

# NOVAC

## The Newsletter of the Northern Virginia Astronomy Club

Issue Number 25

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

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

### Coming Attractions

Beginning with this issue the "Coming Attractions" column will contain information about NOVAC activities which will occur during the next several months. We hope that this will increase attendance at meetings and observing sessions.

Please note that the Board of Directors Meetings, which are held during the week before the General Membership Meetings, are open to all club members. Please contact Blaine Korcel or Jim Schaeffer if you plan to attend; the location changes each month!

August 4/5: Observations at Crockett Park

August 10: Board of Directors Meeting

August 11: Geoff Chester will be conducting a public program at Burke Lake Park and extra telescopes would be appreciated.

August 11: The Shenandoah Valley Club will hold a Perseid Meteor Shower watch at Sky Meadows State Park. It's open to all. To find Sky Meadows drive West on Route 66, turn right at Route 17 (about 40 minutes past the Beltway). Head past Delaplaine (it's at the railroad crossing...don't miss it!) and look for

the sign on the left side of the road. It's about 3 to 4 miles after the turnoff at 66. The Moon sets at about 1:00 a.m. EDT on August 12, so there will be several hours of dark skies to watch the show. You might want to try for a double header...catch Geoff Chesters program at Burke Lake and then the

ECLIPSE - we get to see the whole thing this time!. The following times are EDT:

Moon enters penumbra:  
8:23 p.m. Aug. 16

Partial eclipse begins:  
9:21 p.m. Aug. 16

Total eclipse begins:  
10:20 p.m. Aug. 16

Middle of eclipse:  
11:08 p.m. Aug. 16

Total eclipse ends:  
11:56 p.m. Aug. 16

Partial eclipse ends:  
12:56 a.m. Aug. 17

Moon leaves penumbra:  
1:53 a.m. Aug. 17

August 25/26: Observations at Crockett Park

September 1/2: The Northern Virginia Telescope Meet at Crockett Park. For additional information see the article elsewhere in this newsletter and for any late information call the NOVAC HOTLINE.

September 14: Board of Directors Meeting

September 20: General Membership Meeting. Bob Ridgley will demonstrate his 2102 Meade LX3 with a CAT computer; George Uhl will demonstrate his Celestron Super Po-

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meteor shower at Sky Meadows.

August 16: The General Membership Meeting is cancelled in deference to the eclipse.

August 16: A TOTAL LUNAR

laris with a SkySensor computer.

September 29/30: Observations at Crockett Park

### Charlottesville Observing?

by Brent Archinal

In the last issue of the newsletter, we announced a possible informal field trip to Charlottesville, in order to observe at McCormick observatory and possibly elsewhere nearby. Well, we were rained and clouded out on that trip - not a big surprise around here! However, several people did express interest, and we will try to reschedule that trip at some point in the next few months. Dean Wilder, a NOVAC member, has also invited the club to come down and observe at his site in the Blue Ridge near Charlottesville. An observing trip may also be made there. In any case, if a trip is attempted I will try to re-contact those interested the last time. If you are interested and didn't reach me before, please contact me soon (at 448-7466 evenings). If possible, we will try to announce any planned trips (especially for this Fall) in the newsletter.

### Public Events

by Geoff Chester

August 11 at 8:00 p.m. I'll be presenting a public lecture on amateur astronomy at Burke Lake Park with telescope viewing afterwards. All assistance rendered by NOVAC members would be greatly appreciated. As usual, WE NEED TELESCOPES! The rain date is August 12.

The next Public program at Sky Meadows is scheduled for September 9th at 8:00 p.m. Again all telescopes are welcome! If we can continue to get the response from both members and the Public I think the Sky Meadows folks would be happy to let us use the place as a dark-sky site. And to the members

down the road: come up and join the fun for a while! And I'll try to keep Marty Cohen away so we don't get clouded out!

Looking ahead, there's a Sky Meadows program on October 7, then I'm done at least for now.

And again, my sincere thanks to all the Members who've supported my programs so far this year!

### Programs for General Meetings

by Brent Archinal

As announced at the June NOVAC general meeting, we have decided to change the format of the meetings just a little. Once some additional planning is done, we hope to be able to have programs scheduled (at least a few months) in advance for all meetings. Initially, we plan to emphasize observational and amateur astronomy topics. Some suggested programs include:

- Telescope demonstrations, where members can show off their 'scopes. This will expose the membership to a wide variety of telescopes, which should be especially useful to those (all of us?) considering buying a new instrument. Besides, we'll be able to see the 'scopes in the daylight!

- Talks on the Summer conventions that members may have attended, such as the Texas Star Party, Stellafane, and Hidden Hollow '89 (not to mention the NVTM star party!).

- A Summer wrap-up meeting, where you can tell us about your astronomy related vacations, observing sessions, astrophotography, etc.

- Short talks on various aspects of observational astronomy, like how to get started, what to take observing, etc.

- A "Starbowl" (!) where teams of

members can test their astronomical knowledge!

If you have any ideas of your own for programs, or would like to do any programs like these - we need you! Give Blaine (home 256-4430) or myself (home 448-7466) a call.

A second change we hope to continue at the meetings is for members to try to do a little "show and tell"! If you've got a new book, a new eyepiece or other accessory, or particularly a new telescope, bring it in and spend a few minutes to tell us about it. This is a great way to spread knowledge about current astronomy related products among members. Additionally, if you've got some slides or astrophotography that you've just taken, bring them in to show us.

Anyway, we've already started with the latter type of program, with several short talks having been given at the July meeting. Al Boldt discussed several useful observing accessories, Blaine Korcel explained his automatic telescope guider, and I made a presentation on several currently available galaxy atlases. So if you've got something you'd like to show quickly at a meeting, just bring whatever you have. Of course if it's anything that will take more than a few minutes, try to give Blaine a call so he can schedule it. Once we have some regular programs as well, we may have to limit these short talks occasionally, but we hope to keep it as a regular feature of the meetings. The important thing to remember is that this is \*your\* astronomy club - if you want to get something out of it you have to participate!

### Why Join An Astronomy Club?

by JoAnne Archinal

A recent article in another astronomy club's newsletter made me start thinking about why anyone joins an astron-

omy club. Observing with a telescope is thought of as a solitary endeavor, because, as everyone knows, only one person can look through an eyepiece at a time. Many members in our club own a telescope (or two) or a pair of binoculars and the necessary equipment to use them. They are perfectly capable of observing in solitary splendor, but they enjoy belonging to a club which is dedicated to observing.

In any club, active members reap the most benefits, especially if they help with the work of running the club. NOVAC is no exception. Active members come to meetings, present talks, act as officers (not have a title), go to public observing sessions, write newsletters articles (the editor made me add that!), edit the newsletter, and do many other necessary jobs. What return is worth the investment of this time and energy?

Benefits start before these members leave home. Active members make plans in advance to go observing. They call each other, arranging rides, sites and telescopes as necessary. Some "caravan" to distant sites, eliminating the worry of driving alone. Upon arriving at the site, they find other members to spur their interest, challenge their observing skills, share an eyepiece, filter or M & M's, or play an invigorating game of twilight frisbee. (Don't know how to play frisbee in twilight? Come to an observing session and maybe you'll learn!)

Different members have different interests. While one member is looking for the faintest galaxies, another may be looking for star clusters and someone else will be looking for "shallow sky" objects like planets, asteroids, or comets. They all share the views, however, and learn from watching someone else. When in a difficult spot, as I was one time looking for a particular star cluster in a field of star clusters, other members with more experience become invaluable. I spent quite some time putting star clusters in the field of

view and saying "Is THIS it" that time, but I had people who knew what the correct answer was to tell me "no." (Eventually I did find it.)

Another member may be shopping for a telescope. The best place to start is at a club observing session. Members own a variety of telescopes and are usually willing to talk about the pros and cons of telescopes in general and theirs in particular. And, of course, the smart shopper checks the views in all telescopes while observing. The shopper can save money and heartache by doing a little field research.

Perhaps you might be interested in the latest books or equipment. Meetings now have what I call "Show and Tell" to give members a forum for showing off their new acquisitions. If you don't buy it, you might see it; if you bought it, bring it so others can see it.

Why join an astronomy club? That's not the question. The question to ask is: what are you waiting for?

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### NASA Art Exhibits in Washington, D.C.

*by JoAnne Archinal*

Two NASA art exhibitions are currently on view in Washington D.C.

Visions of Flight: A Retrospective of the NASA Art Collection is on view in the International Monetary Fund's Visitor Center through August 15, 1989. Robert Schulman, the curator for the show, is NASA's Director of the Art Program. The Smithsonian Traveling Exhibition Service (SITES) developed the exhibit for circulation. The International Monetary Fund is at 700 19th St. NW. It is open Monday through Friday 9:30 a.m. to 6:00 p.m. For more information, call the Visitor Center at (202) 623-6869.

Eyewitness to Apollo 11 is on view at the National Air and Space Museum through December 1989. The exhibit

includes works of art by 14 artists and traces the development of the Apollo program, culminating in the Apollo 11 mission.

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### NASM Special Events

*by Bob Ridgley*

August and September will bring several interesting events to the Smithsonian's National Air & Space Museum. Plan a trip to the Mall to see them!

#### Planetary Science Exhibit

Voyager 2 at Neptune will show new images of the planet Neptune on closed-circuit monitors as they are transmitted by the Voyager 2 spacecraft. It is located in the Milestones of Flight Hall and Space Hall. It will start in early August, but the exact date depends on the quality of the transmissions.

#### Free Lectures

The Monthly Sky Lecture for August will be "Is There a 10th Planet?" by Robert Harrington of the U.S. Naval Observatory. Come to the Albert Einstein Planetarium on Saturday, August 5, at 9:30 a.m.

The Monthly Sky Lecture for September will be "Voyager 2's Encounter with Neptune" by Stanley Cawelti, of the National Capital Astronomers at the Albert Einstein Planetarium on Saturday, September 2, at 9:30 a.m.

The National Air & Space Museum is located at Independence Avenue and Sixth Street, S.W., is open seven days a week. Summer hours (thru September 4) are 9:30 a.m. to 7:30 p.m. Normal hours are 10:00 a.m. to 5:30 p.m. Admission is free.

For additional information about Smithsonian public programs, please call (202)-357-2700 or 357-1729 (non-voice TDD). For prerecorded information about events in a specific mu-

seum (Dial-A-Museum) call (202)-357-2020. For prerecorded information about the night sky (Dial-A-Phenomenon) call (202)-357-2000.

### Space History On Videodisc

by Greg Bryant

In 1980, the Smithsonian Institution's National Air and Space Museum (NASM) launched its archival videodisc program to provide educators, researchers, and private individuals with access to its collection of over one million photographs documenting the history of aviation and space exploration. Each 12-inch videodisc (similar to the compact discs used to record music) can store 100,000 separate photographs. When played on a videodisc player with single-frame search capabilities, each photograph on the videodisc can be accessed in seconds and displayed on any standard television screen.

The National Air and Space Museum has completed five of these discs, storing nearly half a million images in a format that takes one inch of shelf space. Archival Discs 1 and 2 were based on NASM's collection and cover the history of aviation. The third and fourth discs in the series document the United States Air Force Historical Collection of Still Photos, including 50,000 contemporary photographs from the Second World War and another 100,000 documenting the history of the United States Air Force before 1954.

The most recent disc in this series, Archival Videodisc 5, was released in 1988. This disc, produced jointly with the National Aeronautics and Space Administration (NASA), stores 60,000 black and white and color photographs from the NASA Headquarters Public Affairs Office Collection. Arranged in chronological sequence, this collection illustrates the history of the U. S. space program from 1958 to 1986. The Mercury, Gemini, Apollo,

Skylab, Apollo-Soyuz Test Project, and Space Shuttle Programs are all documented on this disc, each with thousands of photographs that reflect the history of the manned exploration of space. Unmanned scientific spaceflight programs, such as Ranger, Surveyor, Lunar Orbiter, Viking, and Voyager, are also extensively treated, as well as such satellite applications projects as Telstar, Ninbus, and Landsat.

In addition to the NASA Public Affairs Collection, Archival Videodisc 5 also stores nearly 33,000 color images taken by Space Shuttle crews during all 25 missions previous to the Challenger accident in January 1986. This is a complete collection of the 70mm Hasselblad photography from the early Shuttle missions, depicting satellite deployment, extravehicular activity by crew members, and tens of thousands of Earth images.

Archival Videodisc 5 is available for purchase through the Smithsonian Institution Press at a cost of \$55.00 (includes postage). Individuals interested in purchasing copies of this disc should send their order to:

Smithsonian Institution Press  
Dept. 900,  
Blue Ridge Summit, PA 17294-0900

For more information regarding Archival Disc 5, or other discs in the series, contact:

Greg Bryant,  
Videodisc Production Specialist  
Archives Division,  
National Air and Space Museum  
Smithsonian Institution  
Washington, D.C., 20560

### New NOVAC Hotline

Within the next few days NOVAC will have a new HOTLINE telephone number. You will be referred to this new number by simply calling the old one. A schedule of events will be

recorded, with changes posted as often as necessary. Last minute changes in meetings or observing conditions at our club observing sessions will also be posted. If you are in doubt as to the weather conditions at the observing site give the HOTLINE a call. It might save a wasted trip.

Anyone wishing to join the club should leave a message on the HOTLINE or on the NOVAC BBS. Questions about the newsletter or about memberships should be addressed to the Treasurer, Bob Ridgley at 671-0286.

### What's New in NOVAC

by Bob Ridgley

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

Malcom D. White, Jr.  
Michael Lovellette  
Candace Pratt  
Michael S. Walker  
Steve Robinson  
Daniel L. Cruz

We hope to see you at our observations and monthly meetings, especially at NVTM'89. Please contact any of the club's officers with questions or suggestions which you might have.

NOVAC membership has reached 119. Of that number 97 are current in their dues, 6 are past due, and 16 are complimentary members (other clubs and organizations, etc).

As of July 24 the NOVAC treasury balance is \$656.39.

### A Review of Sky Designs' 14.5-inch Newtonian Telescope

by Geoff Chester

I have been comfortably observing the sky with a home-made 8-inch Dobsonian telescope for about six years

now, but last year I got the big 'scope "bug" and had some "mad money" to spend, so I ordered a 14.5-inch telescope from Sky Designs on July 15, 1988. I had toyed with this idea for some time, pondering the relative merits of various brands of commercial 'scopes and weighing these options against building one myself. For reasons of space limitations in my home and laziness I decided to let somebody else build the thing, and the Sky Designs concept had great appeal in terms of ease of use and practicality. I decided on the 14.5-inch size because a) it would be easy for me to transport in a small car; b) it would be easy to set up and break down on a solo observing jaunt; c) it would store easily under a work table in the back basement room; and d) it was the largest 'scope I could get that didn't require a ladder for access to the eyepiece when pointed at the zenith.

I ordered the basic telescope with the SiO<sub>2</sub> coating on the primary, the enhanced dielectric MgF coating on the secondary, and a Telrad finder. The order price was \$1744, including a \$50 packing charge. A deposit of 20% secured the order.

By February, 1989 the telescope was nearly complete. I paid the balance on the bill and waited for a clear night in Colleyville so Bob Combs could start it. After several weeks the night came and it was determined that the tubing for the truss work needed to be shortened slightly, so new tubes were made. Finally, in late March, the 'scope was shipped. This size telescope comes in four cartons which can be delivered by UPS second-day airfreight. Delivery charges amounted to \$110, but everything came in good shape.

My 2-1/2 year old daughter delighted in helping me unpack the cartons. One box held the truss tubes, another held the mirror, one contained the headpiece with installed secondary, and the last held the nested mirror and rocker

boxes. All were meticulously packed. Assembly of the telescope was very straightforward. The mirror fitted into its 9-point flotation cell snugly but not too firmly. The lateral adjustments were set just right at the factory. The struts and headpiece went together very smoothly, and the telescope proved to be in very good collimation right off the bat! Strips of lead were provided to attach to the bottom of the mirror box for counterbalancing, and since I use a Nagler 13mm it needed this. Three strips were provided, but one more has proved necessary, and is being shipped.

After repeated assembly and disassembly in the basement, a clear night finally came and so on April 1st (UT) we trundled off to C. M. Crockett Park near Warrenton, Virginia for "first light". We arrived in darkness, but assembly of the 'scope proved to be very easy, and 10 minutes after arrival the big moment was at hand. I tweaked the collimation for a few minutes, then swung the scope over to Orion and M42. Despite a wind that was gusting to 25 MPH, the Great Orion Nebula wafted into view in the 32mm Wide Field eyepiece with magnificent swirls and loops of dark material. In the Nagler the E and F stars of the trapezium were easy to see despite the bad seeing conditions. The 'scope proved to be very stable in the wind, and a growing crowd gathered as we observed M81 & 82, M51, the supernova in M66, and a host of galaxies in the Virgo Cluster. Moving up to Come Berenices, the edge-on NGC-4565 was a dramatic sight, looking for all the world like it does in its photographs. We swept up a number of faint galaxies nearby, then moseyed over to the Coma Cluster. In my 8-inch I had seen NGC's 4874 and 4889 on several occasions, but only those two; in the 14.5-inch a field of at least 15 galaxies surrounded these brighter ones!

Performance on stars was very good, considering the conditions. Epsilon Bootis was easily split, and Zeta

Bootis divided cleanly. Stars at the edge of the field showed some coma, but this was to be expected in an f/4.5 instrument. Pinpoint star images made M13 a truly remarkable sight.

Since that night I have had a few more sessions in dark skies with the telescope. I have found it to be as easy to use as my trusty 8-inch, but far more enjoyable. It is very stable, even in windy conditions, and it moves very smoothly and precisely with no backlash.

The Telrad finder is growing on me; I'm even considering removing the 6X30 from the 8-inch and bolting on a Telrad bracket. I am planning to modify the circuit somewhat to blink the reticle since this will help to center up faint stars, but all in all I like the concept. Perhaps the most convenient feature of the Telrad is centering it after installation; 3 thumbscrews on the back allow it to be sighted in a matter of seconds.

The telescope is finished very nicely. The boxes and end rings are made of 3/4-inch birch veneer furniture-grade plywood, and the side supports and base are double thickness. All exposed wood surfaces have been sanded and varnished several times, and clear Varathane has been applied to render the wood virtually waterproof. The corner joints are very smooth with angle aluminum brackets installed to anchor the truss members. The mirror box nests inside the rocker box for transportation and storage, and so far I have left the mirror installed for transport and found little change in collimation and no ill effects. A nicely finished cover inserts over the top of the mirror box to keep dust, fingers, nuts and bolts out.

The headpiece is very lightweight, consisting of two plywood end rings framed by aluminum tubing and wrapped with a thin sheet aluminum light shield. The 4-vane spider is made of tensioned sheet aluminum an-

chored to the frame tubes, and the secondary support is fully adjustable in all directions. The secondary mirror itself is attached with silicon sealer to a hardwood dowel that rests on the adjusting screws in the aluminum support, and a small steel rod has been inserted through the upper end of the dowel to prevent the mirror from falling out should the screws be loosened too much. While I would have preferred that this support rod be made of aluminum, the wooden dowel has not suffered any problems from moisture and so I suspect is perfectly adequate for its purpose. I use an old well-washed cotton sock to slip over the secondary when the 'scope is not in use. The eyepiece holder is a low-profile helical 2-inch mount bolted to a plywood block that is firmly attached to the end rings and braced by one of the frame tubes.

The truss members are 1.25-inch diameter aluminum tubing with precisely flattened ends that are drilled to just clear a 5/16-inch bolt. As best as I can tell, the tubes are exactly the same length and have their holes precisely drilled, making them fully interchangeable. They fit together snugly and there is no sign of vibration even before the bolts are tightened. 5/16-inch hex nuts are provided, however I have replaced the nuts for the mirror box with wing nuts. They are much more convenient to use, and I would use them on the upper end as well except that there isn't enough clearance between the brackets and the inner end ring. This is a minor inconvenience, but one that I can live with.

There are a few things that need to be addressed, however, that would really make this telescope perfect. The primary mirror needs to be "spotted" at the factory. I dread doing this job myself because I don't like messing around with sticking things on a good optical surface, but it is necessary for good collimation. Carrying handles should be installed on the rocker box to facilitate lifting the nested mirror

box/rocker assembly. Small Teflon pads should be installed inside the rocker box under the altitude cutouts to center the mirror box and avoid marring its finish. Another block of wood needs to be installed on the headpiece to mount the finder; right now the Telrad is flimsily bolted to the thin sheet aluminum of the light shield, and a few late-night bumps might begin to seriously dent the shield. I have suggested to Bob Combs that he look into offering accessories such as a bolt-on eyepiece tray and a bolt-on dolly to move the scope around at home or at the observing site.

But all in all, I am very well satisfied with Sky Designs' product and workmanship. The telescope is everything I wanted it to be, and very portable as the advertising literature suggests. For the price you get a very fine set of large-aperture optics in a very functional and attractive package that should take years of use. It was well worth the 8-month wait.

### OPTI-CLEAN Update

by Bob Ridgley

Bradford Laboratories Inc., the company which manufactures OPTI-CLEAN Polymer, has relocated its facilities to 234 East Caribbean Drive, Sunnyvale, California, 94089 (telephone 408-745-0185).

If you plan to use this product to clean mirrors larger than 8-inches in diameter be sure to apply a thick layer of the liquid polymer. This will assure that the entire area of the film will release from the mirror in one piece. I have found that a thin layer, which is adequate for small diameter optical surfaces, will tend to tear when subjected to the tension necessary to detach the film from the larger surface.

If you have problems please contact OPTI-CLEAN. They are interested in developing the best possible product and will appreciate the feedback.

### Thousand Oaks Optical Solar Filters

by Barry Simon

With solar activity being high, more people are becoming interested in solar observing. For basic sunspot observing, the amateur astronomer has a few safe options including: a) eyepiece projection to a screen, b) direct observation using a mylar filter, or c) direct observation using an Inconel filter (nickel-chromium plated glass). For those especially interested in photography of a natural yellow-orange sun, the Inconel filter option is best.

For the overwhelming majority of telescopes, both commercial and home-built, Thousand Oaks Optical of Farmington, MI is the one source for Inconel type filters. Their nickel-chromium filters are available as Types 1, 2 or 3. Type 1 is the standard nickel-chromium filter, Type 2 has a stainless steel over-coat for additional durability and Type 3 is for photographic use only (it is not as dense, allowing for shorter exposures). These filters come mounted in a one piece machined aluminum cell (brushed aluminum that looks like it could be a part from a DeLorean automobile). These filters come in a variety of sizes for telescopes from 2.4-inch aperture up to 14-inch aperture. Current (4/89) pricing ranges from \$44.00 (2.4") to \$149.00 (14-inch) for a Type 1 mounted filter. The prices seem quite reasonable when I compare the price of a 4" Meade Inconel filter purchased in 1984 for \$110.00. The current price from Thousand Oaks would be \$54.00 -- half price, five years later.

I recently acquired a Type 2 filter for my 2.4-inch Unitron refractor. While I have a Meade Inconel filter for my 4-inch Meade Schmidt-Cassegrain, sharp focus with the S-C is harder to achieve than with a good long f-ratio reflector. I felt the Unitron would be a better photographic scope. My 2.4-inch filter in a 3.2-inch diameter alu-

minum cell arrived well packed and in excellent condition. The two layers of black felt on the inside of the cell made it difficult to get the filter onto the dew shield of my refractor. I removed one layer of felt which made the filter slightly too loose. The addition of three tabs of thinner green felt remedied the situation. Photo comparison tests of the 2.4-inch Thousand Oaks and the 4-inch Meade filters showed that they were essentially the same. I found that with the 2.4-inch filter my photo exposures at f/15 could be a bit quicker than what I had originally calculated. With ISO 100 film (Fuji slide film) the best exposure was 1/125th of a second. The photos I have taken so far are acceptable. I have seen no filter aberrations or defects.

In summary I have to say that my experience with Thousand Oaks Optical has been good. I would recommend these filters to anyone.

### August/September Sky Sweep

by Kevin Jones

#### R.A. DEC. DESCRIPTION:

12561+3819 Cor Caroli, Double Star in Canes Venatici. Only slight color contrast. Mags 2.9, 5.6., distance 20".

13239+5455 Mizar, double star in handle of the Big Dipper. Mags 2.27, 3.95, separation 14.5". Also wide double w/Alcor.

13299+4712 M51, the Whirlpool Galaxy in Canes Venatici. Located below handle of the Big Dipper. Mag 8.7, bright interacting galaxy. Spiral structure easily seen.

13422+2823 M3, Globular Cluster in Canes Venatici. 6th mag. Bright & round; nearly the equal of M13.

14450+2704 Epsilon Bootis, double star. Magnitudes 2.7, 5.1. 2.9" apart. Colors yellowish-bluish. A pretty double.

15185+0205 M5, Globular Cluster in

Serpens Caput. 8 degrees S of Alpha Serpentis. Mag 6.2. A summertime showpiece!

15394+3638 Zeta Coronae Borealis, double star. 6.3" apart in PA 305, magnitudes 5, 6. Both stars have B spectrum.

16417+3627 M13, the Hercules Cluster. Wow. Mag 5.7. Almost 3-D appearance. Look for 11th mag galaxy NGC 6207 .5 degrees to NE.

17147+1424 Alpha Herculis, double star. Ras Algethi. Mags. var(3.0-3.8), 5.4. 4.6" apart, red-green.

17322+5511 Nu Draconis, double star. Mags. both 4.9; 62" apart.

17419+7210 Psi Draconis, double star. Mags. 4.6, 5.8. 30.3" apart. Fixed pair.

18109-2301 M20, the Trifid Nebula. Emission/reflection nebulae in Sagittarius. Emission portion (brighter part) has 3 dark lanes and surrounds the 6-component star HN 40.

18032-2422 M8, the Lagoon Nebula. Emission nebula in Sagittarius. Very bright! Envelopes open cluster NGC 6530.

18208-1610 M17, the Horseshoe/Omega/Swan Nebula. Emission nebula in Sagittarius. 6th mag. Looks like a swan to me.

18444+3940 Epsilon Lyrae, double-double star. Wide borderline naked-eye pair; each component itself a close double. Wide pair 207.8", close pairs 2.8", 2.3". All stars 5th or 6th mag.

18536+3302 M57, the Ring Nebula. Planetary nebula in Lyra. Annular shape quite pronounced. Central star very faint.

19307+2758 Albireo, Double Star. Beautiful blue-orange contrast. Mags 3.2, 5.4. Separation 34.6". Show object!

19591+2243 M27, the Dumbbell/Apple Core Nebula. Planetary nebula in Vulpecula. 8th mag w/ 13th mag central star. Large for a planetary. "Apple core" shape visible in small scopes.

20181-1232 Alpha Capricorni, double-double star. Alpha-1/Alpha-2 pair is easily naked eye, 376" apart, mags 3.5, 4. Alpha-1 has 9th mag companion, Alpha-2 has 11th mag companion, separations 32" and 59" respectively.

20466+1608 Gamma Delphini, double star. Physical pair, Stars mags 4.3, 5.1, 10" separation. Both stars yellowish; fainter tinted green.

20564+3142 The Veil/Cirrus Nebula, filamentary nebulae in Cygnus. Large and of medium brightness. Filters help.

20588+4420 The North America Nebula, emission nebula in Cygnus. Near Deneb. Extremely large with a low surface brightness. Use an RFT or giant binoculars. Try a UHC/Deep-Sky filter.

21041-1121 The Saturn Nebula, planetary nebula in Aquarius. 8th magnitude blue-green disk 25" across. 12th mag central star. "Saturn's Rings" may be seen in a 10" or larger scope.

22289+0032 Zeta Aquarii, double star. Central star of the "Water Jar" asterism. Binary, about 1.5" apart. Magnitudes nearly equal at 4.42 and 4.59.

22297-2050 The Helix Nebula in Aquarius. A large and rather faint planetary nebula, half a degree across. Nebular filters in a dark sky will really help.

00427+4116 M31, the Andromeda Galaxy. This object needs no description. Look for dust lanes and star clouds with moderate to large scopes.

01339+3039 M33, the Triangulum Galaxy. Low surface brightness!! Easy in giant binoculars, but as the power increases the visibility decreases. Use the lowest power possible.

02039+4220 Gamma Andromedae, double star. Wonderful double, golden/bluish-green contrast. 10" apart in PA 63.

02215+5708 **The Double Cluster in Perseus.** My two favorite objects. Visible to naked eye as a bright patch between Perseus and Cassiopeia. Peruse this wonderful starfield with binoculars for an unforgettable view.

The objects listed above with the coordinates underlined are some of the showpieces easily visible at the time of NVTM '89. All of them are sure to impress the lay-person who saunters up to your scope and says "Show me something!" Happy observing!

The results of the Beta Librae observing challenge seen here in the last newsletter are as follows:

about 50%: A shade of blue or violet

about 25%: White

about 25%: GREEN!

As you can see, these results aren't exactly conclusive. It is safe to say, however, that Beta Librae isn't red, orange, or yellow!

### Dark Skies Coming

*Reprinted from 4/1/89 Tucson Sun*

For those deep sky observers who are at the end of their ropes with lit up skies during bright lunar phases, help is coming soon. The Arizona Deep Sky Observers have come up with two proposals which are to be voted on in the Senate late this year. They are confident that at least one of the proposals will be approved. Both were approved in the House this winter. The two proposals are: 1) The sand blasting, priming and ultra black (flat) painting of the complete Lunar surface and 2) The shifting of the Lunar orbit to a more southerly orbit to completely exclude the Moon from sight from any location north of the equator.

Proposal #1 seems to be a "shoe in" in the Senate. Polls have shown that 72% of the Senate already approve. The

Proposal also appropriates moneys for maintaining the nonreflective surface until the year 2006. Phil Dawes of the Pontchartrain Astronomical Society says that he will get signatures on a petition to stop the project. To date he claims to have two signatures though one of the two is only initials.

Proposal #2 seems to be less likely to pass at least as proposed. It seems that the Senate may modify the proposal to read "the shifting of the Moon to a non-stable and more southerly orbit" in hopes that the Moon may escape orbit in the future. Therefore, the southern deep sky observers would only be inconvenienced for a few more years until the moon finally disappeared from view to all.

Both are expected to be signed by the President later this summer. So all you serious astronomers had better get ready for millions and millions of uninterrupted observing sessions due to begin by this winter.

[Editors note: Thanks to the Pontchartrain Astronomy Society for bringing this important news item to our attention.]

### NVTM 1989

*by Bob Ridgley*

The 1989 Northern Virginia Telescope Meet is fast approaching (Friday and Saturday nights, September 1 & 2). For the second year in a row it will be held in the C. M. Crockett Park in Fauquier County.

For those who attended last year we will be doing some things a little different this year. Because of heightened public awareness caused by the Neptune flyby, as well as better publicity for NVTM itself, we are expecting a much larger turnout than last year. Attendance last year, under cloudy skies, was estimated at about 300.

To help separate pedestrians from

cars parking will be as follows. Telescopes will be setup in the large grass field on the left side of the entrance road just past the gate house. Those who bring telescopes will be allowed to park their cars in this area. There will be plenty of room, this field is 10 acres large. All other visitors must park in the gravel lots at the end of the access road near the lake. If you arrive after dark please drive slowly and be very careful of pedestrians.

NOVAC will work in cooperation with the park to offer a refreshment stand. Coffee, soft drinks, and snacks will be available, as well as NOVAC tee shirts. Profits from shirt sales will go to the NOVAC treasury so please buy several for family and friends. The stand will be located at the far end of the upper parking lot. The Delaware Valley Astronomical Society may also have astronomical items for sale. They will probably locate their trailer near the refreshment stand in the upper lot. Portable toilet facilities will be provided by the park.

A slide show is planned, but the location has not yet been determined.

Be sure to bring a red flashlight; but please use it sparingly around the observing area. If you bring a telescope plan to arrive before dark and setup your equipment in such a way as to minimize any tripping hazards to visitors. Locate tables and chairs near you car and away from the telescope and from walkways. Leave plenty of room between cars and telescopes and try to park in rows to provide plenty of space for visitors to walk. Be sure to use liberal amounts of insect repellent (don't get it on you hands -- it has been known to soften the paint finish on telescopes).

Also, remember not to touch other people's equipment without their permission. Although we have never had a theft problem before, it goes almost without saying that you should not leave you accessories or equipment

unattended.

If you would like to volunteer to help please contact Jim Schaeffer or Blaine Korcel; their telephone numbers are on the cover of this newsletter. I will have plenty of membership applications available for anyone who wishes to join the club.

Come early, pack a lunch and or dinner, and enjoy the park and the skies!

### The Editor's Column

It has been a year (six issues, now I measure time in two month increments!) since I took on the responsibility of newsletter editor. As with most jobs it has good points and bad points. On the down side it, takes lots of time, running around, and sometimes it is just plain boring work. But it does have rewards. I have been able to get to know many of you in the last year. And that's an experience which I have and will continue to enjoy. Special thanks to those who have contributed articles, ideas, or just a word of encouragement. It is appreciated, and yes additional support is needed. Don't be shy about writing or suggesting an idea.

This is an exciting time to be a NOVAC member, especially if you are active in the club. This last year has seen NOVAC take some very significant steps in it's growth process. The officers are active and dedicated. The Board of Directors is providing real leadership and direction, and many of the members are very supportive.

There are, however, a large number of members who for one reason or another are not "active." That is, they don't attend meetings and or don't come to observing sessions. They do support the club with their dues, but

are missing many opportunities. If you haven't read JoAnne Archinal's article Why Join An Astronomy Club? I suggest that you take a minute and do so. If NOVAC is not responding to your needs speak out. Both the general membership and Board of Directors meetings are open to all. See you at NVTM '89!



All day long, a tough gang of astrophysicists would monopolize the telescope and intimidate the other researchers.

\$38.00.

**For Sale**, contact David Miller at 703-751-5712 after 6:00 p.m.: CELESTRON COMET CATCHER; 60mm reflector complete with: guide-scope; polaris equatorial mount; dual axis drive corrector; illuminated polar alignment scope; counterweights, and T-adaptor. Set-up for astrophotography, pictures available on request. Cost \$1,300.00, will sell for \$650.00.

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

### Advertisements

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

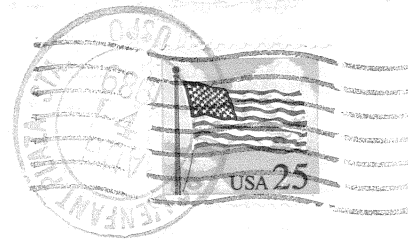
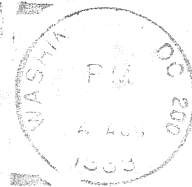
**For Sale**, contact Jim Schaeffer at 476-5624 (home) or 281-6363 (office): CAPS, baseball type, mesh back, adjustable, NOVAC logo, \$5.95 (you pick-up), \$7.75 (UPS ship); JACKETS, nylon/satin, NOVAC logo on front & back, elastic at sleeves, neck, and bottom, very good quality, sizes S, M, L, XL, \$34.95;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

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12/89 - \$0.00

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