NOVAC

The Newsletter of the Northern Virginia Astronomy Club

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President: Blaine Korcel..... 703-256-4430
Vice President: Jim Schaeffer..... unavailable
Secretary: Al Schumann.....703-971-3257
Treasurer: Bob Ridgley.....703-671-0286
Editor: George Uhl.....703-369-4575
NOVAC Information Hotline.....703-256-8359
NOVAC Computer Bulletin Board.....703-256-4777

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

Attached to your newsletter is yourNOVAC Observing Pass. You must take the pass with you when you use the observing site priviliges at Crockett Park. Display your pass in a easily visible location (e.g., your dashboard) while observing at the park. The combination for the park gate is located on the lower right hand corner. PLEASE REMOVE THE OBSERVING PASS NOW! Keep it safe and out of sight at all times except when using the Park. The club's privilige to use the park depends on you!

President's Column

We have had a serious complaint from an old and treasured friend, Roger Pence, the ranger at C.M. Crockett Park. The complaint involved violations of park regulations, park/NOVAC agreements and just plain bad manners. It's hard to say which is the most distressing, but we cannot tolerate any conduct by a few which could jeopardize the privileges of the many. There is no room in NOVAC for anyone who does not appreciate that contention.

Here's what happened. On Saturday night, June 9th, Roger and his family were disturbed by loud music coming from the parking area. He investigated and found the music coming from a vehicle parked well off the asphalt parking lot and not far from his house. The occupants of the vehicle also had a cooler of beer.

Roger circulated through the crowd and registered his dissatisfaction to the three NOVAC officers present: Jim Schaeffer, Al Schumann and Bob Ridgley. He also mentioned a loose dog (Gus), people loitering around the lake, and the fact that a number of people had been coming out to the park on weeknights without getting prior permission. This is nothing but bad news. What follows is what we found out, and what we're going to do about it.

The people in the vehicle with loud music and beer were not NOVAC members but were "piggybacking" on our regularly scheduled observing sessions. We're going to change the combination of the lock on the gate. The new combination will have to be our own secret, not to be disclosed to anyone outside the club. That should discourage interlopers.

The rest is education. This column is the first lesson. It is also the law, and anyone who cannot live with it is hereby invited to find another outlet for his/her astronomical pursuits.

1. There will be no -- repeat no -- alcoholic beverages of any kind allowed on the grounds of Crockett Park.

2. Keep music to yourself. Anyone who can afford a telescope should be able to afford a Walkman. That way, you can blow out your eardrums if you want without disrupting anyone else. The same applies to noise in general. Remember, Roger and his family live on the park grounds, and they have every right to expect peace and quiet at night.

3. All pets must be kept on a leash.

4. Parking and telescope set-up during the months of Daylight Saving Time will be limited to the grassy area east of the blacktop circle. That is the area we use for the telescope meet. This change is being made to ensure that people towing boats up from the lake

What's Inside

do not inadvertently run over a telescope. It will make the area safer for all concerned. Generally, there is little or no boat traffic during the months of standard time, and we'll go back to the circle during those months. The rest of the park is off limits. Stay away from the lake and off the paths which wind through the park. Finally, there is a grassy slope which rings the east edge of the blacktop circle. Small trees have been planted on the slope, so avoid that area.

5. We have regularly scheduled observing sessions at the park -- four each month, as a rule, depending on the moon. There is no carte blanche for any other nights. If there is some very special event in the sky during the week, and you want to see it, you must make prior arrangements with the park staff. Make sure you get clearance from Roger Pence himself for a weeknight observing session before going out. Don't just leave a message. Also, be prepared to show your observing pass when you get there.

6. Make sure you clean up after yourself. Take your trash home. This, like the music, is just good manners.

7. After Roger locks up the gate for the evening, we are expected to keep the gate locked. Each of us must take responsibility for relocking the gate after entering or leaving.

I have written a letter to Roger and have included a copy of this column to show what steps are being taken to avoid a recurrence and keep us on the straight and narrow. Additionally, I have assured him we will reprint the above rules on a continuing basis so that everyone will get the word.

Clear Skies,

Blaine

Blaine Korcel,
President

Programs At NOVAC Meetings
by Brent Archinal

Topics: Interferometers, Eclipses, Stellafane - And the Founding of the Northern Virginia Astronomy Club as a Non-Profit Corporation

Although summer is a time for vacations and observing through the Virginia haze, we hope that those of you who are still in town and haven't been dazzled by the eclipse will make the July and August meetings of NOVAC. We have an excellent program lined up for July, and we plan to have a good review of the July 11 eclipse in August. Besides this, our August meeting will likely be one of the most important meetings ever in the life of the Northern Virginia Astronomy Club as we make the final decision of whether or not to become a non-profit corporation.

Our featured speaker on July 17 will be long time member John Huggins, who will speak on the USNO/NRL Optical Interferometer. John works at USNO on the Interferometer project, which is being developed jointly by USNO, NRL, SAO, and other agencies, as a truly "next generation" telescope. Rather than using a single mirror to collect light, it is planned to use three or more reasonable sized mirrors distributed over a wide area (e.g. 30 meters across) to collect light, and then send it to a central collection point where it can be made to interfere with itself. The interference patterns can be used to determine the positions of the objects observed with 0.01 second of arc accuracy or better, and eventually it should be possible to even do imaging with this type of resolution (in comparison, the best current resolution of optical telescopes is in the 0.1 second of arc range). In effect, a 30 meter telescope is being built, using only a few 1 meter or so mirrors! This is the same process that is used in VLBI (Very Long Baseline Interferometry) radio astronomy where radio telescopes spaced at intercontinental distance record radio waves from the same source, which can then be replaced together at a later date to get positional and imagery information. The difference is that instead of 10 cm wavelength radio waves, few hundred nanometer light waves are being used! In any case, John will explain further the operation of such an instrument, how their plans are progressing, the complicated engineering involved, and what types of observations such an instrument might make. So stop by and hear about one of the newest forms of observing, optical interferometry!

At the August 21 meeting, we will first be very briefly discussing a most critical item of business for NOVAC. We have completed Articles of Incorporation for NOVAC, and barring any unforseen objections or problems, we will make one up or down vote on whether to convert NOVAC into a non-profit corporation and begin to adopt the Articles. We of course expect that the decision will be made in favor of incorporation, and will then go ahead and start collecting the 30 signatures from members we are requiring to adopt the Articles. Once that process is completed (in August or September or the latest), the By-Laws can be adopted, and we will then submit the Articles and appropriate forms to the State of Virginia, the IRS, and Fairfax County in order to complete the process. In any case the August meeting is where we really kick off the future of NOVAC.

But after that is quickly covered, we will continue the meeting with our main program, presentations by various members on the July 11 total and partial solar eclipse. Some members are planning trips out to totality, either in Hawaii or the Baha area, so with any luck there should be some excellent photos available. And of course the majority of us are likely staying in this area(!), so there should also be some

good reports and photos of the partial phases here. Maybe there won't be any Life Magazine quality photos, but on the other hand there should be some good ones and some interesting first hand reports. Finally, we even will have another item of note on the agenda, as those returning from Stellafane (held three days before) give us a rundown on the astronomy get-together of all astronomy get- togethers!

Anyway, both of these meetings look like exciting and even critical meetings for NOVAC, so we hope to see you all there!!

These regular meetings of the Northern Virginia Astronomy Club are currently held the third Wednesday of each month at 7:30 PM, at the Arlington County Planetarium, 1426 N. Quincy Street, Arlington, VA 22207. Admission is free and open to the public. Call the NOVAC hotline (703-256-8359) for schedule changes, cancelation, or leave a message to obtain further information.

Minis Can Be Fun, Part 2: Jason Lives!
by Al Schumann

The night of June 8, '91 was a stunner at Crockett Park; clear, cool and dry with no moonrise until the wee hours of the morning. Also, there was an outside chance of seeing an auroral display in the northern sky. The parking lot was bristling with telescopes, and there was an air of excitement in the crowd. In short, it was a perfect night to continue the Messier Marathon which began a couple months ago.

George Uhl was my partner during the March 16 exercise, but now we were separated by 50 yards of black top (see the article "Mini's Can Be Fun" in the May/June 1991 edition of the NOVAC Newsletter). It looked like I'd have to go it alone. Then, a sleek sports sedan coasted to a stop behind my old Ford pickup. A ghostly shape emerged through the gloom of dusk, and without knowing it, Howard Marcus stepped into the twilight zone and became an unwitting player in the continuing mini marathon drama. Who better than an airline pilot to help tackle the challenge of the Coma and Virgo clusters of galaxies. Sharp of eye, stout of heart and able to leap tall buildings in a single bound. Howard jumped in with both feet, and we were off and running.

Actually, running ain't the word for it...crawling around on hands and knees is more like it when threading your way through the realm of the galaxies. There are 19 Messier galaxies in Virgo and Coma Berenices. That's almost 20% of his catalog. Since there are very few bright stars in the area it seems as if you take one step forward and two steps back most of the time. Mallas and Kreimer's excellent book, The Messier Album, became our primary aid. The finder charts, photos and drawings are invaluable. Additionally, we continued with Brent Archinal's search sequence.

At 9:50pm we found M-65 in the Coma, and the chase was on. Things were going pretty well until M-90 came along. At 9th magnitude it shouldn't have been that hard, but it stopped us cold. Numerous trips between charts and telescope were in vain. The brain fade curve started to rise at an exponential rate. Was this the end of the line? Were we doomed already? We gotta get out of here for a while and regroup.

"Let's look at the Ring," sez I. And without a moments hesitation I swing the telescope toward Arcturus. Howard says, "That's Arcturus. Vega is over there." He's starting to have serious doubts. After a good look at M- 57 Howard wanders off for a break, and I settle down with a cup of coffee.

That break saved the evening. While in Lyra I picked off M-56, a tough little globular cluster about mid way between the Ring and Alberio, the head of Cygnus, the swan. Then came those two beauties in Hercules, M-13 and the lesser known M-92. Ophiuchus is rich in globulars -- five of them in the Archinal sequence, and they fell into the bag in short order. Likewise the two globulars near Antares, M-8O and M-4. While in the Scorpius neighborhood we dropped in on M-6 and M-7, two beautiful open clusters towards the center of the Milky Way. Confidence was sky high once again.

It was time to return to Virgo. But this time we sneaked in through the back door. Rho Virginis is on the southeast corner of the cluster. If you can find Rho, you can't miss M-59 and M-60, just a degree to the north. A small sweep to the right nets M-56. Just north of that nice spiral you run into M-89 and finally the troublesome M-90. We did it. We got every one of them in both the Coma and Virgo. It's one thing to find some of them -- or even most of them, but when you want to find them all it becomes a challenge that is mentally exhausting. It was a good place to stop.

On the down side, my truck was blocking Hydra, so we bad to let M-66 and M- 83 off the hook. They will be numbers one and two on the hit parade for the next time out.

The night's tally came to 33 with a running total of 60. That means there are 30 to go -- mostly in Sagittarius with a few cats and dogs here and there to finish the job. The really tough part is over, and it should be downhill from here on out.

Thanks, Howard. Keep 'em flying.

Rediscovering The Moon - I
by Bill Burton

The Moon, our nearest neighbor in space, shines brightly in the sky on half of our clear nights. Many of us astro-

nomical observers inwardly curse its presence, particularly those of us who search for faint and elusive deep-sky objects such as galaxies and nebulae, whose optimum visibility requires a dark, clear sky. But the Moon is there, and there is nothing we can do about it--why not make the most of it? Studying the Moon requires nothing more that moving the telescope out into the back yard.

This article begins a series (more than two?) on some of the interesting features of the Moon and their possible origins, in light of what we have learned since the Apollo missions. For the Earth-based observer there are two basic types of lunar observations to be made: those dealing with low-angle and high-angle solar illumination, respectively. The low-angle illumination, occurring near the terminator or day/night boundary of the Moon, emphasizes topographic relief, and hence the physiographic features of the Moon. The high-angle illumination, seen on most of the lit side of the Moon, brings out contrast in reflectivity or albedo of the lunar surface materials. The albedo is largely controlled by age, texture, and chemical composition of these materials. Both the low-angle and high-angle types of observations have their own wealth of features for viewing.

As most everyone knows, the Moon contains two types of terrain: the rugged, heavily cratered, light-colored highlands, and the relatively smooth, less-cratered, dark-colored mare. Billions of years of meteorite impacts have pounded the surface of both these terrains into a fine "soil" or regolith ranging from a few meters to tens of meters in depth. On none of the Apollo missions were the astronauts able to sample undisturbed lunar bedrock; most of the samples they brought back consisted of fragments derived from meteorite impacts, known as impact breccias. Some of the breccias were breccias of breccias! Nonetheless, a fairly clear picture of the chemical and mineralogical composition of both the mare and highlands has emerged from the Apollo lunar samples.

The highlands, which comprise about 85% of the moon's surface, consist mostly of a rock type called anorthosite, which contains as its principle mineral the light-colored feldspar anorthite. While anorthite the mineral is relatively common on Earth, particularly in combination with other minerals, anorthosite the rock is rare and found only in a few places, including the Adirondacks, Greenland, and central Virginia. The anorthositic crust of the Moon formed during its early, accretionary period, when outer layer was still molten to a depth of many kilometers and buoyant feldspar crystallized and floated up to form the anorthosite. Age dating of the anorthosite has shown it to be nearly as old as the solar system itself--4.5 billion years.

In contrast, the mare, covering about 15% of the lunar surface, are composed of basalt, a denser, dark-colored, fine-grained rock which is abundant on the Earth as well. The mare basalts flowed out on the Moon's surface as lava flows during the interval from 3.9 to 3.2 billion years ago, flooding and filling giant impact basins that had formed earlier. The mare basalts probably welled up from a deep zone underlying the outer, anorthositic crust, along fractures created by the giant impacts. The age of the mare compared to the highlands can be seen at a glance by the fewer craters in the mare. Flood basalts are also widespread on the Earth's surface, covering the ocean floors and continental areas such as western India and the eastern Pacific Northwest.

A major unanswered question is: why are nearly all the lunar mare concentrated on the side facing the Earth, where they make up 40% of the area? This unequal distribution of denser mare basalt has likewise produced a concentration of gravitational anomalies on the near side. One possibility is that this side formerly faced away from the Earth, where it received the brunt of the impacts from planetesimals falling into the Earth-Moon gravity field. Once basalt filled the major impact basins and caused a gravitational imbalance, this side rotated around via gravitational attraction to face the Earth.

An even bigger question is: why the Moon at all? Several factors set it apart from most of the other planetary satellites in the solar system: its relatively large size compared to the Earth, its relatively low overall density compared to the Earth, and the high inclination and angular momentum of its orbit. The leading theory of the formation of the Moon, which seeks to address these problems, features a Mars-sized object striking the Earth and blasting off a large chunk of the terrestrial crust mantle, but little of its heavy, iron-rich core. The ejected material coalesces into the less-dense proto-Moon, which settles into a peculiar orbit as a result of the angle and energy of the impact.

A debate once raged on whether the Moon's craters were volcanic or impact- generated in origin, but it is now generally agreed that nearly all were formed by impact, and most prior to 3 billion years ago. But volcanism has definitely played a role, not only in formation of the mare but also some of the small, young features of the lunar surface. Tectonic processes such as folding and faulting, widespread on the Earth's surface, have also played a minor role in the Moon's history. Next, we will begin focusing on some lunar features formed by impact, volcanism, and tectonism.

Sky Sweep for July/August 1991

by Kevin Jones ("young stud" and NOVAC Silver Star awardee)

Well, at this point in time the Jones family is gearing up for our eclipse-

chasing expedition to Hawaii for the total solar eclipse occurring on the morning of July 11th. For those of you staying in northern Virginia on the 11th, you will still get a short taste of the eclipse. The sun will be less than 20% covered by the disk of the moon at maximum eclipse, but this is still an interesting phenomenon to view. Looking at the sun through an adequately filtered telescope, you will be able to see the limb of the moon march slowly across the sun's face, possibly covering some sunspot groups as it moves. Although a 20% partial solar eclipse will not be noticed by much of the public, it is quite an interesting astronomical diversion.

Since I'll be sojourning to the tropical latitudes of the Hawaiian Islands, I've been taking a little bit of time to acquaint myself with some southern constellations that you can't see from the latitude of Virginia. Or can you? I recall a couple of nights when I simply went out and observed objects lower and lower and lower in the southern sky just to see how far south I could see from here. I was really astonished - with a good horizon and a good scope, stars can be viewed very close to the horizon. What do you say we take a quick jaunt through these hard-to-see-from-here but that's-why-they're-interesting constellations?

One test of how low you can see for me has always been whether the entire outline of Scorpius, the scorpion, is visible. The stars Theta, Eta, and Zeta Scorpii are all at around -43 degrees declination. Fortunately these stars are bright beacons and can shine through a lot of horizon muck before becoming invisible. Zeta Scorpii in itself is a rather nice wide double star, embedded in the Milky Way. Just to the north of Zeta are several loose scattered open clusters, the brightest being NGC 6231 at -42 degrees and H 12 at -41 degrees. This entire area is quite rich in stardust and can be quite a sight if the skies are transparent. Off to the east of Scorpius is the little C-shaped grouping known as Corona Australis, the southern crown. This constellation holds very little telescopically of interest, but the thrill in viewing this constellation is in simply viewing it at all! It is roughly centered on the -40 degree parallel and is composed of 4th and 5th magnitude stars. Look for this faint C-shape glimmering just below the Teapot of Sagittarius.

Less of a test of your powers of vision, but more a test of your powers of imagination, is the constellation Microscopium, farther eastward. This extremely obscure constellation, thought up by Bayer in the 1600s, is almost completely shapeless. Its brightest stars are almost 5th magnitude, so it is not extremely easy to spot in that respect either. It is, however, centered around -35 degrees declination, allowing it to rise a little farther out of the horizon mist than the previous constellations. It, like Corona Borealis, is fairly devoid of interesting objects for the deep-sky observer. Well, how did you do? Could you see these constellations hiding above the hazy horizon? If not, don't despair, that's summer around here for you...

Just to appease your appetite for deep-sky gee-whiz-zowee objects, marching from the horizon straight up the summer Milky Way a host of objects await your gaze. In Scorpius the open clusters M6 and M7, located just above the tail of the Scorpion or the point of Maui's Fishhook (had to throw in a little of my limited knowledge of Hawaiian astronomy); in Sagittarius, all in a row: M8 (the Lagoon Nebula), M21 (the Trifid Nebula), M24 (a rich Milky Way star cloud), M18 (an 8th magnitude open cluster), M17 (the Horseshoe or Swan or Omega Nebula); in Serpens Cauda M16 (the Eagle Nebula); and in Scutum just below Aquila, the two clusters M26 and M11 (the Wild Duck cluster). All of these objects are sure to please summertime stargazers. Have fun, and enjoy the eclipse on the 11th.

Turn The Rascals Out!

by Al Schumann

It's not too early to start thinking about NOVAC elections. The three year term for our current slate of officers runs out at the end of the year, so I would like to see some hats voluntarily tossed into the ring. Don't be shy. Let the campaigning begin.

It seems that ever since the club was founded the same people have been charged with the responsibility of keeping things running. We'd change hats, but the faces were mostly the same. I suppose that was all right when the club membership was 12 or 15 souls, but now we're up over 100, and we need to have more people involved. Holding office in NOVAC, or serving on the Board of Directors, has become something like a life sentence. It is cruel and unusual punishment, and some of us are burning out.

However, I hasten to add that there is a big DON'T involved. Don't stand for office if you can't make it to the meetings or discharge the obligations of office. The titles are not honorary or based on popularity; They require a bit of effort and dedication. On the up side, holding office is a great way to learn about astronomy.

If you want to accept the challenge, get together with the current officers and pick their brains. Find out what's involved and mull it over for a while. Then, go for the power.

May 1991 NOVAC Meeting Minutes

On May 15, the meeting was called to order at 7:40PM with Blaine Korcel presiding. The minutes of the previous meeting were accepted as printed in the newsletter.

OLD BUSINESS:

1. Brent Archinal handed out the final draft of the proposed Articles of Incorporation and NOVAC By-Laws.

Members were urged to review the draft and be prepared to start the approval process at the July meeting.

NEW BUSINESS:

1. Al Schumann will be giving an astronomy program for the Montgomery Village Foundation, a community center in Gaithersburg MD. The program will be held on Tuesday, July 9. If anyone wants to take part with a telescope, call Al at 703-971-3257.

2. Brent Archinal gave a recap of the Astronomy Day events at the National Air and Space Museum. He also told about the last observation session of the Loudoun Astronomy Club.

3. Al Schumann summarized a number of advertisements, circulars and assorted mail received by the club.

The meeting was adjourned at 7:59PM at which time Brent Archinal gave a talk on eclipses in general and the July 91 eclipse in particular.

Respectfully submitted,
Al Schumann, Secretary

June 1991 NOVAC Meeting Minutes

On June 19, the meeting was called to order on at 7:32PM with Al Schumann presiding. Seventeen members were present. The minutes of the previous meeting were read and accepted.

OLD BUSINESS:

1. The final draft of the proposed Articles of Incorporation and NOVAC By-Laws were distributed to the members present. All were urged to review the draft and be prepared to start the approval process at the July meeting.

NEW BUSINESS:

1. Al Schumann gave a recap of an incident at Crockett Park on the evening of June 9. (See President's Column elsewhere in this issue for details.)

2. George Uhl stated the deadline for the next newsletter is Friday, June 28.

3. It was noted that Geoff Chester's program on the conjunction of the moon and three planets at Sky Meadows last week was very well attended. It might generate some prospective members. It was further noted the program drew a number of UFO enthusiasts.

4. George Uhl gave an update on obtaining a speaker for the October telescope meet.

The meeting was adjourned at 7:53PM at which time Bill Burton gave a talk and demonstration of the Voyager astronomy program for the Macintosh computer.

Respectfully submitted,
Al Schumann, Secretary

1991 NOVAC Telescope Meet Plan
by George Uhl

The Telescope Meet is less than 3 months away! I'd like to bring everyone up to date on the club's plans, what has been accomplished, and what needs to be done. Unfortunately, the cuts in the Virginia state budget has affected the level of service that the Crockett Park staff can provide. This means that NOVAC must rely on its own members to volunteer their services in order to make the 1991 NVTM a success. Please consider helping the club by offering your services.

Last year's telescope meet was our biggest and best ever! This year the club is building on its successful legacy by expanding the scope (no pun intended) of the meet. The meet will be held on Friday, October 4 and Saturday October 5 at C.M. Crockett Park in Midland, VA.. Like last year, Friday is dedicated to the astronomical community and Saturday dedicated to the public.

The meet officially begins at 5:00 PM on Friday. We are going to set up a swap table (a la Stellafane) for people to trade or sell astronomy equipment and paraphernalia. Due to budget limitations, the park cannot subsidize the concession stand on Friday night, so you must bring your own food and drinks. Remember, NO ALCOHLIC BERVERAGES!! NOVAC will be selling T-shirts again and the NVTM HQ will staffed for your support. If you don't feel like staying up all night, camping is allowed down by the dam, out of sight from the field.

The public night begins Saturday at 3:00 PM. The public is invited to come out and look at the variety of telescopes in the daylight. Please try to come out in the afternoon with your telescope(s) for the public show and tell. Jim Schaeffer will lay out the 1000 yard solar system model in the big field, and will be giving guided tours. The swap table will be open, NOVAC will be selling T-shirts, and concessions will be available. Like Friday night, the NVTM HQ will be staffed for your support.

The talks and slide show will commence at dusk. This year, the talks will be held next to the maintenance shed rather than the pavilion. This allows astronomers to stay by their telescopes and still catch some of the show, and prevents people from stumbling around in the dark while walking between the field and the hill. We will have a guest speaker this year, and NOVAC members will give talks as well. A slide projector will be available, and if necessary, other display devices will be available.

After the talks, the public will be touring the field looking through different telescopes. Last year, Bill Burton set up a "find your own deep sky object" program that gave people a chance to experience how to use a telescope for astronomy. I encourage members to think of different mini-programs that will entertain and educate the public. Again, camping is permitted by the dam. The 1991 NVTM officially ends at sunrise, Sunday morning.

Over the past few months, I have been preparing for this years meet. I contacted the park and talked to Gary. He informed me of the limited services the park will be able to provide due to diminished funds. We discussed the implications of beginning the meet earlier in the afternoon on Saturday. The park regularly charges a fee for entrance into the park during the day. We will be able to obtain a waiver of this fee, if we make a donation to the park. The NOVAC executive committee (E.C.) has approved the donation offering, but an exact amount has yet to be determined. The cost for a guest speaker has been approved by the E.C. at $50. The club will also need to obtain a permit for club members and their guests to sell merchandise at the meet. We will need chairs to seat the audience during the talks, lights for walkways, poles to mark planet positions for the solar system model, and extra tables.

Al Schumann has contacted the Astronomical periodicals to ensure that the NVTM will be publicized in them (see the May edition of ASTRONOMY magazine for a Summer Pre-

view that includes NVTM '91). A thousand flyers have just been printed, and Al will be mailing some of them out to regional astronomy clubs and local newspapers. It will be up to club members to distribute them to friends, stores, on their jobs, in schools, churches, etc., etc.. Flyers will be available at NOVAC meetings, observing sessions and from club executives. Please do your part in promoting the meet.

Volunteers will be needed to give talks, conduct observing programs, and staff key posistions. If you you'd like to give a talk, contact me and let me know the topic, length of talk, and supporting equipment needed. If you would like to conduct a special observing program, let me know what your program is about, what time of the evening you plan to give it, and I'll make sure an area of the field is reserved for you and publish your spot and time on the NVTM program/map. Volunteers will be needed to staff registration at the park entrance, sell T-shirts, provide security, and staff the HQ. If you are willing to volunteer or have any suggestions, please contact me, George Uhl, at home in Manassas (703-369-4575) or at work in McLean (703-883-7305). I will be at the E.C. meetings and monthly meetings, as well as observing sessions if you can't contact me by phone. Please help. Thank you.

NOVAC NOTICES

Observing Site Rules and Directions

NOVAC members may use Crockett park for observing on nights other than those scheduled for club observing; BUT, YOU MUST HAVE PRIOR APPROVAL FROM RODGER PENCE, THE PARK MANAGER. Call early in the day on which you wish to observe; the telephone number is 703-788-4867. If you reach the answering machine leave a message stating that you are a NOVAC member and you wish to observe that night. Also, leave a telephone number where you can be reached. If you do not receive a return call you may not use the park. THERE ARE NO EXCEPTIONS! Use of the park is limited to NOVAC members only, and your Observing Pass must be displayed on the dashboard of your car.

The gate is locked at sunset and the combination is shown on your Observing Pass. Do not reveal it to anyone. The combination will be changed from time to time and you will receive a new pass along with your newsletter. After setting the combination, the shackle must be pushed in slightly before it will release. You must lock the gate behind you after entering and please remember to lock it after you leave. No loud radios, no alcoholic beverages; no loose pets; do not leave trash or debris behind. We are guests of the park and our observing privileges may be revoked at any time because of the carelessness of one person.

Directions to the Park are as follows: *
Take I66-west to Route 28. *
Turn right onto Route 28-south, and continue thru Manassas. [Or you can continue on I66 to the the Rt. 234 - Manassas interchange. Take the 234-south exit. After about three miles look for the sign directing you to Route 28-south (Godwin Drive) on the right hand side of the road. Take this road until it joins with 28-south. This route is less driving time than going all the way down Route 28 from I66.]

* Continue on 28-south, you will cross the Prince William/Fauquier County line.

* Continue for about six miles through the towns of Catlett and Calverton until you get to first sign for Route 643. * It leads only left - **don't turn there.** *
Continue for another 1/2 mile to the next Route 643 that leads only right, turn there. It's right in front of a Mayhugh's General Store.

* After about one mile you will turn left . . .there is a sign reading "C. M. Crockett Park" just before the turn. * The Park entrance is about 1/2 mile ahead, just past the "Road Ends 1/2 Mile" sign.

* After entering the park make a left turn about 30 yds inside the gate onto the large grass field. During Eastern Standard Time only, you may park on the paved cul-de-sac. Drive SLOWLY down the paved access road to the end of the cul-de-sac, and park near the edge of the pavement.
* If possible, turn out your headlights and drive SLOWLY with only your parking lights on, as long as you can do so without running over any telescopes! It takes about 30-minutes to dark adapt your eyes after being blinded by headlights. If you are already there please use a dim red flashlight to help people who are arriving find a parking spot. *
Enjoy the skies.

NOVAC Public Program

Al Schumann will be giving an astronomy program for the Montgomery Village Foundation, a community center in Gaithersburg MD. The program will be held on Tuesday, July 9. If anyone wants to take part with a telescope, call Al at 703-971-3257.

Astronomy Overnighter

by Bill Burton

Once again Bill Burton will be leading his astronomy class up to Big Meadows campground in Shenandoah National Park for an all-night observing session. Club members are welcome to join us with their telescopes. The scheduled night is Saturday, July 13; the cloud date is Saturday, Sept. 7. If interested call 703 648-6904 and leave message.

The NOVAC NEWSLETTER is published six times a year. Subscriptions are available through membership in NOVAC. Dues are $18.00 per year. For club membership information contact Al Schumann, Secretary, 6121 Rivanna Drive, Springfield, Virginia, 22150, telephone: 703-971-3257.

NOVAC

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

12/91 - $0.00

Bill Burton
2102 Whisperwood Glen Lane
Reston, Virginia 22091