

NOVAC

THE NEWSLETTER OF THE NORTHERN VIRGINIA ASTRONOMY CLUB

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Incoming President's Message

Tilly Smith

I would like first of all to wish everyone a very special Christmas, and to thank all those members who gave so freely of their time to help others understand and see the universe. Our strength is in our members, and I just want them to know that their efforts are very much appreciated.

The other day I received an e-mail from Brenda that went something like this:

Tilly, during my two years as President (1996/1997) we have had two once-in-a-lifetime comets to observe. What do you plan for 1998?

My response was "First Contact would be good". Seriously, the last two years have been banner years for the club. As a result, about 35 percent of our approximately 320 members are new within the last 12 months. This is just to highlight a key concern the Board will address during 1998, **New Member Development**.

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Outgoing President's Message

Brenda Clements Jones

It's a good feeling to turn the club over to Tilly. He's got a lot of great ideas and is looking to the future with thoughts of bringing the club into the big league. NOVAC has really grown leaps and bounds since my son, Kevin, and I joined back in 1988. Going from a club that could easily send out newsletters without the aid of a computer to where we are now - with the thought of doing much of anything without a computer nearly unthinkable!

The years have been extremely good for the club and more than fun for me. Actually, I can only attribute a few of my gray hairs to NOVAC and those concerns have been greatly overshadowed by the wonderful fun of star parties and friendships that I have made. I think that sums up what the Northern Virginia Astronomy Club is all about - sharing the excitement of astronomy and making friends while we do it. I hope during the coming year that you'll plan to go out and share the skies

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January 21, 1998
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Collimating and Cleaning Telescope
Optics

What's Up?

Al Schumann

"Go back and tell the king that at that hour I will smother the whole world in the dead blackness of midnight; I will blot out the sun, and he shall never shine again; the fruits of the earth shall rot for the lack of light and warmth, and the peoples of the earth shall famish and die, to the last man." Mark Twain, *A Connecticut Yankee in King Arthur's Court*.

In days of yore, a solar eclipse doubtless scared the bejeebers out of king and serf alike. Today there are people who still fear eclipses and are reluctant even to leave the house while the event is in progress. Let's face it, if there are folks ditzzy enough to try and hook up with a UFO supposedly following in the wake of a comet, there must be a lot of people who will believe eclipses are responsible for El Niño, stock market corrections, earthquakes, and great aunt Gert's high blood pressure.

Anyhow, there will be a solar eclipse on February 26. The path of totality will sweep across the northern coast of South America and out into the Caribbean. Here in Virginia we shall not have the "dead blackness of midnight" that the stranger swore would be visited upon King Arthur's realm. Instead, we shall have a partial eclipse that should take about a 25% bite out of the sun. By the way, do not expect to see any reduction in brightness at the 25% maximum. The sun is so bright that it needs to be eclipsed 80% or more before there is any noticeable darkening effect. The eclipse should start sometime around noon. Mid-eclipse ought to be just after 1 P.M. local time, and it will end sometime after 2 P.M. The times are a bit vague, because I had to make a guesstimate based on the times given for New York and Atlanta. Can't go wrong if you get out a little early.

Here are a few tips on viewing a partial eclipse. To begin with, safety is paramount. Never, ever look at the sun without proper eye protection. Even a brief glance can damage the eye. There are a number of filters one can use for naked eye viewing, and many of them are routinely advertised around eclipse time in *Astronomy* and *Sky & Telescope*. Mostly, they are small rectangles of Mylar mounted in cardboard or cardboard eyeglass frames with Mylar lenses. They are reminiscent of the old time 3D glasses at the movies. They are safe enough, but they are not very durable. Also, they can be tough to use if you need to wear regular eyeglasses. My personal preference for naked eye viewing is a #14 welder's filter. This is a very dense filter, and the glass is tough and durable. Far and away, it is the safest way to go. The sun has a cool green color when seen through the filter. They come in 2" x 4" and 4" x 5" sizes. The former, by the way, is an ideal size to stick in your pocket for viewing the sun anytime you'd like, not just during eclipses. The larger one can be used as a solar filter for a camera. I bought mine at Lee's Gas Supplies, Inc. on Richmond Highway. Any welding supply outfit should be able to fix you up. There might be a run on them as the eclipse nears, so

NOVAC Needs Science Fair Judges

Bill Burton

NOVAC is looking for a few good men and/or women to represent our club as judges at the Fairfax County Regional Science and Engineering Fair on Saturday morning, March 21, at Robinson Secondary School in Fairfax, VA.

The judges will evaluate exhibits with astronomy or space science as a theme (there will probably only be a handful) and award ribbons and prizes on behalf of the club. This is a fun activity and a real learning experience; astronomical expertise is not a prerequisite! If interested, please contact Bill Burton:

703 860-0958 (H); 703 648-6904 (W);
bburton@usgs.gov.

if you are interested, don't wait 'til the last minute.

As far as the telescope is concerned, a variety of filters is available. I have a full aperture solar filter from Thousand Oaks Optical for my C-8. It works beautifully for both visual and photographic use. As seen through the filter the sun has a very nice yellow-orange color. The Thousand Oaks people have filters for telescopes from 2.4 inches right on up to 14-inch instruments. For a somewhat different approach, Roger Tuthill sells sheets of Mylar for constructing your own custom-made telescope filter. Dealing with the Mylar sheets is somewhat involved, because you have to glue or tape two sheets together (treated sides inward) and then figure out some way to attach the filter to the telescope. I used Tuthill's material to make a five-inch aperture, off-axis mask for my 13-inch reflector. In essence, I made a Mylar sandwich. I put the Mylar between two pieces of cardboard. Everything was held together with double sided sticky tape. **Caution:** If you are going to view the sun with a filtered telescope, don't forget the finderscope. If the finder is not properly filtered, make sure it is covered securely. Better yet, take it off the telescope entirely. You don't want yourself or anyone else to look inadvertently through an unfiltered finderscope. To be on the safe side, I also made finderscope filters from the Tuthill Mylar. Believe it or not, the finder is just as helpful during the day as it is at night. This may sound funny, but locating the sun with a filtered telescope is not as easy as you would think. The filter blocks out everything but that tiny ball, the sun.

So, you might find yourself flailing the telescope around for a while until you get the sun in the eyepiece. To get in the immediate vicinity of the target, do not try to sight on the sun, look at the ground. Manipulate the scope until you have the smallest possible shadow on the ground, and you will be very close. Then, you should be able to finish the job with your filtered finderscope.

I intend to take photos of the eclipse, and for that I figure on using the C-8 with a full aper-

Incoming President's Message

(Continued from page 1)

We plan to initiate programs, activities and instructional sessions to help our new members, better enjoy the wonders of the night sky. The first step will be to set up a **New Member Coordinator** to develop and implement all programs and activities for new members. To that end, I am open for ideas or suggestions anyone may have on what type of activities would be best. Please contact any Board member if you have an idea you would like us to consider or if you would like to actively assist in this program. I plan to keep you advised on progress throughout the year.

Tilly

Outgoing President's Message

(Continued from page 1)

with friends or make new friends while you're discovering the wonders of the skies for yourself.

Happy New Year, and see you under the stars!!

Brenda

ture filter and at prime focus. With the telescope at F-10 and ISO 200 film in the camera, an exposure time of 1/250th sec. will be just right from the start of the eclipse to the finish.

If you want to shoot pictures through a welder's filter, the film speed will have to be a lot faster. That filter is so dense it could take an ISO of 1,000 to get the job done. Bear in mind that if you want to use your equatorially mounted telescope to full advantage, you will have to go out some night prior to the eclipse and polar align the instrument. Put chalk marks around the feet of the tripod, so you can find the right spot for set-up in daylight.

If you are geared up to see an eclipse, you are also set up to look for and track sunspots. Sunspots generally follow an 11-year cycle, and 1996 was the last minimum. So, for the next five or six years we can expect to see a gradual increase in sunspot activity. Just think, you could be the first kid on the block to become an authority on sunspots. Keep your telescope in operation day and night. Thrill your neighbors; bore your friends.

I hope everyone had a chance to see the beautiful alignment of planets early in December. It was quite a treat to see all the naked eye planets plus the thin crescent moon in the sky at the same time. We won't have a sight quite like that for another 100 years.

Cloudy Night Astronomy

Bill Jensen

Since we live in the clear, dry southwestern part of the US, I know that this in an unlikely event: cloudy nights. (hmmm...Bill has been trapped in a daydream if he thinks he is in New Mexico or Arizona. He has obviously been talking too much to Peter Gruber or Pete Johnson about their travels....). But just in case you are confronted with an evening filled with cumulus instead of nebulae, what can you do?

An alternative to ER, Seinfeld, or Monday Night Football could be the latest that the Fairfax County Library added to its collection of astronomy-related works, in addition to the dusty old offerings (how MANY books can Patrick Moore write in one lifetime?) I thought I would preview some new books available for you to read tonight, er... on those infrequent nights when the scope is grounded.

First, a very practical book to prepare for your night with binoculars or a scope: *The Cambridge Guide to Stars and Planets*, by Patrick Moore and Wil Tirion. Yup, another book by Moore (I am not a Moore fan, since I find his style of writing probably one reason many astronomy books are not checked out.) This book is not really new, just a new edition of a book published in 1993 here, and 1980 in Great Britain. But in a small package, it offers an alternative to the Peterson guidebooks, giving you charts of the constellations (in alphabetical order) and the Moon. It also contains a general review of the types of telescopes, and hits the highlights about planets, galaxies, comets, and radio astronomy. Most club members would find the constellation charts (one per page) to be the most valuable parts of the book, but I am not a fan of color charts, having enough problems using a black and white chart under a red flashlight. Cambridge University Press has done a fine job of interspersing recent color photographs in the book. It is well worth checking out against the Peterson guides also available on the library shelves.

OK, now that we hit the highlights of the heavens, a few books to cover some areas in detail, with the planets getting most of the new print. *Destination Mars in Art, Myth and Science* by Martin Caidin and Jay Barbee with Susan Wright, is a new offering that starts with the revelation last year that a **Martian** rock discovered on earth may hold **evidence** of life ages ago on Mars. The late Mr. Caidin was most noted for writing *Cyborg*, the basis for the Six Million Dollar Man TV series; Mr. Barbee has covered NASA as an NBC correspondent, and Ms. Wright has, among other books, written three *Star Trek* novels. The authors weave a history of mankind's fascination with life on Mars in myth, fiction, and fact. An easy read, with some interesting pictures and artwork, but don't expect any serious Martian science to be discussed.

Taking the lighter side to the fourth planet, *Life on Mars* by David Getz is a small book in the Redfeather book series aimed at (probably) middle school students by weaving quite a bit

of facts about Mars as one takes an imaginary trip to the planet. Written by an elementary school teacher, there is almost a textbook feel to the narratives of the would-be space travelers. While the photos are typical, and the illustrations friendly, it could stand color to compete with the CD-ROMs available at your local store. That is not to say I did not like the little book, it's just that \$15 is a lot to pay for about 70 pages of facts and speculation on the future, given the competition of what is available on the Internet.

Moving to the closest planet, *Venus Revealed* by David Harry Grinspoon is a wonderful combination of planetary science with historical interpretations of the importance of the second planet. What makes the book work is the author's use of humor. Mr. Grinspoon is an assistant professor of Astrophysical and Planetary Sciences at the University of Colorado, and was one of NASA's principal investigators for analysis of data from Venus, so his book is well grounded. But the ease of explanations take a planetary novice to a higher level without too much pain. If I was at the university, I would sign up for his course. Because he concentrates on the human relationship with the planet, our joint journey through time and space is rewarding. I may buy this book!

Moving from our solar system (thankfully), the last new book is *Black Holes, A Traveler's Guide*, by Clifford Pickover. I sure would not want to have one as a neighbor, but that is exactly what Mr. Pickover does. He takes you on an imaginary journey to a black hole with a rather unusual alien crew, and explains the science amid the fiction. Sounds similar to *Life on Mars*, but the mathematics here is definitely not middle school. Mr. Pickover is an author of several books on math and science, and is lead author of the *Brain Boggler* column in *Discover* magazine, when he is not working at IBM as a researcher. The computer side shows through, with Basic and C programs listed in the back of the book as reference. Since complex math equations make my eyes glaze over faster than listening to a cozy read of the phone book or political commercials, I did not bother finishing this book. But if you want to explore the properties of black holes in a slightly more friendly way than reading a text book, this may be for you.

And really, that is the point. By trying these books at the library before you buy, it's like going to Astronomy Day at Crockett Park, where you can try out the telescopes. In my case, *Venus Revealed* may end up as a permanent resident in my cloudy-night library.

Cold Weather Observing - Reprise

Craig Tupper

Issue #69 of the newsletter (last January) included a collection of suggestions for staying warm while observing in cold weather. Here's a perspective on the subject from a Michigan boy who never gets cold while observing.

Discussions on staying warm tend towards what specific pieces of clothing (brands of boots, mitten types, overalls, etc.) are best. While quality clothing can certainly help, these discussions may give the impression that without the "right" clothes, you can't stay warm. Folks, it just ain't so; you CAN stay warm using only "run-of-the-mill" clothes, despite the coldest temperatures. The answer, which most folks have heard a million times, is to put on LAYERS of clothes, to trap insulating air inside. You need multiple layers of clothes, with at least one wind-resistant "shell" that prevents air infiltration.

Some folks assume that whatever clothing keeps them comfortable while walking from the house to the car will keep them comfortable for five hours while scarcely moving. Rule of thumb: for observing, you need to dress as if you were going for a leisurely walk for hours in temperatures 30 degrees F colder than present conditions. And don't forget the wind chill. For other people, bundling up is unfashionable. Me, I'd rather sweat while observing in 10 degree weather (I have) than look like a skier and freeze.

Many folks know all this, but get cold anyway. Why? Because they have been out in the cold before, hoping that they are well dressed in their winter coat atop 2 or 3 layers. They feel comfortable for a while, but soon their feet and hands get cold, and shortly thereafter they are shivering. They assume that their boots and gloves are the problem. They may buy better boots and gloves, but they still get cold!

It is important to understand how the body reacts to cold. When the body senses its core temperature start to drop, it begins to shut down circulation to the extremities to maintain the functioning of the vital organs in the torso. That's why the feet and hands always get cold first. However, cold feet and hands usually mean that the whole body is underdressed, not just the hands and feet. It is possible to dress warmly enough that heavy boots and mittens are not necessary. I often wear no gloves at all, even in sub-freezing weather. My hands act as radiators, steaming away, until I peel off a layer from my torso. I once worked underneath my car in Detroit in 15 degree weather, handling cold tools and parts for two hours, with no gloves and warm hands. Because I had many layers on!

A commonly misunderstood fact is that a high percentage of the body's heat is lost from the head. Many people think that this just means you should wear a hat. Wear a hat, of course, but the big source of heat loss from the head is

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TI Calculator Program For Julian Date and Sidereal Time

Milt Eisner

As astronomy buffs, we all naturally wish we had a watch that would simultaneously show the clock time, the Julian date, and the sidereal time. Unfortunately, no one makes such a watch at the moment. But here is the next best thing: a program for Texas Instruments TI-80 and -90 series calculators. These calculators are widely sold in office supply stores. Most high school students probably have one.

Julian date is a timekeeping system that measures time in decimal fractions of a day. Exact whole-number Julian dates occur at 12:00 Universal Time. At 12:00 UTC on 1998 January 1, the Julian date will be exactly 2450815. At 18:00 UTC on the same day, it will be 2450815.25, since 0.25 of a day will have passed. (Julian date 1 occurred on January 1 of the year -4712, calling the year before 1 year zero and proceeding backward through the negative integers.)

Sidereal time is a measure of how the sky looks at a given place and time on the Earth. It is the right ascension on the meridian. Right ascension and sidereal time are both measured in hours, minutes, and seconds. Since at a given instant of time, different parts of the sky are visible from different parts of the Earth, sidereal time depends on longitude. At any given location, the sidereal time goes from 0:00 to 24:00 in 23 hours and 56 minutes of clock time. The four-minute difference is due to the Earth's revolution around the sun.

You can also use a circumpolar constellation like Ursa Major, which appears to circle Polaris daily, as a sidereal time clock. When the pointers of the Big Dipper are between Polaris and the northern horizon (i.e., they appear below Polaris), the sidereal time is about 23:00. When the pointers are between Polaris and the zenith (i.e., they appear above Polaris), the sidereal time is about 11:00.

To use this program you will have to do a little work in your head. The program will prompt you for the Universal Time and the longitude for which you wish to find the given Julian date and sidereal time readings. If you are using the current local time, you will have to convert it to Universal Time (hours and minutes), taking care to change the date if you go past 24:00 or before 0:00. (UTC is EST plus 5 hours or EDT plus 4 hours.) West longitude is negative and east longitude is positive. Washington D.C. is at -77 degrees longitude. The sidereal time is given rounded to the nearest minute.

In the following ASCII transcription, the TI right-arrow symbol (which is produced by pressing the STO (store) key) is represented by \rightarrow and the TI less-than-or-equal-to symbol (which is produced by pressing TEST 6) is represented by \leq . When the program is displayed in the calculator screen, lines that are more than 16 characters long will wrap to the next line. The formulas in the program can be found in Meeus' book *Astronomical Formulae for Calculators*.

```
PROGRAM: TIMES
:Disp "ENTER UT AND"
:Disp "LONGITUDE"
:Disp "YEAR?"
:Input Y
:Disp "MONTH?"
:Input M
:Disp "DATE?"
:Input D
:Disp "HOUR?"
:Input H
:Disp "MINUTE?"
:Input I
:Disp "LONGITUDE?"
:Input L
```

$H+I/60 \rightarrow U$
expresses the time of day in hours, Universal Time, as a decimal fraction

```
:If M<=2
:Then
:Y-1->Y
:M+12->M
:End
```

January and February are considered the 13th and 14th months of the preceding year

```
:int(Y/100)->A
A is the first two digits of the year number -- it's not really necessary -- you can use "int(Y/100)" instead in the following formula, but Meeus uses the intervening variable A for simplicity
:int(365.25Y)+int(30.6001(M+1))+D+172
0994.5+2-A+int(A/4)+U/24->J
```

this is Meeus' formula for Julian date as a function of year Y, month M (both adjusted as above), date D, and time U. I don't combine the two numbers in the middle in order to reproduce Meeus exactly

```
:Disp "JULIAN DATE"
:Disp iPart(J)
:Disp fPart(J)
:(J-U/24-2415020)/36525->T
:6.6460656+L/
```

```
15+2400.051262T+.00002581T^2->S
this is Meeus' formula for sidereal time at 0000 UT at Greenwich, adjusted for longitude L, following Meeus in using T as a simplifying intervening variable
```

```
:S+U*14404/14400->S
this is my adjustment to time U, taking into account that a solar day consists of about 14404 minutes of sidereal time com-
```

pared with 14400 minutes of clock time
:S-24*int(S/24)->S
this step converts S to a number between 0 and 24
:Disp "SIDEREAL TIME"
:Disp int(S)
this displays the hour part of the sidereal time
:Disp int(60(S-int(S)))
this displays the minute part of the sidereal time

Cold Weather Observing - Reprise

(Continued from page 3)

through the nose and mouth: breathing. Think about it: your body constantly pulling freezing air into your warm, wet, blood-rich lungs, and then exhaling it. You can lose a lot more heat that way than through your dry, cold scalp, which has a minimal blood supply. What to do? A balaclava (hooded mask) or scarf that covers your nose and mouth warms the air on the way in, and also serves to hold some of the warmth against your skin from the air you breath out.

In summary:

1. Expensive clothes are nice (they can cut down on bulkiness), but not necessary OR sufficient. You still need layers.
2. If you are getting cold feet and hands, you probably need MORE LAYERS, not better boots and gloves! Much better to put 5 layers on your legs, and 8 layers on your torso, and have to peel a layer or two, than to go home cold after an hour. Start with two or three thin layers of T-shirts and cheap long johns, and go from there with flannel shirts, sweatshirts, sweaters, jeans, overalls, and then the wind-proof shell of a winter coat and cheap ski pants.
3. If you follow the above, average boots with two pairs of wool socks will do it. A balaclava (or two!) is a very nice addition, as are hunters mittens (which allow the fingers to be poked out for handling eyepieces, etc.)

See you outside this winter!

Craig

Editor's Notes

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 for the March/April issue must be in my hands by February 10. Copy received on February 11 or later will not make it into the March/April issue.

Dinner Before the Meetings

Brent A. Archinal

Can you believe it? We're about to celebrate our second year of having dinner before the meetings at the Santa Fe Cafe. And they said it wouldn't last... (well, I don't know if they did, but it sounds good...!). These get-togethers were originally suggested at the January 1995 Annual Meeting of NOVAC as one way for members to get to know each other, without having to do it at a crowded hurried meeting, or in the dark at an observing site. So please join us on Wednesdays, January 21 and our second anniversary dinner dinner (you read that right) on February 17. This is a good time to come if you've not attended yet - and a good chance to return if you have! I'm sure they'll be plenty to discuss, including everyone's observing plans for 1998, including the total solar eclipse of February 28.

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 as we've been having larger and larger groups of members attending lately. The *Santa Fe Cafe* is a nice Mexican restaurant with good food, usually some worthwhile specials (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 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 East, 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 usually 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 PM. This location is also quite close to the Rosslyn metroraill station.

Reservations are not necessary, although it helps a lot to know who's coming so we'll know how big a table to get. We've been filling a

A Review: *Amateur Astronomy Magazine*

Robert Bunge

One thing you've got to say about Tom and Jeanie Clark: when they do something, they do it right. When Kalmbach publishing, five years ago, announced the demise of *Telescope Making* and *Deep Sky* magazines, Tom quickly announced that he'd replace them both with a magazine of his own. Tom has pretty much done that with *Amateur Astronomy*, a quarterly no-frills black and white magazine.

Through most of the 1980's, the publishers of *Astronomy* magazine also published two quarterly specialty magazines: *Telescope Making* and *Deep Sky*. Two special people who loved and lived their special interest of the hobby edited both. And both magazines were unique, because everyday people who also loved and lived their special interest wrote the articles in the magazines. Thus, two communities were born.

The role the two magazines played was enormous - the technology used in large, ultra-compact Dobsonians was displayed, reinvented and refined in TM. TM also saw the refinement of computerized telescope control that's so popular today in many commercial telescopes. TM covered the large telescope-making conferences. Couldn't make Stellafane? In all likelihood, TM covered it and the best new telescopes were talked about and pictured. TM also served as an early platform for the spread of amateur-based CCD technology.

And great things happened in DS, too. A core group of observers discovered that they could use modern amateur telescopes to observe faint deep-sky objects. They learned how to comb the professional literature to find challenging new objects once considered the exclusive targets of the large professional telescopes. They confirmed to one-another that they could actually see this stuff and even work with professional astronomers in various ways. Through DS, publishers were convinced that markets existed for new, better star atlases. Computerized databases were found, talked about and found their way into commercial telescope controls.

When Kalmbach stopped publishing the two magazines, a void was left. Several people tried stepping into that void: Tom and Jeanie are among the few survivors. They dreamed up *Amateur Astronomy* as a replacement for both magazines. Running a business wasn't new to Tom and Jeanie - they are the owners of Tec-tron, which sells Dobsonian telescopes and is well known for its collimation tools.

Today, about four years after its first issue, AA is published quarterly, just like TM and DS had been. And like those before, AA relies heavily on the input of its readers. Articles are

pretty large table lately so this information does prove useful. Also, should it be necessary to cancel, I can let you know. That's never been the case. So, if you know you're coming or if you need a ride to the meeting and back to

not edited for style - so the voices of the authors are loud and clear. You don't write for AA for the money - you write because you love your topic and you burn to share your knowledge with others. That desire often makes the articles in AA more enjoyable than you might expect.

Typical issues run about 70 pages with only a few ads. Tom does an excellent job of culling interesting articles from club newsletters. Articles that would otherwise be seen by a few are now seen by many. Recently, Tom ran an article about observing Comet Hyakutake from Florida by NOVAC's own Bill Burton that had appeared in the NOVAC newsletter. Among recent articles: "observing with green lights instead of red", "skunks and observing", "explorations of the southern skies" and "optical quality".

Tom loves star parties and the magazine covers most. The most recent issue had a review of the "New" Texas Star Party as well as articles about deep-sky objects in Lyra; Fall deep-sky objects that start off catalogs - NGC 1, Jones 1, Kemble 1, etc.; a visit to Mauna Kea and the Keck telescope; short bios of well-known amateurs Tom Cave, Michael Covington, and Jack Newton; pieces about lightweight portable 22-inch and 30-inch Dobsonians; a super portable 10-inch that rides to star parties on a motorcycle; and... well, you get the picture!

I don't really have any complaints about AA. It would be easy to say that AA needs more observing pieces, or that the telescope-making pieces could use more detail. But that wouldn't be fair. Tom can only publish what readers send. So instead of complaining, I'll write up a good telescope-making article and a good, detailed observing article and send them in!

When TM and DS were put to sleep, each had about 10,000 subscribers. After four years, AA is up to about 1,800, so it's cooking right along. If you are at all serious about the hobby of astronomy, I highly recommend a subscription to AA. For \$18, you get four issues and an entrance to a cozy room full of avid and enthusiastic people. Don't expect glossy color pics, or poetic writing - expect raw knowledge that can be used to make your enjoyment of the hobby more exciting. Expect to learn about the people who are shaping the future of the hobby, and the business of commercial telescopes. Expect to look forward to curling up with a good cloudy evening's read.

Amateur Astronomy, 3544 Oak Grove Drive, Sarasota, FL 34243. Single sample issue, \$5
Phone orders, 941-355-2423, 7-3:30 EST
MC and Visa accepted.
aatclark@aol.com

the metro, or just for more information or directions, please give me a call (evenings) at 703-237-0201. You can also e-mail me at baa@casa.usno.navy.mil.

See you at dinner!

Perseids In Wyoming II: The Data

Bill Burton

Last August, I had the good fortune to observe the Perseid meteor shower under dark, clear skies from an 8000-foot elevation near Laramie, Wyoming. Using a mini tape recorder, I recorded time, magnitude, and direction for a large number of meteors. It was a memorable evening, with ideal conditions for one of the year's major meteor showers. But it would be September before I could sit down with the tape recorder and transcribe the data to learn the results.

The observations from that night in August were stored on both sides of two 120-minute cassettes: nearly four hour's worth of data. Using the stopwatch function on my Indiglo watch, I started the tape recorder and started noting the time elapsed for each observation, plus the magnitude and direction that I had recorded, and wrote them down in a table. (Since work like this invariably only begins after the kids are in bed, I burned the proverbial midnight oil a few times!). The absolute time for each meteor was obtained by merely adding the elapsed time from the start of the observing session to the time noted at the start of the session.

The results surprised me: in less than four hours (224 minutes, to be exact) of "official" observing time, when the tape recorder was on and I was looking up towards zenith, I recorded 270 Perseid meteors! This total, combined with the ones that I happened to see between observing sessions, including ten in one minute at 2:40 A.M., meant that I had seen over 300 Perseids in one evening — a personal record. In 1994, I had seen almost exactly 300, but over a six-hour period, which meant that the 1997 observed rate was higher because this shower was richer, or conditions were better (which they were), or my observing technique had improved.

I wanted to experiment with innovative ways to display the data, using these Perseid observations. Instead of a dry table of numbers, it would be nice to have a visual representation of the results, whose overall trends could be assessed at a glance. With this in mind, I prepared histograms (bar graphs) of each of the four hour-long observing sessions, with time on the (horizontal) X-axis and magnitude on the (vertical) Y-axis. During the time I observed, I felt I had experienced the peak of the meteor shower, and I wanted to have a visual representation of it.

The results are shown in Figure 1. Each vertical line represents a meteor observation, with the height of the line corresponding to the magnitude, or brightness, of each meteor. The time is Universal, or Greenwich Mean Time, for August 12, 1997. The total number of Perseids and non-Perseids (NP) is displayed at the bottom of each graph. In order to fit into this newsletter, the original page-size graph for each of the four observing sessions was re-

duced 75%, so that some of the closer-spaced lines are merged. The overall trend is nonetheless apparent. The original diagrams also had the azimuth value (direction) for each meteor at the top of the line representing that meteor, so that all the data could be displayed in one diagram.

Since sky conditions throughout the night were fairly uniform, the diagrams clearly show an overall increase in rate of meteors from about 7:20 UT to 9:30 UT, with distinct drop-offs in number before and after this time. Factors to keep in mind, nonetheless, are the lower altitude of the meteor radiant at the beginning, the appearance of zodiacal light (9:15 UT onwards), and the onset of dawn (10:25 UT). The actual peak seems to have been between 8:30 and 9:30 UT, when 100 Perseids were recorded in 50 minutes, or about 2 per minute. This peak included bursts of higher activity, including bursts of 6 in one minute, 4 in one minute, and 9 in two minutes.

Another peak appears to have occurred before the main one, between 7:45 and 8:10 UT, when 40 Perseids were seen in 25 minutes. Interestingly, I also recorded a double peak during the 1994 shower in Colorado, but those data were tainted by combining the observations of three observers plus less than perfect conditions. This double-peak observation has more credibility, unless the early peak is simply random noise.

These peaks together correspond to the "90's" or "new" peak, brought on by the recent passage of Comet Swift-Tuttle, which precedes the "traditional" peak by about half a day. The new peak is sharper (more sudden increase and drop-off), and has higher meteor rates associated with it, than the traditional peak. In 1994, the peak was best seen by West Coast observers, and occurred near dawn in Colorado; perhaps it is slowly migrating east.

The brightness data, represented by bar height in the histograms, show a sharp increase in numbers of meteors from the brightest meteors (minus magnitudes) to fainter ones (magnitudes 2 to 4), as would be expected. There is a sharp drop off in number, however, from magnitude 4 to 5. This may be a result of fewer sightings due to dimness, inaccurate magnitude estimates, or a true drop off in numbers of faint meteors, similar to recent Leonid shower reports.

The directional data consisted of the azimuths recorded for each meteor, and utilized a coordinate system in which a line connecting the radiant to Polaris represented 0 degrees, with increases in 30-degree increments going clockwise around the sky (west = 90 degrees, south = 180 degrees, etc.) I took the tabulated data and fed them into a popular geologic program which converts azimuths (or strikes as they are known in the business) into a type of circular

histogram called a "rose" diagram. Rose diagrams for the four observing sessions are shown in Figure 2. (To get a real sense of meteor direction hold a rose diagram over your head with the "N" facing north.)

The directional data clearly show a strong preference for west-directed meteors, particularly in the first two or three sessions. This is probably largely due to the fact that the radiant was still relatively low in the eastern sky and my center of field of view was to the west of it. There was also a spike that appeared to rotate from SW to SE during the night, and a striking paucity of meteors seen going in a NE direction. This might be partly explained by the fact that my center of field of view started slightly NW of the radiant (about 20 degrees) and ended up slightly SW of it (about 10 degrees). If this explanation is true, then even under ideal conditions such as these, one's gaze position relative to the radiant has a strong influence on direction of meteors observed. Or, there is a true inhomogeneity in the meteor stream, which is what I set out to investigate in the first place!

Seeing as how I had gone this far with my Perseid data, I decided to go all the way and write a little report to accompany the graphs I had made. The report had headings for observing conditions, technique, results, interpretation, etc., and also included a diagram showing the position of the center of field of view, on a star chart, with respect to the radiant in Perseus. As discussed above, this last may be a more important factor in interpreting the data than I first realized.

I slapped a fancy title page onto the report and sent it to Robert Lunsford, North American coordinator for the International Meteor Organization, in Chula Vista, California. Judging by the reaction I got from him via e-mail a few days later, the IMO folks don't usually get a report this comprehensive. He has promised to have it published in the newsletter of the Association of Lunar and Planetary Observers (ALPO) sometime in 1998 (guess I'll have to join!).

The e-mail report I had groggily sent to *Sky and Telescope* the morning after, made it into their Perseid article in the November issue. I sent the editor I know there a copy of the report, and he has it "on file" (hopefully not the circular kind!) for possible adaptation into a future article. The angle of the article would be just how much useful data one can gather from a clear sky, with the only optical aid a reclining lawn chair. And now you know.

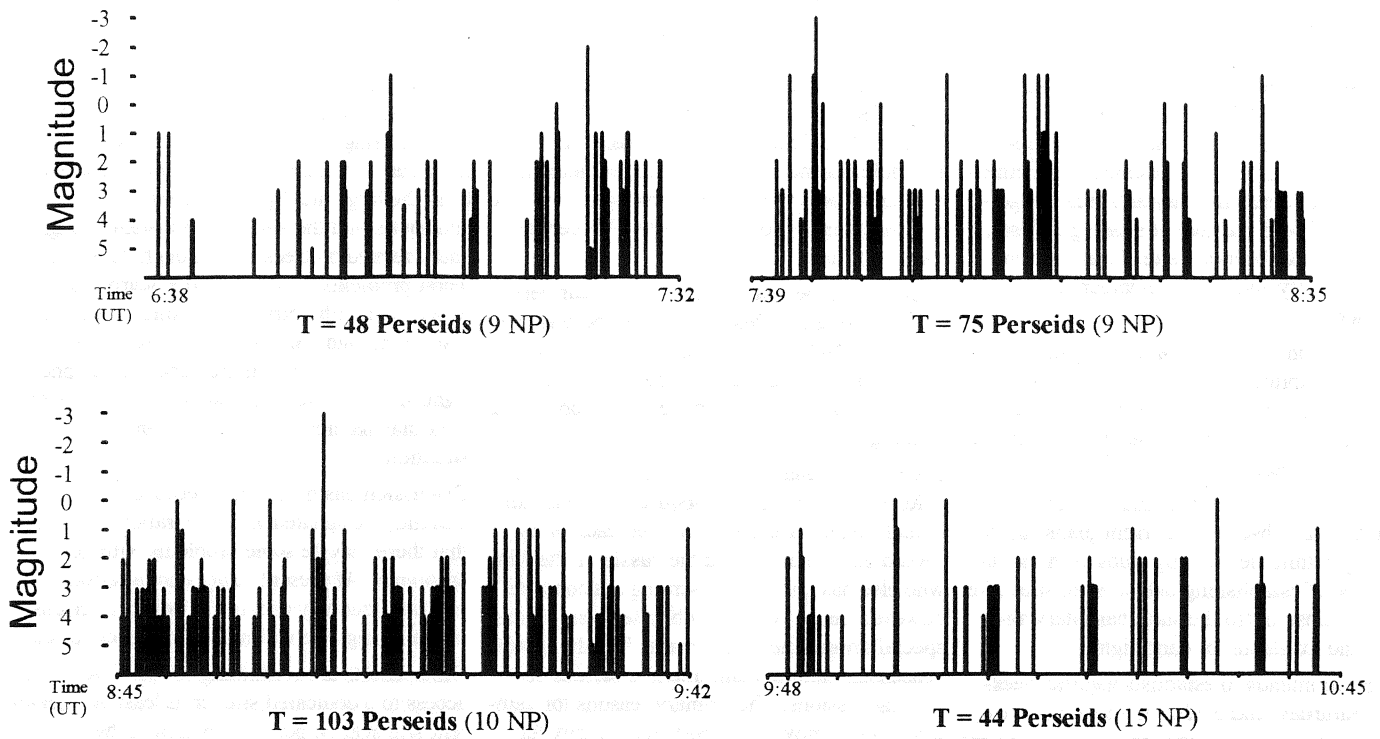


Fig. 1. Times and magnitudes of Perseid meteors

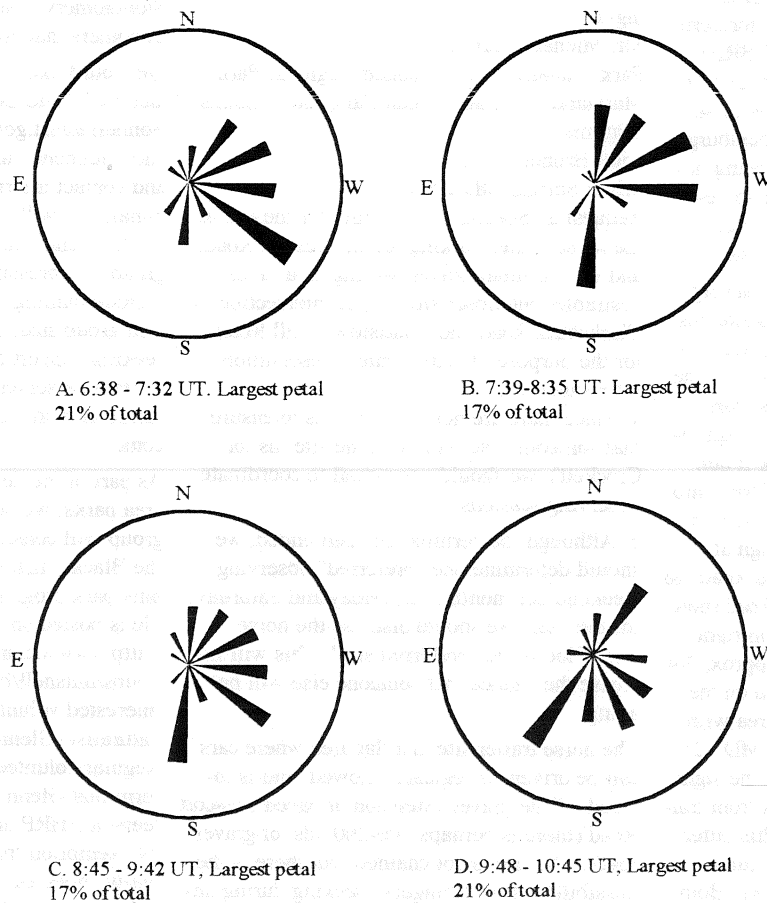


Fig. 2. Rose diagrams of Perseid meteor directions

A NOVAC MD Special Interest Group (SIG)?

David Bonnell

As a result of connections made at the September NOVAC Star Party through the NOVAC list server, and through local volunteer programs, a group of NOVAC members and others living in the suburban Maryland area has gotten together with the goal of seeking a closer, relatively dark observing site closer to Montgomery County and nearby amateur astronomers.

The group consists of NOVAC members, NCA (National Capitol Astronomy Club), Tri-State Astronomy Club, and others who have been acting as volunteers for astronomy programs at Black Hills Regional Park (BHRP).

The group is quite diverse, and has grown to about a dozen observers. Current plans call for working within the existing clubs with the future hope of establishing one or more sites like Parsells, close in (to the suburban Marylanders), and available for dark nights.

The group intends to establish specific weekends (Saturday, and Friday, if enough interest) in each lunar cycle for observing, but at present is still working on the formalities.

After searching the area, a relatively promising observing area has been found at the northern tip of Little Bennett Regional Park (LBRP). This site appears to still have magnitude 5 or better zenithal skies on good nights, with sky glow from the south (Rockville/Gaithersburg/Germantown) and north (Frederick) being noticeable, but limited to perhaps 30 or so degrees. No other site in Montgomery County seems to have any better skies, sad to say.

The site is designated as an area for parking horse trailers, and is quite open. This site has the strong advantage of being readily accessible from I-270, located about 5 miles from the intersection of MD 121 and 355, less than about 10 minutes from the freeway. Rough directions, for those who want to check it out: exit I270 at Clarksburg, turn right (ENE) onto MD 121 toward Clarksburg and MD 355, drive approximately 3-1/2 miles to Stop Sign at Lewisdale Road. Left onto Lewisdale Road, go approximately 3/4 mile to Prescott Road (note sign for Little Bennett Golf Course on right). Turn left on Prescott Road, and go approx. 3/4 mile to gravel; look for the open field on the left. There is also a gravel parking area with good zenithal skies, only 2 miles up MD 121 and just off the road to the right, but the sight lines are not as good, and headlights from traffic on MD 121 can be a nuisance. This latter spot is good for binocular or similar quick stops, but the area is also within LBRP. Both sites in LBRP require explicit permission for after-dark use.

Currently, members of the group are working with LBRP management and the nearby Little Bennett Golf Course people to make the site available. At the moment, park management is willing to issue individual permission on a case by case basis to those who write. The general conditions are:

1. Individual permits, granted for 1-year periods will be used. This is necessary because we are not all NOVAC members, and any other group permit would require that someone commit to being at the site whenever any observing is going on.

2. One individual permit in the group is acceptable. Hence, friends and spouses without individual permits are OK. However, each of us should have one to avoid the hassle of checking who else has one. The observing sessions are, however, not to be open public sessions unless special arrangements are made. It is the group consensus that the main intent is serious observing sessions. The primary reasons for gathering are to provide support and security for each other.

3. Request the 1-year observing permit by writing to:

Mr. Michael Harrigan
Park Manager, Little Bennett Regional Park
Maryland National Capital Park and Planning Commission
9500 Brunett Avenue
Silver Spring, MD 20901

Request a "Special Use Permit" for the use of the horse trailer parking lot off Prescott Road, and for the small gravel parking area (a less-desirable, but closer site) at the intersection of Clarksburg Road and Hyattstown Mill Road, for the purpose of astronomical observation after sundown.

4. Since there are not enough of us to ensure that someone else will be at the site (as for Crockett), we should use e-mail to coordinate observing sessions.

5. Although the permits are open-ended, we should determine one "preferred" observing weekend per month (i.e., Friday and Saturday) for the year. We should also use the horse trailer lot as the "preferred site". This will increase the chance that someone else will be going.

The horse trailer site is a flat area where cars can be driven, is regularly mowed, and is located off the gravel extension of paved Prescott Road (there is perhaps 100-200 yds. of gravel road). The site is not chained, but there is the possibility of park rangers checking during any session. It is recommended that observers either arrive at dusk, or enter the area with only

parking lights. The nearby golf course club house has a serious case of bad lighting, precluding using that area. However, the sky glow from that lighting is apparently no worse than from the large metropolitan areas to the north and south, and the site is both distant enough, and screened by trees well enough, to avoid the worst problems. There is also a nearby maintenance area with obtrusive lighting, somewhat visible through the tree line. These lights are certainly no worse than the park and periphery lighting at Crockett, and we are working with park management to consider improving the situation.

Discussion has noted that, because the area is currently designated as horse trailer parking, that there may be some problems with horse droppings. At present, that is not a serious problem, but may turn out to be more serious in the spring. We will need experience to see.

Other efforts are continuing to see if we can get access to a dedicated site, or at least an equivalent site nearby, perhaps an area of the golf course. We feel that, for that effort, we will need to identify the larger group of Maryland/Montgomery County and nearby amateur astronomers that are at present unknown.

We would like to hear from you! You can contact me, David Bonnell via e-mail (preferred), Bonnell@nist.gov, or see below for address and telephone numbers and leave your name and contact information. If you contact me by e-mail, we will add you to the group's e-mail list and send you the e-mail addresses of the group. (At present, this list is being handled as a group mailing list by each person. At the present group size, that is not a problem. We are seeking support from a source that can provide us with listserver services to handle anticipated future growth. Any recommendations are welcome).

As part of the developing interactions with the area parks, we hope that individuals of the group will consider volunteering to help out at the Black Hills Regional Park (BHRP) astronomy park programs when they can. The schedule is posted on the Web at:

<http://www.clark.net/pub/mncppc/montgom/pubs/nutshell/black.htm>

Interested volunteers should contact the park naturalist (Glenn Cumings) at 301-972-3476. Regular volunteers need to fill out a volunteer form that Glenn will send you. Note that volunteers at BHRP are compensated for their efforts by exemption from the registration fees normally collected, and the park often provides refreshments. This program often attracts 20-40 people, including adults and children, who

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Minutes of the November General Meeting

Bill Jensen

Minutes of the November 19, 1997 General Meeting of the Northern Virginia Astronomy Club.

The meeting was called to order at 7:30 P.M. by Club Secretary Pete Johnson. He welcomed 58 members and guests to the meeting held at the Arlington Planetarium.

Announcements:

1. Pete Johnson reminded members that elections would take place at the December meeting. The nominating committee had gathered nominations for the following positions:

Tilly Smith - President
Pete Johnson - Vice President
Ron Cook - Secretary
Pedro Martinez - Treasurer
Jeff Stetekluh - Trustee
Craig Tupper - Trustee
John Avellone - Trustee

Pete reminded the members that nominations would remain open until the election at the next meeting. Anyone interested in running for office can contact a trustee to submit their nomination.

2. Pete advised that Bob Summerfield would be in attendance at the McLean Arts and Rec. Show, and discount coupons were available.

3. Pete advised that order forms for the Kalmbach book order were available, and Nicole Mastej would be placing the next order in early December.

4. Pete announced that the 1998 calendars from the Starry Messenger Press had arrived.

5. Lee Polikoff announced that he would be leaving the area soon, and that the new AL-COR was Jim Fitzgerald. Lee introduced Jim to the members. He announced that the new AL-COR would coordinate orders for the Astronomical League publications, and forward award applications for members to the League.

6. Bill Jensen announced that he had volunteered to coordinate the Ottewell 1998 Astronomical Calendar order. He suggested that members interested in a \$5 discount sign a list at the end of a meeting.

Officers Reports:

Secretary Pete Johnson noted that both Brenda Jones and Tilly Smith were out of town. The next presentation at the December meeting would be by Brent Archinal on Deep Sky observing, and Al Boldt would present a talk at the January meeting on telescopes and their accessories.

Kalmbach Book Orders

Nicole Mastej

The next order period for Kalmbach books is from Wednesday, March 18 to Friday, April 3. Kalmbach-published books are available at an increased discount, depending on the number of items ordered. Kalmbach published books (those beginning with KPC#18...) are available to club members at the following discounts (other publishers' books are discounted 25%):

1-4 items	33.3% Discount
5-9 items	35% Discount
10+ items	40% Discount

To place an order, please call Nicole Mastej during any order period at 703-435-8724, or send an e-mail to Nicole_Mastej@smcompany.com. I will need the book title and KPC number (provided by Kalmbach) to place an order. Books will be delivered at the NOVAC meeting following the order period. All books in the Kalmbach catalog are discounted at least 25%, and there is no shipping fee. Please make checks payable to NOVAC, and send them to Nicole Mastej, 1359 Garden Wall Circle, Reston, VA 20194-1979.

Please note that Kalmbach is phasing out the sale of other publishers' books. Once their current stock is out, that's it. There may already be a few titles that have sold out, so I will get back to you and let you know your final purchase amount before you need to send a check.

Treasurer Pedro Martinez presented the financial report for the calendar year to date.

The Observing Report:

Jeff Stetekluh gave the observing report for November.

The Sky Tour:

Brent Archinal conducted the monthly sky tour, using the planetarium projector.

Other Business/Show and Tell:

Pete Johnson passed around the Orion Deep Sky map. Al Boldt circulated a recent issue of Amateur Astronomy magazine, noting it had articles on telescope making and observing techniques by fellow amateurs. Craig Tupper announced that a budget had been prepared for 1998, and that AC power had been installed at the Crockett park observing site. John Stewart-Taylor recommended *The Stars* by H.A. Rey.

November Presentation.

Bob Bunge presented a talk on telescopes entitled "Telescopes: Good, Bad, and Just Plain Ugly". During his talk, he described different types of telescopes, their components, and factors to be considered in selecting a telescope.

Need Auditor, Will Train

NOVAC is in need of someone to audit the books. According to Treasurer Pedro Martinez, Jr., it's easy to do and you don't need to be a professional accountant. If you would like to help out, or if you want more information, please call him.

Pedro Martinez, Jr. 703 534-2604

NOVAC MD SIG?

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are delighted with the opportunity to look through telescopes.

Glenn Cumings is currently discussing alternative sites in Little Bennett Regional Park with park management. As time goes on, Little Bennett may also seek volunteers to help out, particularly if a better site within the Park is made available.

As a group, we feel that amateur astronomers need to get together with the public and show them the wonders of the skies visible through telescopes. The Black Hills program offers a working platform for that sort of interaction in Montgomery County NOVAC members are urged to check with their local area parks for similar programs. We cannot do too much to involve the public with our interests. And there really is a lot of interest. Maybe we will even get some help with the dark sky problems if we show enough people just what they are missing.

Clear Skies to all.

David

Bonnell@nist.gov

Dr. David W. Bonnell
A215/223

Nat'l Inst. of Standards and Technology
Gaithersburg, MD 20899-0001

(Home) 301 972-9062.
(Work, Voice) 301 975-5755
(Work, Fax) 301 975-5334

He also drew upon his experience as an Amateur Telescope Maker (ATM) and a Telescope Nut (TN) making telescopes that range in size from small refractors to large Dobsonian-style reflectors.

The meeting was then adjourned at 9:45.

Respectfully submitted,

Bill Jensen for Pete Johnson,
Secretary

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 Available for Use

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

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 Ultrascope 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.

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.

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,

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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.

Nichlason Site: The same rules apply as for the Savage Farm Site except that in seeking permission to use the site for non-scheduled observing, call Smokey Jacobs (Northern Virginia Regional Park Authority) at 703 250-9124 and follow the same procedure as with the Savage Farm site.

Directions to NOVAC Observing Sites

C. M. Crockett Park: From the Washington DC/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 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.

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/Shelhorne 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 on to 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.

Nichlason Site: I-66 to Rt. 7100 (Fairfax County Parkway) south to Ox Road (Rt. 123) south to second right on Chapel Road to immediate left onto Wolf Run Shoals Road (Rt. 610). Continue on Wolf Run Shoals Road (watch signs carefully at twists and turns in the road) for 3.9 miles to the site. It is immediately after a yellow house with white picket fence on the right. The Nichlason Site is on the left marked by "Wildlife Sanctuary" signs on utility poles. After the third "Wildlife", sign there is a dirt/gravel lane into the site.

From the Springfield/Burke area: go north on the Fairfax County Parkway (Rt. 7100) to left

onto Burke Lake Road. Burke Lake Road becomes Clifton Road just after the intersection with Rt. 123. Continuing on Clifton Road, turn left at the Citgo station onto Wolf Run Shoals Road. Follow Wolf Run Shoals Road as above to the site.



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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 edfein@cpcug.org, 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., February 7 for the March/April Newsletter

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1997-1998 NOVAC Observing Schedule (Subject to change)

C. M. Crockett Park

January 2, 3, 4 (Quadrantid meteor shower), 23, 24, 30, 31

February 20, 21, 27, 28

March 20, 21, 27, 28

Savage Farm & Nichlason Site

January 2, 3, 4 (Quadrantid meteor shower), 23, 24, 25, 30, 31

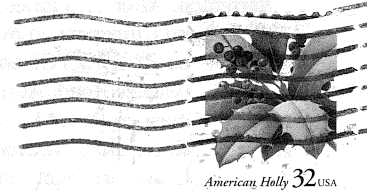
February 1, 20, 21, 22, 27, 28

March 1, 20, 21, 22, 27, 28, 29

NOVAC

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Membership Expiration: 12/97

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