sites as provided by NOVAC: members:

- Savage: 39° 04.7' N; 77° 51.7' W
- Parsells: 39° 01' N, 77° 32' W
- Crockett: 38° 37' N; 77° 43' W
- Nichlason: 38° 44' N; 77° 21' W
- Big Meadows: 38°32' N, 78°26' W.

The NOVAC Newsletter is the official publication of the **Northern Virginia Astronomy Club** and is published six times per year at 5 Carter Court, Rockville, MD 20852-1005, Elliott D. Fein, Editor and Publisher. The *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. Additional memberships at the same address without additional copies of the newsletter are \$6.00 per person. Contact Treasurer Pedro Martinez, Jr., 6319 Anneliese Dr., Falls Church VA 22044, 703 534-2604.

All notices of change of address should be sent to Pedro Martinez, Jr. Please include both old and new addresses.

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

NOVAC members are invited to submit articles for publication in the *NOVAC Newsletter*. The editor reserves the right to edit all materials submitted.

Article submissions, in ASCII please, may be sent to Elliott Fein at elliott.fein@erols.com, or to Elliott's address in Rockville, given above. Questions? Call 301 762-6261, or send e-mail.

Deadline for submissions is three weeks in advance of publication, e.g., August 10 for the September/October newsletter

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1998 NOVAC Observing Schedule

C. M. Crockett Park

July 17, 18, 24, 25

August 12 (Perseids meteor shower),
14, 15, 21, 22

September 11, 12, 18, 19, 25,
26 (NOVA Star Party)

October 16, 17, 21 (Orionid meteor
shower), 23, 24

November 13, 14, 17 (Leonid
meteor shower), 20, 21

December 11, 12, 13 (Geminid
meteor shower), 18, 19, 22
(Ursid meteor shower)

Savage Farm & Nichlason Site

July 17, 18, 19, 24, 25, 26

August 12 (Perseids meteor shower),
14, 15, 16, 21, 22, 23

September 11, 12, 13, 18, 19, 20, 25,
26, 27

October 16, 17, 18, 21 (Orionid meteor
shower), 23, 24, 25

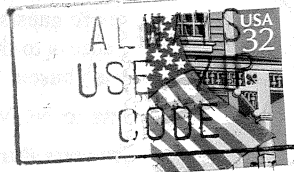
November 13, 14, 15, 17 (Leonid
meteor shower), 20, 21, 22

December 11, 12, 13 (Geminid meteor
shower), 18, 19, 20, 22
(Ursid meteor shower)

NOVAC

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Inside:

- For Young Astronomers
- Observing in Arizona
- Buying Recycled Scopes