

NOVAC

The Newsletter of the Northern Virginia Astronomy Club

Issue Number 26

Volume 9

Oct/Nov/Dec, 1989

President: Blaine Korcel.....703-256-4430
Vice President: Jim Schaeffer.....703-476-5624
Secretary: Al Schumann.....703-971-3257
Treasurer & Editor: Bob Ridgley.....703-671-0286
NOVAC Information Hotline.....703-866-4985
NOVAC Computer Bulletin Board.....703-256-4777

The star is not extinguished when it sets
Upon the dull horizon; it but goes
To shine in other skies, then reappear
In ours, as fresh as when it first arose.
- *Horatius Bonar, Life After Death*

Board of Directors:
Brent Archinal
Al Boldt
Don Larson
George Uhl
Laurel Wanrow

Coming Attractions

October 12: Board of Directors Meeting.

October 18: General Membership Meeting at the Arlington County Planetarium.

October 25: A stargaze at Riverbend Park. Please see the article on page 7 for additional information.

October 27 & 28: Observations at Crockett Park.

November 3 & 4: Observations at Crockett Park.

November 9: Board of Directors Meeting.

November 15: General Membership Meeting at the Arlington County Planetarium.

November 24 & 25: Observations at Crockett Park.

December 1 & 2: Observations at Crockett Park.

December 14: Board of Directors Meeting.

December 20: General Membership Meeting at the Arlington County Planetarium.

December 29 & 30: Observations at Crockett Park.

The President's Column

It's time again for another newsletter. It's been a while since I've managed to get my article in before the deadline! Hurray for miracles! True evidence that it is still possible. Quite a bit has happened since the last time I wrote. I

"Astronomy" and "S&T." Perhaps they just messed up. At any rate it appears that our ad needs to get in MUCH MUCH earlier than it has been in previous years. The Board of Directors has been tasked with coming up with some dates for NVTM'90. These dates will be voted upon at the next meeting. With that taken care of there should be no problem getting the ads in by the end of October. I would like to see at LEAST 4 months of advertising throughout the summer issues. It is the only way we can be certain to have enough time to reply to inquiries.

So what's new? First of all Laurel Wanrow is holding a public program at Riverbend Park on October 25th. She has asked for our assistance in providing telescopes for people to look through. If you can help her out on this night, please give her a call at 759-3210 (work) or 860-0958 (home) and let her know.

A couple, if not several years ago, we held a regular fall observing program for the public. This was held at Burke Lake Park in Burke, Virginia. John Huggins has volunteered to see if we can get this program re-instated. Obviously Burke skies are not the great-
(See President, Page 7, Col 1)

What's Inside

Book Review "A Manual of Celestial Photography" - page 2
AAS Requests Volunteers - page 3
1991 Solar Eclipse Information - page 3
This Year at Stellafane - page 4
October-December Sky Sweep - page 6
What's New in NOVAC - page 6
NASM Special Events - page 6
Riverbend Park Program - page 7
1991 Solar Eclipse Pamphlet - page 7
Directions to Crockett Park - page 8
Lunar Eclipse Observations - page 9
Advertisements - page 9

promise to keep it brief.

First of all, I would like to thank everyone who attended this year's NVTM. In spite of rain Friday night and its subsequent cancelation, those who came Saturday were rewarded with clear skies and cool weather.

The turn out was excellent again in spite of our periodical advertising. No pun intended but none the less true. Timing was poor this year for both

Are you an advanced astrophotographer? If so then this book review by Geoffrey R. Chester may whet your appetite...

A Manual of Advanced Celestial Photography

by Brad D. Wallis and Robert Provin

There are many good books on astrophotography available today. Most of them are in the "You, Too, Can Take Astrophotos" genre. This book does not fall into that category. This is a manual for the serious photographer, heavy on theory and technique, and definitely not intended to get one "started" at photographing the night sky. It is a noble effort, an assemblage of facts, figures, tests, and practical experiences from two of the more noteworthy members of that select cadre of amateurs whose work often graces the pages of "Astronomy" and "Sky & Telescope."

This is an intimidating tome for the novice at first glance, but it is invaluable if one wants to advance and enhance the quality of one's work by learning as much as possible about the subject. In these nearly 400 pages just about every aspect of celestial photography is discussed. If one is content to just put a camera on the telescope, point, shoot, and accept the results, then this is not the book to read. However, if consistency and quality are the desired end results of one's astrophotographic forays, then this manual should be on a handy book shelf.

More than half of the book is devoted to "setting up." These first chapters discuss instruments, techniques for using them, photographic theory, film characteristics, darkroom techniques, special treatments, etc. They should all be read and digested before one attempts to shoot any film. The remainder of the book highlights techniques for deep-sky and planetary photography, provides a gallery of fine examples of the work of many of today's most noted practitioners, and

contains several short articles on specialized subjects by the likes of Jack Newton and James Rouse, acknowledged specialists in their chosen fields.

The chapters dealing with photographic theory and darkroom technique are superb. There is a certain discipline which must be practiced when handling film. Many of the most acclaimed photographers of our time, like Minor White and Ansel Adams, carried this idea to an almost Zen-like extent, but it is nonetheless an important part of the subject. Exactly HOW film works is still a mystery even to the manufacturers, so it is important to approach any photographic process with a sense of wonder and humility. There are many secrets that will be revealed to those who take the time to understand the method. Techniques for squeezing every bit of information out of the photographic process are discussed at some length as well, and while many of them are beyond the reach of most of us, it is still instructive to understand how they work. It is in this realm that I found the book most useful.

The book is not entirely without faults, though. The chapter on instrumentation is thorough, but lacks diagrams that would help clarify some of the key points. Several subjects need further illumination, and there are many typographical errors (though my review copy was a galley proof). There are also some inconsistencies in terminology. For example, in discussing the transmission characteristics of interference ("nebula") filters, the point is made that a faster f /ratio system will shift the peak transmission wavelength of light to "a lower wavelength than desired". Do the authors mean longer wavelength or lower frequency? The accompanying diagram is of little help. While the diagram shows the wavelength increasing as the f /ratio be-

comes smaller, the caption states just the opposite case.

Some of the source material is quite dated, quoting prices for equipment from 1981, and no references are made to any work published since 1985. On the other hand, a great deal of work has gone into assembling a comprehensive bibliography for which the authors should be commended.

Perhaps the most unsettling aspect of the book is a pervasive air of mild condescension on the part of the authors. They have undoubtedly put an enormous amount of time and effort into this book, and for the most part it shows well. However, there are some places where they seem to imply that astrophotography would not progress had the book not been written. There are many amateurs who might find this attitude a little discouraging. While I agree that one should strive to improve one's work to the limits of one's equipment and expertise, I also feel that there comes a point where the enjoyment of the subject becomes overwhelmed by the drive for technical perfection. After all, astrophotography is also supposed to be fun!

These points aside, though, this book fills an important niche. There is a wealth of material that benefits the novice as well as the seasoned veteran astrophotographer. Even professional photographers could learn a thing or two about custom film processes and printing techniques. Newcomers to the field would be better off with a more basic book, but anyone who has the desire to record the heavens on film should consider keeping this volume handy.

N.B.: This review was published, in an edited form, in the April, 1989 issue of "Astronomy" magazine. The review (See Review, Page 7, Col 3)

Volunteers Needed for January AAS Meeting

by Dr. George H. Kaplan

The American Astronomical Society will hold its next semiannual scientific meeting on January 9th through 13th, 1990. This meeting will be held at the Crystal Gateway Marriott Hotel in Arlington, Virginia, just north of National Airport and across the Potomac from downtown Washington. The theme for this meeting is "The 1990's: New Decade for Astronomy." All astronomers -- professional, amateur, and students -- are invited to attend. The registration fee for the meeting is \$85 for AAS members and \$105 for non-members, for registration before December 15th. More information is available from the office of the AAS, 2000 Florida Avenue N.W., Suite 300, Washington, D.C. 20009.

Volunteers are needed to assist with the meeting logistics. In return for two days' assistance (plus a half day standby) with audio-visual equipment, registration, or similar tasks, a volunteer will be registered for the entire AAS meeting, and will receive free parking, an AAS limited-edition tee-shirt, and a ticket to an evening open house at the Smithsonian Air and Space Museum, which includes a complimentary dessert buffet, wine, and other beverages. If you are interested in volunteering, please clip out the attached form, fill it out and mail it to Dr. George Kaplan. You will be contacted by return mail by mid-December. An orientation meeting will be held in early January.

I am interested in volunteering to help at the AAS meeting in January.

Please indicate the days you that you would prefer, and cross out any days that you definitely cannot help:

- Tuesday, Jan 9
- Wednesday, Jan 10
- Thursday, Jan 11
- Friday, Jan 12
- Saturday, Jan 13

I am interested in the following areas of astronomy:

Name:

Address:

City:

State:

Zip:

Daytime Phone:

Mail to:

Dr. George H. Kaplan
Code SD2
U. S. Naval Observatory
34th St. & Massachusetts Ave. NW
Washington, D.C. 20392-5100

1991 Solar Eclipse

by Bill Burton

At the Stellafane telescope conference this year I learned of a tour package arrangement for the July 11, 1991 total solar eclipse in the Baja Peninsula. The midline of totality will pass only a few miles south of La Paz, a fair-sized

town near the southern tip of the peninsula. Conditions will be doubly favorable since the eclipse will be almost at its greatest in duration (over six minutes) and the setting will be a desert with low likelihood of cloud cover. La Paz boasts a fair number of nice resort hotels, all of which are booked

solid for this event. However, as of this writing ITA Tours of Boston still has a number of slots in a tour package it is offering which includes hotel accommodations. Amateur astronomers from the Boston area will be the main participants in this tour. A confirmation deposit is \$50 per person.

Call or write:

ITA Tours
370 Mystic Avenue
P.O. Box 45250
Somerville, MA 02145
Attn: ATM Solar Eclipse Tour
Phone: 617 776-4340

Another group offering accommodations is Baja Expeditions of San Diego. I took a great sea kayak trip with them in the La Paz area several years ago. See their ad in the September "Sky & Telescope."

This Year at Stellafane

by Bill Burton

As a geologist working in south-central Vermont, I had the privilege this year of "commuting" to the 54th annual Stellafane Convention near Springfield, Vermont on August 4th and 5th. It was a twenty-mile drive eastward from my field area Friday (after a cleansing skinny dip in a local stream) and I arrived just ahead of rain, which settled in at Breezy Hill for the first evening's events.

The series of short talks under the tent behind the clubhouse began with a bang as Dennis De Cicco ("Sky and Telescope") showed us a black and white videotape of Saturn's occultation of the fifth-magnitude star 28 Sagittarii taken through the 60-inch telescope at Mt. Wilson Observatory. ("S&T", September issue, page 259.) The image of Saturn was big and beautiful, but the truly amazing thing was the fluctuation in brightness of the star as it passed behind Saturn's rings. Besides the fluctuations caused by the star peeking through the major divisions (Cassini's, Encke's) there were many others, including several after the star had supposedly passed behind the planet's limb! All this was perfectly clear on a 20" TV from my vantage point 20 feet beyond the back of the tent.

Other speakers included Al Nagler (Televue Optics) on a new coma corrector he is designing, Roger Tuthill and his video of the occultation (again) and other images, and Mario Motta (Amateur Telescope Makers, Boston) on preparations for the July, 1991 solar eclipse (see 1991 Solar Eclipse articles in this newsletter). Other topics included: an ingenious design for an all-sky camera using a hubcap, noctilucent clouds in Canada, the March 13th aurora, and a video featuring original electronic music set to images of deep-sky objects. At around 11 p.m. the "this is our astronomy club" talks started and I went to bed, or rather the back seat of my jeep since I didn't have a camping permit. The rain had stopped by then.

5:30 a.m. the next morning found me wandering around the vast grounds looking for the swap tables (no longer behind the speakers tent) in order to grab a few bargains before I headed off to work (only Sundays are taken off in the field). At six I found them near one of the camping areas, already mobbed with people. By 6:10 I had purchased a 4 mm orthoscopic eyepiece (University optics) for eight dollars. NOVAC members Kevin Jones and his parents Brenda and Bill Jones were there selling Kevin's handsome, homemade planispheres. At 7:00 I reluctantly headed for the car, but lo, it had started to rain again. No fieldwork for me! I was probably the only person at Stellafane cheered by this development, for it meant I could stay at the convention. As the drizzle increased to a downpour I happily went down to Springfield to eat breakfast, do some laundry, and cheer the raindrops on. At 9:00 I hustled over to Ames department store, for fear the item I needed would soon sell out. Sure enough, the store was filled with Stellafaners buying umbrellas! This mass umbrella purchase had the desired effect: by 10 the downpour decreased to a drizzle; by 11:00 it had stopped (but too late to begin a day-long geology traverse

now!), and by noon the sun was out. By then I was back up on the hill, happily soaking up the sun with everyone else. The diverse array of homemade telescopes scattered around Breezy Hill, their plastic covers now pulled off, awaited our perusal.

Some of the more unusual telescope types gaining in popularity and well represented this year are the off-axis designs, including the schiefspiegler (Fig. A), the trischiefspiegler (Fig. B) and a modified Herschelian. These have two main advantages: an unobstructed light path (no central diago-

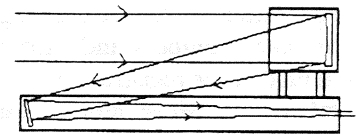


Fig. A. Schiefspiegler

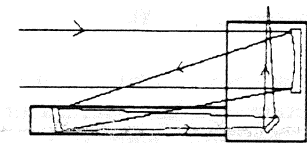


Fig. B. Trischiefspiegler

nal) and a long but folded focal length. The combination produces a relatively compact instrument which is capable of excellent high resolution, high contrast images and is ideal for planetary work. That evening I was to enjoy fine views of Saturn through these telescopes.

But the real action that sunny afternoon--and the observing highlight of the convention in my opinion--centered around the solar-equipped telescopes entered this year. These included a restored 1905 6" Alvan Clark refractor with mylar filter (added), and a 5" Daly solar telescope. The latter instrument was likewise an off-axis design, with the ingenious addition of a glass solar filter on the front which contained a one-way mirror on its inside surface that acted as the secondary (Fig. C). Both telescopes afforded superb views of the sun, which was displaying a lot of sunspot activity. Incredible detail was resolvable in the

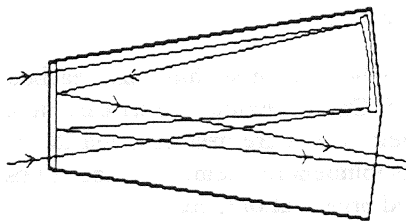


Fig. C. Daly Solar Telescope

penumbral and umbral regions of the larger sunspots, and granulation and faculae were clearly visible. I gave the Daly a slight edge over the Clark because its filter produced a darker, yellower image that revealed more sunspot detail.

And yet these fine scopes were upstaged by two other instruments employing a recent technological advance: the development of a small, relatively affordable (\$2000) hydrogen-alpha filter. This filter works via destructive wave interference to eliminate all but the hydrogen-alpha wavelength at 6563 angstroms. In this light flares, filaments, and solar prominences become visible, and the sun turns into a slow-motion seething, boiling mass. Both H-alpha-viewing telescopes (one shown in Fig. D; the other an adapted Brandon refractor) showed the image on a black and white

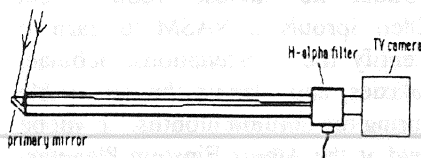


Fig. D. H-alpha solar telescope

TV monitor. We all gazed at a close-up image of a large solar filament, which could actually be seen in three dimensions as a giant wave frozen in mid-curl--a wave 20,000 kilometers high! (I later checked the solar region containing the filament carefully in white light with the superb optics of the Daly telescope, and found nothing.) Even better was the view through an eyepiece of the red H-alpha image of the whole sun. Here were prominences along the sun's limb in the process of shooting out along mag-

netic field lines, sunspots with their fantastic detail, and the slowly shifting pattern of granulation. Never has a member of our solar system appeared more fascinating! In stark technological contrast, the 1930 Porter turret telescope (Fig. E), 20 feet away, was projecting an image of the sun on a white screen. Twenty feet in the other

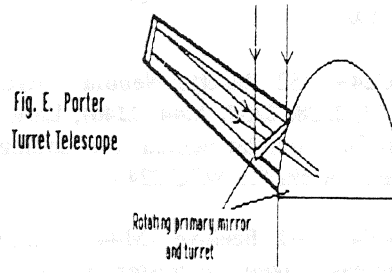


Fig. E. Porter Turret Telescope

direction the Clark refractor sat virtually ignored.

Due to my preoccupation with solar phenomena, I missed most of the afternoon talks, with the exception of one by a person who works in an optical lab and who has had the opportunity to test the wave accuracy of commercial telescope mirrors. His message: don't believe what they tell you! Commercial quality is highly variable, and he proposes setting up an independent testing lab. I also missed a wedding performed in front of the New Jersey Amateur Astronomers tent.

Unfortunately, the highlight of the Saturday evening program was the opening blessing of the convention and a humorous poem that followed, written that day, on the vagaries of Stellafane weather. Then it was awards, followed by Scotty Houston's ramblings, some supposedly humorous astronomical anecdotes by Roger Tuthill, and finally a terrible and boring film on the 1973 African solar eclipse expedition. After a half hour we didn't seem to be getting any closer to eclipse footage, so I left to get in line at the "big guns" behind the speaker tent. I was told later that the film broke just before the eclipse segment.

A clear night at Stellafane is not synonymous with the best viewing of your life, for two reasons: the long lines that form at the biggest and best telescopes, and the crowd-pleasing requirement of showing only the most popular Messier objects. I spent an hour and 15 minutes in line at the Springfield Telescope Makers' 30-inch Dobsonian for a 30-second look at the globular cluster M13. It was spectacular, but... No, the truly satisfying aspect of a starry night on Breezy Hill is the sense of a shared love of the heavens. After several hours, everyone is on easy speaking terms with everyone else, and discussions between strangers in the dark arise spontaneously on subjects ranging from the trivial to the astronomically esoteric. Standing in one line or another, we also had ample time for naked-eye viewing, and bright meteors were greeted with the collective cry of delight of several hundred people. A number of us were convinced that there was a radiant in the vicinity of the constellation Delphinus, and I saw 15-20 meteors emanate from that region (the Stellafanids?) After midnight the early arrivals of the Perseid shower appeared, with their radiant near the Double Cluster. Around 2 am the comet Brorsen-Metcalf arose in the northeast, and I had views of it in the trischiefspiegler, a 17 1/2-inch Dobsonian, and the 30-inch. In these scopes it was a bright fuzzy ball with a small starlike central coma. I detected no tail. By this time the crowd had dwindled and we had the luxury of "hunting" more obscure objects, such as galaxies in Pegasus. But a high haze was starting to develop, and by 3 a.m. the sky was overcast. (And at least one of us was secretly thankful for it!) I stumbled off to the jeep, knowing I had to work Sunday to make up for Saturday.

After two hours of sleep, I awoke at 5:45 a.m. in a brief morning shower. To the west there was a rainbow--the earliest I can ever recall seeing. This Stellafane Convention was over.

October/December Sky Sweep

by Kevin Jones

16417+3627 **M13 (NGC 6205)**, Impressive globular cluster in Hercules. First noticed by Edmund Halley (of comet fame) in 1714. Over 1,000,000 stars contained; 25,000 LY away.

20564+3142 **Veil Nebula (NGC 6990, 6992)**, Faint and delicate wispy nebula in Cygnus. Filters help; low power is a must. Giant binoculars or a Richest-Field Scope are good.

20588+4420 **North America Nebula (NGC 7000)**, Large smear of nebulosity near Deneb in Cygnus. This low-surface-brightness object is unsuitable for most telescopes; the naked eye from a dark site or binoculars work well.

21041-1121 **Saturn Nebula (NGC 7009)**, Small and bright planetary nebula in Aquarius. 8th magnitude with 12th mag central star. "Rings" can be seen in 10" + scopes.

00427+4116 **Andromeda Galaxy (M31)**, Large bright galaxy in Andromeda. Naked eye object. Look for dust lanes, star cloud NGC 206, etc. Also note companions M32 and M110.

01339+3039 **Triangulum Galaxy (M33)**, Large low-surface-brightness galaxy. Surprisingly easy in binoculars, use very low power!!

02215+5708 **Double Cluster (NGC 869 & 884)**, Beautiful pair of open clusters in Perseus Milky Way. Glorious in any instrument from binoculars to giant light buckets.

03475+2406 **Pleiades (M45)**, Large and extremely bright open cluster in Taurus. What can I tell you that you don't already know?? Just observe it!

05345+2201 **Crab Nebula (M1)**, Supernova remnant in Taurus. Misty 9th magnitude puff of smoke. Some shape visible in small scopes.

05354-0522 **Orion Nebula (M42 & 43)**, Large diffuse nebula in Sword of Orion. When you're done "ooh"ing, look in the finder at the little known star-poor cluster NGC 1981 at the north extreme of the Sword.

06089+2421 **M35**, Bright open cluster just above Castor's foot. Another cluster (NGC 2158, 11th mag) 1/2 degree to SW.

06324+0452 **Rosette Nebula (NGC 2237, 2238, 2239, 2244, 2246)**, Large but faint annular nebula surrounding the poor cluster NGC 2244.

08404+1941 **Beehive (M44)**, Large and easy naked eye cluster in Cancer composed of yellow 6th magnitude stars.

What's New In NOVAC

by Bob Ridgley

NOVAC extends a warm welcome to those people who joined the club in August and September. They are:

Victor J. Linden

George H. Hoffman

Craig R. Paul

Michael N. Swartley

R. Larry Laffoon

Ralph T. Marple

Kitt Seely

Kevin Falls

Robert McClain

George Friedman

Kurt Fanus

Michael A. King

Daniel W. Bruce

We hope to see you at our observations and monthly meetings. Please contact any of the club's officers with questions or suggestions which you

might have.

NOVAC membership has reached 125. Of that number 106 are current in their dues, 1 are past due, and 18 are complimentary members (other clubs and organizations, etc).

As of September 25th the NOVAC treasury balance is \$584.80.

NASM Special Events

by Bob Ridgley

October and November will bring several interesting events to the Smithsonian's National Air & Space Museum (NASM). Plan a trip to the Mall to see them!

The Monthly Sky Lecture for October will be "The Paw of the Polar Bear". Get a fresh perspective as Tom Callen of NASM presents his original research on the constellations of the Siberian people. Come to the Albert Einstein Planetarium on Saturday, October 7th, at 9:30 a.m. Safe viewing of the sun by telescope follows the lecture (weather permitting).

The Celestial Seasonal Lecture will be "Under the Harvest Moon". Join Ellen Sprouls of NASM to learn to identify the constellations, nebulae, galaxies, and planets that are visible during the autumn months. It will be held at the Albert Einstein Planetarium on Wednesday, October 18th, at 7:30 p.m.

The Monthly Sky Lecture for November will be "Signs of the Times" on tracking the seasons, days and hours by the stars by James H. Sharp, NASM assistant director for interpretive programs. It will be held at the Albert Einstein Planetarium on Saturday, November 4th, at 9:30 a.m.

The events for December were not available at the time this newsletter was printed. Please check with the telephone information numbers be-

low for the December programs.

The National Air & Space Museum is located at Independence Avenue and Sixth Street, S.W., is open seven days a week. Normal hours are 10:00 a.m. to 5:30 p.m. Admission is free.

For additional information about Smithsonian public programs, please call (202)-357-2700 or 357-1729 (non-voice TDD). For prerecorded information about events in a specific museum (Dial-A-Museum) call (202)-357-2020. For prerecorded information about the night sky (Dial-A-Phenomenon) call (202)-357-2000.

PRESIDENT, from Page 1

est for deep sky observing but are more than adequate for the public to view planets, moon, and the brighter deep sky objects. He is going to try and schedule something for this December. It's not fall but what the heck! It'll be a good excuse for Bob to bring his van! If you would like to help John coordinate this event, give him a call. I'm sure he could use some help.

The answering machine for the new club hotline is ready to be put into service. However, the phone company forgot about the installation of our line. I have had to reschedule it once again. Hopefully, the new hotline will be in service by the next newsletter publication.

On another note, a co-worker has been studying to become a TV producer at Media General Cable Channel 10. He is interested in producing a weekly series on Astronomy similar to the "Star Hustler" but immensely different. Ideas that fell onto the table top were how to build telescopes, grind mirrors, short on-location documentaries of various observatories across the country, etc. The list goes on.

Since Channel 10 is mainly a volunteer

oriented operation, most of the manpower and expertise as well as equipment would be supplied free of charge. I have mentioned this to only a couple of members thus far and quite a few conditionals were brought up. Think about the idea for a while. I believe it would be a lot of fun and will certainly be a lot of work. It is something that would not only give us more visibility but would be an enjoyable hobby for many. If you have any comments or questions about this project, give me a call.

Well I guess that's it for this issue. Don't forget to mark your calendars with our observing and program dates. Hopefully, I'll see you at the next meeting.

Clear skies,



Blaine Korcel
President, NOVAC

Riverbend Park Program

by Laurel Wanrow

I am holding a public program at Riverbend Park, near Great Falls, on Wednesday, October 25th, at 7:30 p.m. The rain/cloud date is the following evening (I'll decide by 4:00 p.m. on Wednesday which date to go with). I would appreciate any help NOVAC members can provide for the stargaze, with telescopes, large binoculars or friendly information. The program which will be held at the Nature Center will last about 35 minutes, after which a group will move to the meadow for a stargaze. The stargaze will end by 9:30 to 9:45 as we must leave the park by 10:00.

Please contact me at work 759-3210 or at home 860-0958 in advance if you can help. The program registration is full at this time, but if I get enough tele-

scope assistance I will take additional sign-ups.

Directions to the park are as follows: from 495 take exit 13, Georgetown Pike (Rt. 193) West towards Great Falls 4.5 miles to a right turn on Riverbend Road. Take Riverbend Road north 2.2 miles to a right turn on Jeffery Road. Follow Jeffery Road 1.5 miles to the end; it dead ends in the Riverbend Nature Center parking lot. Note: This is the second park entrance.

Review, from Page 2

was based on a galley proof of the book and the errors which were found may have been corrected in the first edition.

1991 Eclipse Pamphlet

Hello. My name is Paul Heney, and I am the newsletter editor for the Cuyahoga Astronomical Association, (C.A.A.) in Cleveland, Ohio.

Over the past several years, I have been interested in the upcoming total solar eclipse in 1991. This eclipse is less than two years away, and the time to start planning for it is now. I have been doing research on this eclipse, with an emphasis on viewing the eclipse from Baja, California. At the request of some people in my club, I began to put together a pamphlet on Baja and this eclipse. I have just very recently completed this pamphlet.

Based on the positive feedback I have received from it, I've decided to offer the pamphlet to anyone who wishes a copy. The pamphlet is 26 pages long, and gives a brief overview of eclipses in general, as well as specifics about the 1991 eclipse and what makes this one so important. Plus, I have included weather data on Baja, and some facts about Baja as a place to visit, as well. It is written in such a way that it can be understood both by amateur astrono-

mers and people who have no astronomy background. I am told that it's a big help in convincing spouses, etc. that the trip will be worthwhile.

Anyone wishing a copy should send \$5 to cover postage and copying costs to:

BAJA '91
Paul J. Heney
312 Lisa Ann Drive
Huron, Ohio 44839

If you have any questions, feel free to give me a call at 1-419-433-7333.

Observing Site

NOVAC members may use Crockett park for observing on nights other than those scheduled above. However, you **MUST HAVE PRIOR APPROVAL FROM RODGER PENCE**, the Park Manager. Call early in the day on which you wish to observe; the telephone number is 703-788-4867. If you reach the answering machine leave a message stating that you are a NOVAC member and you wish to observe that night. Also, leave a telephone number where you can be reached. 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!

It is suggested that when you arrive you place a sign on the gate to let the

park personnel know you are there. In that way you may avoid being "headlighted" as they come and go during the early evening.

The gate is locked at sunset; the combination is available from either Blaine Korcel or Jim Schaeffer. After setting the combination, the shackle must be pushed in slightly before it will release. For your security, lock the gate behind you after you enter. Also, remember to lock it after you leave. No loud radios, no alcoholic beverages; do not leave trash or debris behind. We are guests of the park. Directions to the Park are as follows.

* Take I66-west to Route 28...

* Turn right onto Route 28-south, and continue thru Manassas...

[Or you may continue on I66 to the Manassas interchange. Take the 234-south exit. After about 3 miles look for the sign directing you to Route 28-south (Godwin Drive) on the right hand side of the road. It's the traffic light just after the "PoFolks" restaurant. Take this road until it joins with 28-south. I prefer this route; it is less driving time than going all the way down Route 28 from I66.]

* Continue on 28-south, you will

cross the Prince William/Fauquier County line...

* Continue for about six miles until you get to Route 643...

* It leads only left - don't turn there...

* Continue for another 1/2 mile to the next Route 643 that leads only right, turn there. It's right in front of a little country store...

* After about one mile you will turn left...there is a sign reading "C.M. Crockett Park" just prior to the turn...

* The Park entrance is about 1/2 mile ahead, just past the "Road Ends 1/2 Mile" sign...

* Drive SLOWLY down the paved access road to the end of the cul-de-sac. If possible turn out your headlights and drive SLOWLY with only your parking lights on, as long as you can do so without running over any telescopes! It takes about half an hour to dark adapt your eyes after being blinded by headlights. If you are already there please use a dim red flashlight to help people who are arriving find a parking spot.

* Park anywhere near the edge of the pavement...and enjoy the skies.

CALVIN AND HOBBS Bill Watterson



Lunar Eclipse Observations

by Bill Burton

On the night of August 16 a group of 10 to 12 people converged on our back deck to observe the total lunar eclipse. Taking our cue from the article in the August issue of Sky & Telescope (pages 183-187), we took turns timing crater crossings by the umbra as it moved across the moon's face. We used as a digital wristwatch calibrated to the Naval Observatory's master clock. The watch was checked again after the eclipse and found to have no error. Identification of craters in this situation poses a special problem because of the high sun angle and resulting low contrast. Craters and other relief features are much less conspicuous during a full moon. Many of the selected craters in the article are small and unfamiliar but possess an unusually high albedo or surface brightness, rendering them visible in these lighting conditions. We timed 14 crater crossings, as well as beginning and end of the eclipse. The results are as follows, all times EDT:

Event	Observed	Predicted (S&T)
Eclipse begins:	9:21:20	9:21
Billy	9:26:35	9:33
Kepler	9:31:40	9:33
Copernicus	9:38:40	9:41
Campanus	9:44:05	9:46
Birt	9:50:54	9:52
Manilius	9:54:09	9:54
Tycho	9:56:07	9:57
Menelaus	9:56:44	9:57
Plinius	9:58:30	10:00
Censorinus	10:05:38	10:06
Proclus	10:08:00	10:08
Stevinus A	10:14:28	10:15
Stevinus	10:15:15	
Langrenus	10:15:30	10:16
Totality begins:		
Naked eye	10:18:20	10:19
11x80 binoculars	10:19:35	
8-inch Newtonian	10:19:46	
7x50 binoculars	10:19:50	10:20
Mid-totality (approx.)	11:09	11:08
Totality ends	11:56:50	11:56
Grimaldi (emerge)	11:59:38	11:59

This was the first occultation timing for any of us. What did other club members get for times? It would be interesting to see how much human error and subjectivity is inherent in this exercise. During totality, for instance, some of us could barely make out the deep-red moon through the haze, while others could not. The most beautiful moment, we felt, came right at the end of totality, when twilight again struck the lunar limb, in brilliant contrast to the ruddy face of the moon.

Advertisements

For Sale, contact Al Schumann at 971-3257: Two University Konig EYE-PIECES; a 32mm - \$50.00, and a 12mm - \$40.00. Both are in excellent condition.

For Sale, contact Jim Schaeffer at 476-5624 (home) or 281-6363 (office): CAPS, baseball type, mesh back, adjustable, NOVAC logo, \$5.95 (you pick-up), \$7.75 (UPS ship); JACKETS, nylon/satin, NOVAC logo on front & back, elastic at sleeves, neck, and bottom, very good quality, sizes S, M, L, XL, \$34.95; TELRAD finders, \$38.00.

For Sale, contact Gilbert Swift at 451-4510 (a.m.) or at work at 339-6000 (p.m.): CELESTRON ILLUMINATED RETICLE OCCULAR; 12mm. Eyepiece is like new, only used once. Asking \$50.00 or best offer.

For Sale, contact Al Boldt at 379-5721 (evenings): 11mm Nagler Type1 eyepiece- \$110.00, fits 1 1/4-inch or 2-inch holders, includes rubber eyecup, excellent condition.

For Sale, contact Herbert Gundelsheimer, at 703-347-4744 (home), 703-347-7726 (office), or 631-1175 (metro): UNITRON 4-INCH PHOTO EQUATORIAL, model 166V, complete with pier and original shipping boxes, brand new, original owner, price \$2,000.00.

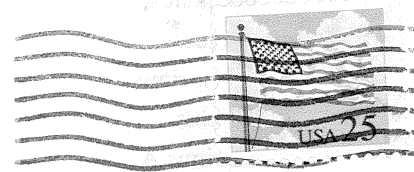
(C) Copyright 1989 The Northern Virginia Astronomy Club. All rights reserved. THE NOVAC NEWSLETTER may be reproduced with proper credit given to The Northern Virginia Astronomy Club.

The NOVAC NEWSLETTER is published six times a year. Subscriptions are available through membership in NOVAC. Dues are \$10.00 per year. For club membership information contact Al Schumann, Secretary, 6121 Rivanna Drive, Springfield, Virginia, 22150, telephone: 703-971-3257.

NOVAC

The Northern Virginia Astronomy Club
5401 Danville Street
Springfield, Virginia 22151

Bill Burton
2102 Whisperwood Glen Lane
Reston, Virginia 22091



12/89 - \$0.00