NOVAC

THE NEWSLETTER OF THE NORTHERN VIRGINIA ASTRONOMY CLUB

Issue Number 60 **Volume 15** **July/August 1995**

President's Column

by Bob L'Hommedieu

I hope that everyone is enjoying their summer so far. The late sunsets this time of year make the summertime constellations seem to speed through the sky and disappear in the west all too quickly. Time seems to be going by too quickly this summer for me.

As you may know, we are using the planetarium projector at the monthly meetings to give a brief star show. Brent Archinal has been guiding us through the night sky at the meetings. NOVAC is in need of a few good people to help Brent give these tours of the night sky. If you would be interested in helping out from time to time as needed, please call Linda Thomas.

There is now a toilet facility available to us all night and year round at Crockett Park. We hope this will encourage more people to come out to the Park for observing.

Sandy Sanders is looking for volunteers to help with the Arlington Outdoor Lab. Observatory project. The Arlington Schools use this quite a bit and their scopes are in need of cleaning and collimation. If you are interested in helping, please call Sandy. □

The Recreational Astronomer: How To Find It (Part 1)

by Jon Stewart-Taylor

When using a telescope, there's a basic problem to overcome: how to find an object so that you can look at it. For bright objects like the Moon or naked-eye planets this may not be difficult, but for deep-sky objects like galaxies it can be discouraging to the point of making beginners give up observing. Finding things isn't really that hard, but it does require some equipment and techniques. This issue's column will discuss what equipment you use to find objects, and next issue's will discuss how to use it.

The basic problem is that the sky is big, and the field of view through a telescope is small. Most telescopes can only see an area smaller than the tip of your thumb held out at arms length. In addition, many deep-sky objects are dim, especially through light pollution, and you may not realize you're looking at them unless you already know they're in the field of view. However, with a good chart, a good finder, and some experience using them, you'll be able to find any object within the reach of your telescope.

Ya Gotta Have Chart

The first essential item is a good chart. Charts were discussed in previous columns, so I'll only address them briefly. Matching the limiting magnitude (faintest star depicted) to the limiting magnitude of your finder is important.

(Continued on page 2)

Inside This Issue

(Continued from page 1)

Most beginners should use a 6th magnitude chart such as *Edmund's Mag 6* or Tirion's *Bright Star Atlas 2000* with Telrads (and for naked-eye and binoculars as well). An 8th magnitude chart such as Tirion's *Star Atlas 2000* should be used with finderscopes. *Peterson's Field Guide* has good charts, but since it's small, and bound into a book which doesn't want to lay flat, it tends to be hard to use.

Once you've got your chart, make field-of-view gauges for it. A field-of-view gauge shows you on the chart exactly how much sky you can see through the finder or telescope. It can be made from clear plastic, or from wire bent into a ring. There are commercial plastic gauges available for use with *Sky Atlas 2000*. Wire has the advantage that you can easily draw field-of-view rings around the gauge with a pencil. This way you won't be fumbling with (or losing) the gauge in the dark during your observing session.

Your gauges should show two fields of view: the field of view of your lowest-power eyepiece (this is especially important, since the telescope will show so many stars), and the field of view of your finder. If you're making gauges out of clear plastic, you can put the eyepiece field of view inside the finder field of view. If you're making them out of wire, make two separate gauges, but make sure they're attached to each other so they'll be easier to keep track of.

After your chart, the next essential is a finder. Although most people probably think of a finder as a small telescope attached to the main scope, there are actually many different kinds of finders, including Telrads, finderscopes, setting circles, and even computerized telescopes which "know" where things are. I'll touch briefly on setting circles. The Telrad and the finderscope are the two most popular finders, so I'll describe them both in some detail, and compare them to each other.

Circle the Wagons

A setting circle is a calibrated dial mounted to an axis of the telescope's mount. When the mount is adjusted properly, you can move the scope to the celestial coordinates of an object by using two circles. However, this requires an equatorial mount very precisely leveled and aligned on the celestial pole, and cannot be used with alt-azimuth mounts such as Dobsonians. A variation of the setting circle is a computerized system which reads the position of the telescope mount and converts it to celestial coordinates. Some of these systems do not require equatorial mounts, or even leveling. Neither of these types of setting circles are necessary (or perhaps even useful) for beginners, and good quality equipment of both types is quite expensive.

The Telrad is a black plastic box with a glass window mounted at a 45° angle. A set of three illuminated concentric circles are projected on the glass, so that when you look through the glass, the rings appear against sky. The box is mounted on the telescope, and the rings are aligned so that when objects are centered in the inner ring, they're visible in the low-power eyepiece. The rings give you a "ruler" to measure distances in the sky. The inner ring is 1° in diameter, and corresponds to the field of view of most people's low-power eyepieces. The next ring is 2°, and the outer ring is 4°. I'll discuss the reasons why these rings are so useful when finding objects in the next issue's column.

Because the Telrad gives an upright view of the sky, and because it's very easy to relate its field of view to a chart, many people find Telrads very easy to use. On the other hand, because the glass is exposed directly to the sky, Telrads are very subject to dew on damp nights. Since they're basically just windows, they provide no magnification, and cause a slight decrease in the brightness of stars. This is probably the Telrad's biggest drawback, particularly in light-polluted skies, where stars to use as starting places are hard to come by anyway.

Finderscopes

Finderscopes are small telescopes attached to the main telescope, aligned so that when an object is centered (they usually have a cross-hair in the eyepiece to show where the center is) in the finder it is in the field of view of the telescope's low-power eyepiece. For most small to medium amateur telescopes they have a field of view of about 6 degrees. Finderscopes come in different sizes and magnifications, and may be used straight-through or with a right-angle adapter.

They are described by their magnification and objective diameter in the same way as binoculars. A finderscope with a 30 mm objective and which magnifies 6 times is a 6x30. Finders with an objective smaller than this are probably junk. These are the finders included on most "department store" telescopes, and are responsible for many beginners giving up in frustration. Most scopes don't need a finder bigger than 10x50.

The most important advantage of finderscopes is that they collect more light than the unaided eye. This allows you to see dim stars which would normally not be visible, which in turn helps you figure out where you are looking with respect to the chart. In addition, the (low) magnification allows more precise pointing.

Finderscopes also have their drawbacks. Like Telrads, they are subject to dew (although dew caps can help make this less of a problem). Almost all finderscopes invert the view: everything appears upside down. Right-angle finderscopes also reverse the image. The magnification and inversion (and mirroring if present) make it harder for many people to match what they see through the finder to what they see in the sky or on a chart.

Choices, Choices...

Which kind of finder is the best? That's a matter of personal taste. Many people consider Telrads to be the easiest to use, but 'rads are limited in light-polluted or star-poor skies. Finderscopes provide extra light grasp and magnification when going after dim objects. However, particularly in dark skies, Telrads will nearly always get you close enough to find the object using the low-power eyepiece. If possible, try them out at star parties to see which one works best for you. If you can afford it, there's nothing to prevent you from getting both, and using whichever is best for the current conditions.

Next time we'll look at how to use Telrads and finderscopes to find objects.

Acknowledgements and References

- o Phillip Harrington's *Star Ware* is a comprehensive reference for all types of amateur astronomy equipment.
- o The sci.astro.amateur *Purchasing Amateur Telescopes FAQ* (available in the NOVAC library) contains a lot of good information, advice, and personal experience.
- o The sci.astro.amateur *Gadgets, Accessories, and Thingies FAQ* (also known as GAT-FAQ) covers finderscopes and Telrads.
- o Sky Publishing's *Backyard Astronomy* pamphlet, currently given away to new *Sky and Telescope* subscribers, covers chart selection and fields of view, as well as many other aspects of amateur astronomy. □

Change to Parsells Field Access

Phillip Crittendon (president of the Dulles Little League) has informed us of a change in the status of Parsells Field. The field has been donated to the DLL, and he has modified NOVAC access to the field. Effective immediately, NOVAC members are allowed to use the parking lot of Parsells field for observing any evening, with no prior notice required. If anyone questions your presence at the field, Mr. Crittendon advises that you show them your observing pass, and have them contact him at (703) 729-2150.

The usual NOVAC observing site courtesy rules (no alcohol, no dogs, no loud music or noises, clean up after yourself) should still be followed. Mr. Crittendon did request that if you intend to observe at Parsells on a non-scheduled weekend evening you notify him so that he has the chance to come out and visit. He wants to "see just what it is you stargazers do". I think that's reasonable!

Jon Stewart-Taylor

What's Up

by Al & Lynn Schumann

Persistence Pays Off

A Kenny Rogers hit song from some time back told how you gotta know when to hold 'em and know when to fold 'em. The same can be said about knowing when to fold up your telescope and call it a night or hold it while waiting for clouds to dissipate or move off. At Crockett Park on May 20, it was a case of persistence paying off. There were only about half a dozen of us out there at sunset, and we watched a cloud layer come along and stop directly over the park. The cloud deck was still there at 10 pm, but it was thinner,.and so was the crowd. We were down to two, just Wayne Taylor and me. A cup of coffee later, and we had beautifully clear and transparent skies. Wayne had a 10 inch Coulter reflector and a neat little refractor on a German Equatorial Mount (GEM). I had the newly renovated C-8 out for its maiden voyage. I'm pleased to announce that the new DC motor system works like a charm, and the f/6.3 reducer lived up to its expectations. It did take a little while to get back into the swing of things with the fork mount; I had forgotten how troublesome it is to work in the northern sky. Also, I was surprised at how much dimmer some objects appeared when compared with the 13 inch Dobsonian we have been using for the last couple years. On the other hand, the equatorial mount made it much easier to thread my way through the Coma/Virgo area. Overall, it was a very nice night with good company, both in the sky and on the ground.

Meanwhile, Brent Archinal, Jim Schaeffer, and Al Boldt were observing at Savage Farm. I'm told that they started out with clear skies and had clouds roll in later. Anyhow, on the way out, Al Boldt's car had a good deal of the exhaust system ripped out because of the ruts in the road. The wreckage included his catalytic converter and much of the associated plumbing. Al reported that the repair bill came to $450. The moral of the story is: leave the Ferrari at home and take the Land Rover if you are going to Savage Farm. The road might be hazardous to the underpinnings of your vehicle.

A Summer Comet

Aside from Comet Shoemaker/Levy 9 which whacked Jupiter last year, we have been short of good comets lately. So the return of periodic Comet d'Arrest will give us a nice summertime treat. This comet makes a 6.7 year circuit around the sun, and it should get bright enough for most of us to see it over the next few months. For most of June it is a late night/early morning comet with a magnitude of about 10. Comet d'Arrest will be making a big sweeping arc through the constellations Equuleus, Pegasus, and Aquarius. It will brighten during the next two months as it moves along. We can expect it to be around 7.8 magnitude by the end of July and close to 6th magnitude by August. Also, as it brightens it will be nicely placed for viewing at a respectable hour in the evening sky. There are a few dandy checkpoints along d'Arrest's path which should help us to find it. On June 23 the comet passes less than a degree south of Enif in Pegasus. Enif is the one starhoppers use as a springboard to M-15. Next, during the first week of July, the comet will be only a few degrees to the north of Theta Pegasi. For the rest of July, d'Arrest will be falling generally on a line from Theta Pegasi to Saturn. It might be worthwhile to try and snap a picture of Saturn and the comet together. We're thinking about piggybacking a camera with a 230 mm telephoto lens on the C-8. We'll use ISO 1,000, or maybe 1,600, and make exposures anywhere from 20 seconds to a few minutes. That seems about the best we can hope for without full guiding capability. Even a little smudge would be greatly appreciated.

The Herschell 400

We would never go so far as to say that people are getting bored with the Messier Catalog, but increasingly, the buzz seems to be focused on the Herschel 400, especially amongst more experienced amateurs. The Ancient City Astronomy Club compiled the 400 list, and it was published as a very nice booklet by the Astronomical League. One of our all time favorite observing books is the Messier Album by Mallas and Kreimer. It was our most heavily used reference document during the earlier days of finding our way to deep sky objects. The thing that makes the book so useful is how it is laid out. It shows a star hopping chart, a drawing, and a photo of each object. Now just suppose NOVAC came up with a hybrid version of the Astronomical League booklet which augmented the entries with finder charts, etc., a là Mallas and Kreimer. Hmmmm.

Still Crying For Help

So far we've had no response to our request for aid in figuring out how to up/download stuff to the bulletin board. Zip. Niento. Nada. It's a good thing we resisted the impulse to put in an 800 number to handle the volume. Either nobody reads this column or the newsletter goes directly from the mailbox to the canary cage. We might be a little slow, but we are trainable. All it will take is a bit of time...and a lot of bananas. That number again is: 971-3257. □

Sky Sweep

by Kevin Jones

Kevin Jones is on assignment in Australia. His column will resume when he returns. □

Weather and Amateur Astronomy

by Todd Gross

Planning your observing sessions. (Based on the weather!)

Part 2.

Starting last month, I began publishing a series of articles devoted to Weather and Amateur Astronomy. This month's feature "Planning Your Observing Sessions, Based On the Weather - Part 2" is perhaps the most fundamental topic, dealing with planning on what kind of weather systems will produce the best skies.

Please note, that while I may speak authoritatively, I am just an amateur astronomer like you, and all the information reflects my personal opinion only based on my experiences to date.

Have you ever noticed Don Parker's outstanding photographs in popular astronomy magazines? While Don does outstanding work, one of the things that he has going for him is that he lives in Florida. Florida tends to have some very steady viewing due to large, broad high pressure areas that settle over the Southeastern United States. Florida is towards the "termination" of what we call the westerlies, that is the progression of weather systems generally from west to east, and near the beginning of the "easterlies", that being the slow but steady movement of weather systems from east to west in the Tropics. Being near that intersection means many a time when there is little going on aloft, and thus very little turbulent air to deal with.

Weather systems elsewhere in the U.S. and all over the world, sometimes mimic this stalling out of weather systems, and we will discuss that and sky clarity issues here, to help determine the best opportunities for viewing.

In part 1 of this 2 part series, I suggested what kinds of objects you should view given different kinds of weather scenarios. Here, in part 2, I will outline the weather features for much of the United States and the world that should deliver the best skies!

I have definitely taken up a new weather hobby: Trying to figure out which systems will produce the most stable weather conditions for astronomical viewing. I have to admit that I haven't quite figured it out yet; it may take years of trial and error. But there are a couple of hard and fast rules that you can use to help plan on what to view in advance. Below I will discuss the easy weather features that you can pick off on your local weathercaster's weather map and what they will likely do to your skies.

Cold frontal passages

Atmospheric clarity is pretty easy to forecast, so let's start with the simple stuff. If you have a cold front that has just come through, with high pressure on its way in, you know you are in for some good clarity. As long as skies clear behind the front, you should be in for some good viewing of deep space objects, because as moderate to strong cold fronts first sweep in, they do the needed housecleaning to get the haze out, and the pollutants, too.(no, not the light pollution, sorry) However, if you are doing planetary work, look out! The air is often unsteady behind these fronts, especially in the winter. Also, scopes that do not have a super steady mount will suffer from gusty winds in this kind of weather setup, so take appropriate action! (i.e., shelter the scope from the wind using a car or other obstacle)

On the other side of the coin, when cold fronts first approach, the loss of atmospheric stability can be a particular problem, especially in the summer, as thunderstorms may brew. In addition, clouds and rain often precede cold fronts, so your best bet is to wait until it passes by.

Warm frontal passages

Warm fronts are usually associated with clouds as they move in, but often it clears behind them. Especially in the eastern U.S., though, this will be followed by hazy conditions, not conducive to deep sky viewing, but often satisfactory for planets, especially if the winds go light.

High pressure systems

These are what good skies are made of, but often not until they pass by! Assuming you are reading this in the mid-latitude Northern Hemisphere, you would be best off for planetary viewing just after the high has moved over you and on its way to the east. (to the west in the S. Hemisphere.) This will usually produce stable and clear skies. When high pressure first moves in, often the skies are the most clear, but somewhat unsteady. This is because the air is cold aloft relative to near the ground, so much so, that the atmosphere tends to churn, and mix, to try to make up for this imbalance.

The one catch with high pressure systems is that after they move by, cirrus clouds, or summer haze may follow. Thus, just when you are about to get the most stability, you lose some clarity to the sky, so timing is everything!

Low pressure systems

More commonly known as "storm systems", these cyclones produce bad weather, and lots of clouds. Breaks in the cloud deck often occur near low pressure systems though, especially on their south side. You may find decent viewing in these breaks, especially in summer, when the wind is less of a problem.

One interesting note: You can actually view right through certain kinds of clouds. Fast moving, low cumulus clouds (the cottony ones) are sometimes thin enough to see through, but more often, you have to settle on viewing between them. That goes for broken stratus (layers) clouds as well, you should pick out the breaks. Cirrus clouds, made of ice crystals, will blur the vision of objects, but when very thin can be successfully viewed through. When they start thickening up to an overcast of cirro-stratus though, you are out of luck! You will often see a halo around the moon as the cirrus deck thickens, and rain or snow may follow the next day.

I have been contacted by many folks hoping I can shed some light on what kind of viewing to expect when local weather phenomena happen, i.e., sea breezes, Santa Ana winds, etc. Well, I have not figured it all out yet, and will probably spend much of my life second guessing local weather conditions and what kind of skies they will produce. The best I can say is that when you introduce a layer of air that is not like the rest, as in a sea breeze, you are likely to cause some distortion as the light moves from one temperature air mass to the other. Hopefully, I will be able to follow up with even more info on atmospheric conditions and astronomy at a later time!

For those of you who live in Eastern Massachusetts, you can access my weather forecasts via a special weather hotline with the astronomer in mind. I also update upcoming astronomical events such as conjunctions between the Moon and planets. The number is 976-6200 and runs 59c/minute (direct dial from 508 or 617), so limit your calls to when it is most important, such as before a Star Party! (or before a storm if you are a weather fanatic).

Until next month... clear skies!

- Todd Gross, Channel 7, WHDH-TV
Meteorologist
Boston, MA
Toddg@shore.net

How to Talk to Your Neighbor Who Has a Bad Light

by David L. Crawford

Here's a typical scenario: Your neighbors have just installed a dusk-to-dawn 175 watt mercury vapor light fixture because they are worried about security. You can see what happened: they went down to the discount supply house and said "Give me the brightest, cheapest outdoor lighting fixture you have." And that's exactly what they got, paying maybe $29.95 (maybe even less). They brought it home and hung it up. Now it's splattering light everywhere, including into your lawn and in through your windows. They have their blinds drawn, of course, because they can't stand the glare either.

What did they get? A very bright light, with very little light control and lots of glare. It produces lots of light trespass, light pollution, and energy waste. They probably now have a "feeling of security." Real security is likely not to be any better than before.

Here's some ideas on what you can do. First and always, be tactful and understanding. Don't argue. Do your homework first. Be well prepared. Understand the essence of the energy facts given below, and of what makes a good security light. Know the local costs of electricity, per KWH. Know if there is a local lighting control ordinance, and, if so, the details of what is included, what enforcement is being done, who was involved, etc. Look around for the availability of good security lighting fixtures and how much they cost. Facts are not enough, however. Emotions and perceptions are there all the time. Personal relations are very important and are in play all the time.

Approach them in a friendly way. They are worried about their security and safety. They tried to do something about it. Maybe they saw an ad from the utility company, or elsewhere, touting these specific lights. Maybe they got a "good deal" from the power company. Maybe they just didn't know what to do, but thought that adding a lot of light would help. Don't tell them, particularly in an unfriendly way, to shut off their light because it bothers you. They won't, and it will likely harden their position.

Make positive approaches. Help them solve their problems. Offer alternatives. Be flexible to the local needs. Ask for their advice in solving your problem. Most people really like to be helpful, when they can. Let them know how. Be prepared to compromise, but always keep the overall goal in mind. You want and need dark skies, and no light trespass. You also want a secure and safe nighttime environment, just as they do. You want to help the country save energy and money. Show that you care, for all of those things in general, and for your sky, and for them.

Here are two specific issues you can discuss with them, to help win them over:

1. The Energy Issue, and Cost Savings: When new, the 175 watt mercury vapor lamp puts out 8000 lumens (a lumen is a measure of the amount of light produced by a lamp), declining in light output with time. The mean lumen output (after some years of use) is about 7000 lumens. That amount of light output compares approximately to a 400 watt incandescent lamp, a 100 watt high pressure sodium lamp, or a 55 watt low pressure sodium lamp. (See IDA Info. Sheet No. 4)

These lamps use considerably different amounts of energy to produce the same amount of light. When energy costs were very low, not that many years ago, it made little difference. Now, however, it does make a difference, especially when you consider how many of these lamps are in use in an urban area, or in the United States. There are many other lighting installations wasting light as well, with their use of inefficient lighting fixtures. (See IDA Information Sheet No. 26)

The cost to the country of all this wasted light is over one billion dollars a year. And all this wasted light and energy is doing nothing to promote safety, security, or a better life at night. It is merely lighting up the sky, causing glare (glare never helps visibility), and offending neighbors. None of the billion dollars is being used to light the ground or to provide safety and security. The glare and confusion and clutter caused by the bad lighting are definite factors in accidents, and losses caused by such accidents. This also costs the nation too much money and pain. As individuals, we must do what we can to stop such waste.

2. Real Safety vs. Perceived Safety: The 175 watt dusk-to-dawn may give the illusion of safety because it's so bright, but it is really counterproductive to good vision. The criminal can hide in the glare or in the deep shadows near such poor lighting. (Look around near one. See the deep shadows next to the overlighted areas? It is hard for the eye to adapt to such sharp transitions.) Light used for security should allow the owner can see better than the criminal.

So what to do? Here are two suggestions. (Quality lighting is only one facet of good security, and no lighting system, no matter how good, will guarantee security.)

A. Use a low wattage (18, or 35, or 55 watt) low pressure sodium light source, in a good (well shielded) fixture. The fixture should control the light output so that it goes only where needed, not into a neighbor's yard or windows, or up into the sky. There is lots of light (a good 35 watt LPS fixture will put out more useful light than the 175 watt dusk-to-dawn; even an 18 watt one will probably do a better job, at one tenth the energy cost). There is essentially no glare at all. One is not blinded, one can see. There is essentially no light trespass or sky glow produced. There are no dark, deep shadows for criminals to hide in. Visibility is the goal of night lighting, and these quality LPS fixtures offer excellent visibility There are also some excellent well shielded HPS and other fixtures, but they are not as energy efficient.

B. Use an infrared sensor spotlight fixture. The spotlights only come on when the sensor sees movement. Any intruder will be scared off by the sudden turn-on of the spotlights. You are alerted by the light coming on (you can buy fixtures which will also sound an alarm inside house, if you want the added security). What could be better? This type of fixture is a great security lighting system, and it is effective, quality lighting. (Be sure that the fixture is mounted under the eave, so that there's no wasted light, and point the light beam where it's needed, not into your neighbor's yard.)

The infrared sensor lights are widely available. The cost ranges from about $20 to over $100, depending on the quality and who is selling them. They are easy to install (just mount them, plug them in, and adjust them) and use. The LPS fixtures are harder to find, as few know of their existence. Ask for them at the local lighting suppliers. Insist on them. With such demand, they will start stocking them. If all else fails, buy them by mail from a Tucson lighting supplier.

The quality LPS fixtures will certainly cost more than the 175 watt mercury ones, especially in an area where few are sold. But even if they cost $120, they save lots of energy and money. For example, 175 minus 35 watts is 140 watts, times 4100 hours per year, yields 574 KWH saved per year. At 8 cents per KWH, that is $46 saved per year compared to the mercury. So the payoff period to replace a mercury with an effective lighting fixture is $120 divided by $46 or about two and a half years. If one considers the cost of the mercury fixture, say $30, then it's $120 - $30 = $90 extra cost, and $90 divided by $46, or a payoff period of only two years. The spotlight solution has an even faster payoff period.

For more information about the issues, contact the International Dark-Sky Association, at 3545 N. Stewart,Tucson AZ 85716. Other information sheets available from IDA also address the issues of energy savings and better lighting. We all can win. The International Dark-Sky Association is an incorporated tax-exempt non-profit organization. □

Sky Calendar for July/August 1995

Compiled by Luke Ward

Times are EDT. Sources include *Astronomy Observer's Guide, Sky And Telescope, and World Almanac 1995.*

July

First anniversary of the comet crash!

1	***Observing at Savage/Crockett***
4	Earth at aphelion, 94.4 million mi. from sun
4	Moon 4° S of Mars
9	Moon 2° N of Jupiter
15	Mars 0.25° N of Beta Virginis
17/21	Uranus and Neptune at opposition
19	**General Meeting at Arlington Planetarium**
20	Mercury 0.4° N of Venus (low, 30 min before sunrise.)
21/22	***Observing at Savage/Crockett***
27	Comet P/D'Arrest at perihelion in Pisces
28	**South Delta Aquarid METEOR SHOWER (new moon)**
28/29	***Observing at Savage/Crockett*-meteors visible**

Rise And Set Times

On July 15:

Sunrise- 5:58 AM	Sunset- 8:27 PM
Mars up at sunset	Mars sets- 11:29 PM
Jupiter up at sunset	Jupiter sets- 2:38 AM
Saturn rises- 11:30	Saturn up at sunrise

Planet Positions

Positions are for July.

Mercury/Venus-still in morning sky, close together. Will move into evening sky during August. Conjunction on July 20 will require clear eastern horizon and binoculars to observe.

Jupiter-dominant at sunset, easily seen in Southern sky as brightest object. It's been a year since the Great Comet Crash. Although impact scars are probably gone, try looking for other marks, like the Red Spot.

Mars- moving into evening twilight. It is moving out of Leo and into Virgo. Look for its conjunction with Beta Virginis (Alaraph) on July 16, and with the moon on August 30.

Saturn-rings still edge-on. Well visible after midnight and before sunrise.

For Your Information...

There's LOTS of places where you can get up-to-date information about observing and local events! Here are some of the ones that I find most useful:

The *Smithsonian Sky-watcher's Report,* a recorded message updated each Tuesday, contains information on constellations, satellite passes. It is a free service. Call **(202)-357-2000**.

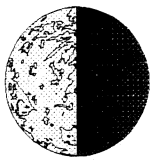
Subscribe to the *NOVAC E-mail mailing list* to receive regular mail concerning club events and observing news. Send mail to Jon Stewart-Taylor at **jstewart@telnet.com** and he will add your address.

August

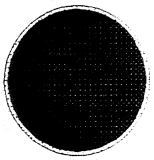
1	Moon 2° S of Mars
5	Moon 2° N of Jupiter
9	Mercury 1° N of Regulus (evening)
12	Perseid meteor shower (full moon will render shower invisible, except for fireballs)
13	Moon 5° N of Saturn
16	**General Meeting at Arlington Planetarium**
18/19	***Observing at Savage/Crockett***
25/26	***Observing at Savage/Crockett***
27	Mars 2° N of Spica
30	**Moon passes 0.2° South of Mars**

Lunar Phases

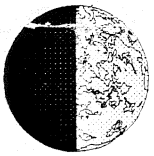
Last Quarter
July 19
August 17



New Moon
July 27
August 26



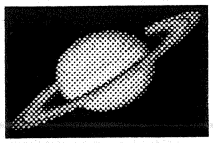
First Quarter
July 5
August 3



Full Moon
July 12
August 10

Observing is best between Last Quarter and New Moon, when the moon is never up between sunset and midnight.

Meeting Programs



July 19- Dual program. "Observational Record-Keeping" by Jerry Wolczanski; and "Computer Software Review and Demonstration" by Linda Thomas.

August 16- TBA.

Mid-Summer Stars

Follow the Arc To Arcturus and Speed on to Spica

Every beginner should learn this trick. Find the Big Dipper in the North on a spring/summer night. Follow the arc made from its handle downward and to the South. You will find the bright star **Arcturus**, which shines at magnitude 0. Then, keep following this path down to the horizon. You should "hit" one more star, **Spica**. This isolated star in Virgo is near the ecliptic and is often encountered by planets.

Antares and Saggitarius

Look low in the South to find the bright planet Jupiter (it is now the brightest star or planet in the night sky.) Look nearby for the reddish star **Antares**. If it is dark, you may see the coiling stars of **Scorpius** to its left. Now, keep moving left with your eyes until you find **Saggitarius**, the Archer, which looks just like a teapot!

Once more, we continue with that extraordinarily popular feature, namely,

NAME THAT ASTERISM!

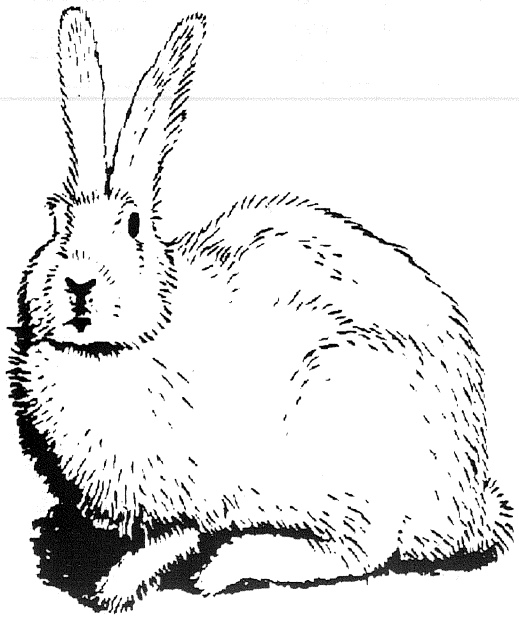
As you may have guessed, the asterisms in the last issue were:

#3 - The Little Dipper, #4 - The Big Dipper.

When you see both of them in the sky at the same time, you have no trouble telling them apart, but before the publication of Asterisms # 3 and 4 if you had seen only one you would have been in the dark. Now, you know that if the handle goes up from the cup it is the little dipper and if the handle goes down, it is the Big Dipper.

But, enough talk. On to

Asterism # 5



From: Brent Archinal

Meet your fellow members for dinner in daylight!

What's that, you don't recognize all those people at the NOVAC meetings because you've never seen them in the daylight before? Well, it's time to get acquainted by meeting with them at the "meeting before the meeting" dinner before the regular NOVAC meetings. Suggested at the NOVAC Annual meeting in January, this has proven a great way for NOVAC members to meet one another. So far, we've had a good turnout in every month since, with about a ten to a dozen members showing up for a fine dinner together.

So, if you're interested in meeting your fellow members at some place other than a dark observing site, the get-together before the July 19th and August 16th NOVAC meetings will again be at the Santa Fe Cafe in Rosslyn, starting at 5:45-6 PM. This is a nice Mexican restaurant with reasonable prices, although credit cards are not accepted. Smoking is apparently allowed in one part of this (large) one room restaurant, but so far NOVAC members and the few others dining at that time have not been smoking.

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 I66 east, take the Rosslyn exit to Lee Highway, and turn right at the second light onto Fort Myer Dr. 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 should be available and it is also close to the Rosslyn metro station.

As before, reservations are probably not necessary. However if you need a ride to the meeting and back to the metro, or for more information or directions please give me a call (evenings) at 703-448-7466 or e-mail me at baa@casa.usno.navy.mil.

See you at dinner! □

From: Fred Gunther

From: jstewart@maunaloa (Jon Stewart-Taylor)

I got the following from Fred Gunther, and thought I'd pass it along:

From: Fred Gunther <uunet!ulabsgi.gsfc.nasa.gov!fgunther>

Subject: MD State Park -- Astronomy Night

When I was up at Cunningham Falls State Park (take US-15 north from Frederick MD), I found out that they have an ASTRONOMY night as a **campfire program**. Slide show and star viewing by the **Tristate Astronomers** till 0100. Date is Saturday, August 26, 8:30 pm.

Fred

From: Brenda Clements Jones

Subject: NOVAC July mtg. and Steve Smith's class

Date: 21-Jun-95 at 22:34

Just got back in from our vacation in New Mexico. What a beautiful state!

Steve Smith has asked me to let you know about a class that he'll be teaching coming up soon --

On the first three Tuesday evenings in August from 7:00pm to 9:00pm, Steve Smith, the Director of the Arlington Planetarium will teach a course on his experiences trying to connect cosmology and theology. The course will be part of the Unitarian, Universalist Church of Arlington's Adult Education Program and is open to the public.

During the first part of the course, students will learn about the contents and organization of the Universe. The first class will meet at the Arlington Planetarium, 1426 No. Quincy St. In the second half of the course, Mr. Smith will share his ideas about our place in the scheme of things, and through a series of exercises, and discussion, students will be invited to learn about their own connections and discuss them with the class.

Registration is through the UU Church of Arlington.

Call (703)892-2565.

Fee is $10.00 for non-church members. □

From Ron Ferris:

Subject: Newsletter---July/August

Just a reminder that the program for the July meeting is a double header:

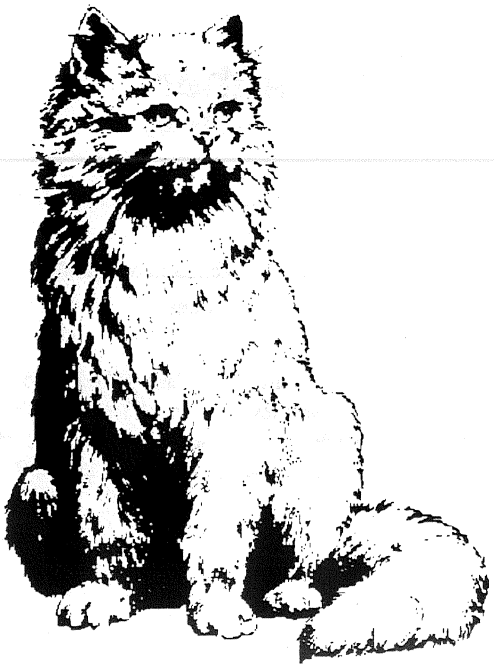
"Observational Record Keeping" -- Jerry Wolczanski

"Computer Software Reviews and Demos" -- Linda Thomas

Unfortunately, I don't have the program for August firmed up yet. If I can get that firm by in time for the newsletter deadline, I'll let you know.

Thanks, Ron □

Asterism # 6



Polar Bears Again

From the International Dark-Sky Association Newsletter of February 1995...

"We noted in a past newsletter the aversion of polar bears to outdoor lighting. This fact has also been reported in a recent National Geographic, December 1994, p.34.35. They note that on the North Slope in November 1993 the village of Kaktovik suffered some bizarre vandalism. Dozens of lights illuminating the village airstrip were destroyed - knocked out by polar bears. Tracks showed that they moved from light to light, with a clear mission of putting them out."

□

Highlights of the May and June General Membership Meetings

by Marta Krause, Secretary

NOVAC General Meeting Minutes for May 17, 1995

The meeting was called to order at 7:30 PM by Vice-president Ron Ferris. At least 27 members and guests were present at Arlington Planetarium.

Announcements

1. Nicole Mastej asked if members were interested in the project described on page 8 of the June issue of *Sky & Telescope* to signal the space shuttle with camera flashes as it passes over Northern Virginia on its upcoming mission. Nicole will have more information around the launch date; anyone interested should contact Nicole.

2. A permanent portable toilet will be available at Crockett Park in about two weeks. The Park will be installing the toilet in the area to the west of the boat launch.

3. Astronomy Day, May 6, was a success. NOVAC had a good turnout of members for the afternoon picnic and swap meet, and the clouds cleared up in time for a reasonably good observing session for the many guests that came by.

4. *Universe '95*, a conference of amateur and professional astronomers co-sponsored by *Astronomy* magazine and the Astronomical Society of the Pacific, will be held at the University of Maryland in College Park on June 24 and 25. Registration information is available at NOVAC meetings.

Officers' Reports:

Ron Ferris announced that Dr. William Webster of NASA/Goddard will speak at NOVAC's June meeting on "Exploring the Solar System." In July, NOVAC members will offer their perspectives on observational recordkeeping and astronomy computer software.

Marta Krause has received information from a manufacturer of optical system cleaning tools that use CO_2 snow, and from NRSpace Software regarding its two CD-ROM disc interactive multimedia package *Voyage to the Outer Planets*, about the Voyager spacecraft and its mission. Anyone interested in information about these products should contact Marta.

Old Business

1. Sandy Sanders announced that the next round of work on the Arlington Outdoor Lab telescopes will take place on Saturday, June 22. Thus far, the eyepieces has been cleaned; the mirrors in the telescopes are next. Anyone interested in participating in this project to benefit the Arlington County School District and the Arlington Planetarium, where NOVAC holds its monthly meetings, should contact Sandy.

Observing Report

Jeff Stetekluh and Brent Archinal gave the observing report for May 17 through June 21, the summer solstice.

Member Presentations

Gary Joaquin and Jeff Stetekluh recommended *Secrets of the Night Sky*, a recently published collection of essays about observing by *Discover* magazine's columnist Bob Berman. The book, well written and with good graphics, is available at Crown Books for $18.40.

Brenda Jones recommended two fiction books by Kim Stanley Robinson, *Red Mars* and *Green Mars*, about the colonization of Mars. Robinson is currently working on the third volume of the series, *Blue Mars*.

In response to a member question about NOVAC's observing sites, Jon Stewart-Taylor articulated the differences between Crockett Park and Savage Farm. Anyone interested in Jon's observations about the two sites should contact him.

May Program

Millstone Productions presented Al and Lynn Schumann in the comedy-documentary "Telescope Accessories," followed by an eyepiece dewcap giveaway.

The meeting was adjourned at 9:20 PM.

Respectfully submitted,

Marta Krause

Secretary

NOVAC General Meeting Minutes for June 21, 1995

The meeting was called to order at 7:30 PM by Bob L'Hommedieu. At least 50 members and guests were present at Arlington Planetarium.

Announcements

1 A writer preparing a book on binoculars and telescopes contacted NOVAC seeking comments and opinions of amateur astronomers regarding observing equipment. Anyone interested in sharing their experience with the writer should contact Bob L'Hommedieu for his name and number.

2. The *Universe '95* will be held this weekend, June 24 and 25, at the University of Maryland.

3. Upcoming amateur astronomy conventions include:

a. the annual Stellafane convention, to be held July 29 and 30; contact Brenda Jones or Bill Burton for information.

b. Starfest '95, the fourteenth annual convention of the North York Astronomical Association, to be held August 25, 26, and 27 at The River Place, Mount Forest, Ontario, Canada. Brent Archinal recommends this convention and the observing; contact Brent for more information.

4. Jon Stewart-Taylor announced a change in ownership for Parsells Field. The property is now owned by the Dulles Little League, and is now available to NOVAC members for observing any night; no prior permission is necessary. NOVAC members should carry their observing passes when at the site. Call Jon for more information.

Jon also announced that Saturday, June 24 is an observing session and work day at the Savage Farm observing site. Work activities are expected to begin between noon and 1 PM. Bring a bag of gravel to help fill in potential potholes in the access road; a weed trimmer would be helpful if any member has one to loan. Contact Jon for more information.

5. Nicole Mastej reports that the shuttle signaling project will be this Saturday at Crockett Park at approximately 4 AM. For more details, contact Nicole.

Officers' Reports:

Ron Ferris announced that at NOVAC's July meeting, Jerry Wolczanski will speak on "Observational Recordkeeping" and Linda Thomas will review astronomy computer software.

Brenda Jones has information about the Starhill Inn in New Mexico, for those interested.

(Continued from page 9)
There is no pending business.

Observing Report
Jeff Stetekluh and Brent Archinal gave the observing report from June 21 through July 19 with the help of the planetarium projector.

June Program
Ron Ferris introduced Dr. William Webster of NASA/Goddard, who presented slides and spoke about "Exploring the Solar System".

The meeting was adjourned at 9:45 PM.

Respectfully submitted,

Marta Krause

Secretary

Editor's Note

by Elliott Fein

I have really enjoyed reading of Al and Lynn Schumann's experiences at Crockett, as well as Jon Stewart-Taylor's published in the last issue, and that of other contributors in previous issues. Please send me a note about your experiences observing so that others can profit from your experiences, good and bad.

Notices Notices Notices **NOVAC** *Notices Notices Notices*

NOVAC Notices and Benefits

Discounts on *Sky & Telescope*
As a member of NOVAC you can get a subscription to Sky & Telescope for $24.00 instead of the regular $33.00 rate. To start a new subscription or renew an established subscription, make your check out to SKY & TELESCOPE for $24. Note on the check if this is a new subscription or a renewal. Send your check to Brenda Jones, 883 N. Kentucky St., Arlington, Va. 22205.
You can also order any publication directly from Sky Publishing at a 10% discount. Just mention the Club Discount Plan and that you are a member of NOVAC.

Discounts on *Astronomy*
Your NOVAC membership entitles you to subscribe to Astronomy Magazine at the annual rate of $18.00 (note increase from $16.00). This is a significant discount over the usual $24.00 rate. A two-year subscription costs $36.00. To start a new subscription or renew an established subscription, make your check payable to Kalmbach Publishing Company for $18.00 (one-year subscription) or $36.00 (two-year subscription). Note on the check if this is a new subscription or a renewal. Send your check to Brenda Jones, 883 N. Kentucky St., Arlington, VA 22205.
NOTE: There are no special 10% discounts offered on publications through Kalmbach Publishing.

Club Telescopes Available for Use
NOVAC makes available two six-inch (*f*/5) Newtonian reflectors for club members to check out free of charge and use for a limited time.
The first scope is a Celestron model SP-C6 on a Super Polaris German equatorial mount and wood tripod. It will readily fit disassembled in any car and is easily transported and can be set up quickly at remote observing sites. The scope comes with an Orion Ultrascopic 10mm and Meade MA 25mm eyepieces with 1.25-inch barrel sizes. To borrow this scope you will need to show your NOVAC observing pass and leave a $500.00 security deposit.
The second scope is a home-made six-inch reflector on a dobsonian mount and comes with a 25mm Kellner eyepiece. It is easy to transport to dark sky sites and easy to use. To borrow this scope you will need to show your NOVAC observing pass and leave a $250.00 security deposit. If you are interested in borrowing either of these scopes, contact Bob L'Hommedieu, NOVAC President, at (703) 978-0946. He will schedule a time for you to pick the scope up at his home. Bob resides at 4415 Eastwood, Fairfax, VA 22032.
Note: Checks must be made payable to NOVAC. Checks used as security deposits on telescopes are not deposited and will be returned to the originator when the scope is returned in the same condition it was checked out. The scopes may be checked out for two to four weeks at a time, depending on demand.

NOVAC Library
NOVAC has established a library at the Arlington Planetarium for use by NOVAC members. Books may be checked out and returned only at the monthly meetings. Members may check out books for one month at a time. To check out books, see NOVAC librarian Linda Thomas at the monthly meeting. The NOVAC library seeks book donations to the library. If you have any astronomy books or materials you are thinking of discarding, please consider a donation to the NOVAC library. A complete list of all library holdings is available upon request.

NOVAC Observing Schedule for 1995
Observing at C. M. Crockett Park and Savage Farm
July 1, 21, 22, 28, 29.
August 18, 19, 25, 26.
September 15, 16, 22, 23.
October 20, 21, 27, 28.
November 17, 18, 24, 25.
December 15, 16, 22, 23.

Observing at Parsells Field
July 7, 21.
August 4, 13.
September 1, 15, 29.
October 13, 27.
November 17.
December 1, 15, 29.

General Membership Meetings
General Membership Meetings are held at the Arlington Planetarium on the third Wednesday of every month. Meetings will be held May 17 and June 21 at 7:30 P.M. The Arlington Planetarium is located at 1426 N. Quincy Street, Arlington. Trustee Meetings are held the Tuesday before the week of the General Membership Meeting. Non-Trustees interested in attending should contact a Club Officer or Board Member for further information.

NOVAC 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

(Continued on page 11)

(Continued from page 10)
jstewart@telenet.com.

NOVAC Observing Site Rules

C. M. Crockett Park: NOVAC members may use Crockett Park for observing on nights other than those scheduled for club observing; However, YOU MUST HAVE PRIOR APPROVAL FROM THE PARK MANAGER. Call (703)-788-4867 early in the day on which you wish to observe. If you reach the answering machine, leave a message saying that you are a NOVAC member and you wish to observe that night. Also, leave a telephone number where someone can reach you. If you do not receive a return call, you MAY NOT use the park. THERE ARE NO EXCEPTIONS! Use of the park is limited to NOVAC members only. Park management locks the entrance gate at sunset and you may use the combination shown on your Observing Pass to gain access. Do not reveal it to anyone. You must lock the gate behind you after entering and please remember to lock it after you leave. During EDT, you must set up on the large field to the left. During EST, you must set up on the paved cul-de-sac 200 yds. past the gate. No loud radios, alcoholic beverages or loose pets. Do not leave trash or debris behind. We are guests of the park and park management may revoke our observing privileges at any time due to the carelessness of one person.

Parsells Field:

In addition to scheduled nights, NOVAC members may observe at Parsells field ANY evening, with no prior notice. You must park and set up only in the parking area: do not go onto the field itself. Please park to the left near the entrance and set up to the right away from the entrance. The usual NOVAC observing site rules apply: no loud noises, 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 a number where you can be reached. 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. In addition, please make sure the gate is locked whenever you are in the park, and especially when you leave. We are guests of the NVRP and could have our access to this site revoked at any time if it is abused.

Directions to NOVAC Observing Sites

C. M. Crockett Park: From the Washington DC/Northern Virginia area, go west on I-66 to the 47-a exit. This is 234 South to Manassas. Continue on 234 for 2.8 miles then turn right on Godwin Drive at what was previously the "Po Folks" restaurant. Follow Godwin Dr. for 1.8 miles to where it merges with Rt. 28 West. Once on Route 28, continue driving for another 13.7 miles through the towns of Nokesville, Catlett and Calverton until you turn right on Rt. 643 toward Warrenton. There is a small country store (Mayhugh's) on the corner of the intersection. Go on about a mile up Rt. 643 to the Park Entrance road. Look for a small sign for C.M. Crockett Park on your right directing you to turn left. Once on the park entrance road, go one-half mile to the park gate.

Parsells Field: From the Northern Virginia area go West on the Dulles Toll Road until you reach Route 28. Go North on Rt. 28 for 2.8 miles to Route 625, Waxpool Rd. (You may also take Route 7 West to 28, then go South to Waxpool). Turn West on Waxpool, and go 1.8 miles to the Waxpool/Farmwell intersection. Turn left on Route 625, Waxpool Rd. (!), and go 1.6 miles to the Waxpool/Ryan/Shelhorne intersection. Continue on Waxpool for about another 1.6 miles (road construction may change the exact distance) to the field. Turn left and follow the blue parking signs to the parking area.

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 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 one (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. Note that 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. 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).□

The **NOVAC Newsletter** is the official publication of the ***Northern Virginia Astronomy Club*** and is published six times per year at 5 Carter Court, Rockville, MD 20852-1005, telephone (301) 762-6261, Elliott D. Fein, Editor and Publisher. The NOVAC Newsletter is sent to members of NOVAC as a regular membership benefit.

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

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

NOVAC members are invited to contribute materials of interest for publication consideration in the NOVAC Newsletter. The editor reserves the right to edit all materials submitted.

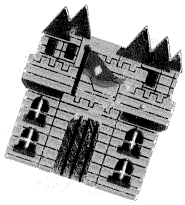
Article submissions may be posted to the NOVAC Computer Bulletin Board (BBS) to Elliott Fein or to edfein@cpcug.org on the Internet. Diskettes (3.5" or 5") or typewritten copies may be sent to Elliott's residence at 5 Carter Court, Rockville, MD 20852-1005 (Home phone 301-762-6261).

Deadline for submissions is three weeks in advance of publication, e.g., June 10 for the July/Aug. Newsletter

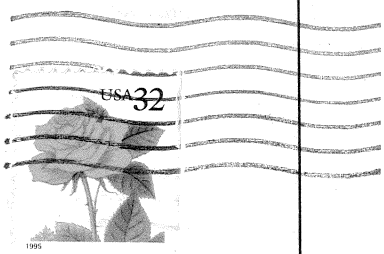
C. M. Crockett Park & Savage Farm	Parsells Field
July 1, 21, 22, 28, 29.	July 7, 21.
August 18, 19, 25, 26.	August 4, 13.
September 15, 16, 22, 23.	September 1, 15, 29.
October 20, 21, 27, 28.	October 13, 27.
November 17, 18, 24, 25.	November 17.
December 15, 16, 22, 23.	December 1, 15, 29.

NOVAC

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



NO. VA. 220
PM
12 JUL
'05



12/35 - $0.

L. Warrow & Bill Burton
2034 Golf Course Drive
Reston, Virginia 22091