

NOVAC

The Newsletter of the Northern Virginia Astronomy Club

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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:
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Programs At NOVAC Meetings *by Brent Archinal*

TELESCOPE MAKING!!! That's the topic for our summer meetings, starting off with a show of some wonderful homemade telescopes, and then a report on the telescope making convention.

Our July meeting is the big one for all you telescope makers and telescope purchasers! Our meeting on July 18 will feature Herschel Payne, one of the area's best amateur telescope makers, showing us three of his home made telescopes. Herschel will be presenting excellent examples of three types of telescope making, including a simple to build instrument, an instrument built from mostly commercial parts, and a well engineered completely homemade telescope (that you'll probably even need a machine shop to duplicate!). So if you've ever thought about building any sort of telescope, simple or complex, or you're considering buying a commercial one and want to know what features to get or add, make sure you make this meeting.

Our August meeting on the 15th will hopefully be full of reports from Stel-

lafane, the premier telescope making convention and one of the great east coast star parties. Kevin and Brenda Jones, Blaine Korcel, and Brent Archinal are all planning to attend this event on July 27-28, and will give us a fresh

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report on the convention (with slides fresh from the developing tank!).

In the past Stellafane has attracted two thousand or more amateur astronomers and telescope makers. Originally devoted only to amateur telescope making (and still claiming to be so by its organizers), it is now a grand convention of those who make and use telescopes! Hundreds of telescopes will be set up by the clubhouse on top of the historic Breezy Hill (to be made a National Historic Landmark some-

time in August) or in the campgrounds down below. Every type of instrument imaginable - and many imagined only recently - will be on display, as well as a large number of commercial instruments just brought along to do some observing. Friday night and Saturday will see a number of talks on amateur astronomy and telescope making, with Saturday's keynote address by Dave Levy - yes, the discoverer of that bright comet coming our way. Besides all this, there is the atmosphere of amateur astronomy and old friends and new everywhere you turn. So if you can't make it to Springfield, Vermont this month, at least make it to Arlington and our August meeting for this session on the oldest amateur astronomy convention of them all.

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 (703-256-8395) for schedule changes, cancelation, or leave a message to obtain further information.

The President's Column

by Blaine Korcel

Ladies, Gentlemen, and Astropups! It is once again that time of year to decide what we should do with our annual telescope meet, NVTM 90. I don't want to run it out to the last minute this year as I feel an early start will be rewarding in the end. Please bring your suggestions to the next meeting on July 18 and certainly no later than the August meeting.

Jim Schaeffer last year agreed to be our intermediary between C.M. Crockett Park and NOVAC. Let's not make him do all the work this year. At the meeting next month, I am going to instruct the Board of Directors to come up with some people to serve as a committee to help organize NVTM 90. I hope that they will have plenty of volunteers.

Off the cuff, some things which come to mind are slide shows for both nights, perhaps some speakers (prominent or not; HST seems to be a hot subject. Maybe we can get someone from the HST Institute to come out and speak.), the concession stand, fund raisers, donations from vendors for raffle in exchange for advertising, picnics before hand, and having loads of fun waiting for dark to arrive.

If the weather holds out for us, I think it'll be better than ever. Let's hope we get some good advertising coverage this year.

At the July meeting, we'll be able to get the business out of the way very quickly so that Herschel can tell us all about his telescope making ventures. From what I've seen so far, I think everyone will be very impressed. We'll get Herschel to build the NEXT HST! How's that?

We've added some new things to the NOVAC RBBS lately. Thanks to some generous users, we have been

getting some very nice reports from NASA on the developments in the U.S. space program, including HST. Since much of the U.S.'s attention has been focused on the HST, we've opened up an HST conference solely for the discussion of the project. Although it is fairly new, there are plenty of problems and discoveries to discuss. If you have a computer and a modem, feel free to join in. We welcome you.

In my final notes, I would like to find out who is going to Stellafane this year? There is a group of people heading up this year and it would be nice if everyone could try to be in the same vicinity at the camp site.

Well, that's about it. Hope to see you at the next meeting or observation and no confusing fire flies with meteors this time!

Clear skies,



Blaine Korcel
President, NOVAC

The Changing Face of Jupiter

by Bill Burton

Jupiter, with its conspicuous, ever-changing atmospheric features, is perhaps the most observable of planets for several reasons: it is large, it is an outer planet and thus potentially viewable at all hours of the night, and (most importantly) the planet rotates quickly.

Recently it has undergone several dramatic changes: the South Equatorial Belt (south is up in Jupiter diagrams) has virtually disappeared and the Great Red Spot is darkening again after years of pallid appearance.

Most of the action at this time, therefore, is in and around the North Equatorial Belt; besides the usual loops and festoons, observers have noted eruptions of white "rifts" in the NEB (Sky and Telescope, Jan. 1990, p. 94).

During Jupiter's most recent appearance in our nighttime skies I undertook a viewing program from the convenient vantage of our backyard deck with my 8-inch Newtonian. This telescope has a focal ratio of f/6 and thus is adequate, although not ideal, for planetary observing. For all observations I used a 7mm Nagler, giving a magnification of 174X. I made sketches of what I saw and noted the time and (very crudely) seeing conditions. Observations commenced in mid-November, 1989 at dawn and ended in late March, 1990 in early evening.

The purpose of this project was to note changes in Jupiter's features over time. For this rapidly rotating planet such comparative observations obviously require knowing what face of the planet is being viewed at any given time. I did not tailor my sessions in order to catch a given side of Jupiter but rather figured that over time I would probably see a certain face several times by random luck. I also thought that it would be a simple matter to compute which side (expressed as longitude of the central meridian) would be viewed at a given time.

However, the situation is not nearly so simple as that! It turns out that Jupiter has two rotation rates; one for the Equatorial Zone and the inner edges of the two equatorial belts--called System I, and another, slightly different one for the outer (poleward) edges of the equatorial belts and the rest of the planet (including the Great Red Spot), known as System II. Since Jupiter rotates almost two and a half times a day this slight difference quickly adds up. Fortunately, the Association of Lunar and Planetary Observers

(ALPO) publishes an ephemeris of the whole solar system, including central meridian longitude for Jupiter's Systems I and II at 0 hr. UT for every day of the year (an accompanying table makes it easy to interpolate between dates down to the minute).

Therefore, in this project two sets of comparisons had to be made, one for each system. To facilitate analysis I reproduced the sketches with the computer graphics in Hypercard, an electronic index-card program for the Macintosh, and strung together the cards showing sketches of similar longitude with "buttons" for each system.

Figure 1 (on page 9) shows sequential observations at different longitudinal zones: rows 1 and 3 are for System I and rows 2 and 4 show System II observations (some of the images are necessarily repeated.) Since the NEB is about the only active region (the prominent central dark band), the way to view these images is to compare only the top (actually southern) part of the NEB in the System I sequences, and the bottom (northern) part of the NEB and everything else in the System II images. The imperfect resolution of the computer graphics and the reduction and scanning necessary to fit the figures in the newsletter (*ed. note. not to mention the loss of resolution due to scanning*) probably result in the simulation of a typical, average telescopic image, given the uneven seeing conditions and the inadequacies of the optics (where's my Astro-Physics refractor?) Observer error may also explain some of the variation, since I'm no Don Parker.

Nonetheless, it is apparent (I hope) that some of the prominent features such as the low projections and loops have a life of at least several months, with minor variations. I also observed some "white rift"-like events, as seen in the December 28 and March 13 images, which soon disappeared. The occasional black dots in the South

Temperate Zone represent shadows or actual bodies of one or another of the Galilean satellites. (*ed. note., Unfortunately, between scanning on a Macintosh PC at work and copying it to my IBM PC at home, I cannot be sure of the quality of the image at Newsletter production time. If it is real bad, Bob Ridgley will have inserted a photocopy instead. Sorry Bill!*)

Planetary observers are waiting with suspense to see when and how the South Equatorial Belt will reappear. Several of the images here apparently show it beginning to do so, but these apparitions are short-lived. Perhaps as Jupiter returns to our night skies this fall we will find the answer!

Starboy Interview

by Lynn Schumann

STARBOY: Thanks to your gentle urging, your husband put together an antenna for NOVAC's first radio telescope. Would you tell us a little bit about it?

SCHUMANN: Well, in essence it is a 21 MHz device which, when aimed at Jupiter and hooked up to a short wave radio, will receive emissions from the planet. Radio waves from Jupiter sweep around the sky in much the same manner as the rotating beam from a lighthouse. When the beam from Jupiter passes Earth, it can be heard through the radio as a wooshing sound -- like waves rushing up the beach -- perhaps at a rate of three or four times a second.

STARBOY: How frequently does the beam contact earth?

SCHUMANN: Unfortunately, it is not continuous. The beam has a rotation period of about six hours, but there is no accurate way to measure just when it will be audible. In fact, sometimes Jupiter isn't "transmitting" at all. So, like every other aspect of astronomy, a great deal of patience may be required.

STARBOY: How is the antenna constructed?

SCUMANN: First, take a 66-inch length of heavy duty copper wire and form it into a 21-inch diameter loop. Keep the ends of the loop separated by an inch or two. Also needed is a two foot by two foot square section of wire grid -- chicken wire for example. Using sticks or dowels, secure the copper wire loop 12 inches above the wire grid. I suggested to Al that he use a wooden backboard to provide rigidity for the grid and drill holes in the wood for the dowels. That way it wouldn't wobble, and the 12 inch distance would be maintained between the loop and the grid. With these dimensions the antenna is "tuned in" to Jupiter and the background noise is minimized.

STARBOY: How do you connect the antenna to the short wave radio?

SCUMANN: Coaxial cable, 60 - 75 Ohms. You need to separate both ends of the cable, which is no day at the beach by the way. Connect one end of the center wire to the loop and the other end to the antenna of the radio. One end of the shielded part of the cable goes to the grid, the other end goes to ground on the radio. We used alligator clips on both ends of the cable. It would probably be more effective to solder the cable ends to the loop and grid and use clips on the radio end.

STARBOY: And that's it?

SCHUMANN: Well, then you point the antenna towards Jupiter. Also tune the radio to a quiet spot on the dial between 18 and 21 MHz. Then, just sit back and listen. Of course, you have to re-aim the antenna every now and then. Furthermore, light pollution is no problem, so the system can be used right in your back yard. As long as you can see Jupiter, you're in business.

STARBOY: Now for the big question. Why a radio telescope?

SCHUMANN: Two reasons. First and foremost, chicks. I am...

STARBOY: Chicks? You mean women?

SCHUMANN: Absolutely! As I was saying, I am terribly concerned about the frustrating love lives of some of our young bachelors. I guess it's the grandmother in me. I love these boys to death and I want only the best for them.

STARBOY: Please elaborate.

SCHUMANN: Women today are a lot more knowledgeable and sophisticated than ever before. Let's say you're chatting with a young lady while nibbling canapes at a party. You mention optical telescope and visual observing and such. In her lexicon, those words mean frozen fingers, toes, buns and no place to pee. She will most likely ask for another glass of chablis. When you get back with the wine, she's long gone; a budding relationship is history.

STARBOY: That's a good point, tell me more.

SCHUMANN: Radio Astronomy, on the other hand, is still new and exciting to most people, and it captures the imagination. You know, E.T. and all that.

STARBOY: Yes, Close Encounters, Star Trek, Alien...

SCHUMANN: You got it, Sonny. Suppose you're at that same cocktail party, but now you casually mention that you are taking part in a scientific search for intelligent life elsewhere in the universe, and that you are currently receiving and studying radio signals from Jupiter. Don't forget to say that you operate your radio telescope from the comfort and conven-

ience of your own home. Get the idea? When you come back with the wine this time, she'll be there.

STARBOY: Sounds like it's worth a shot. What is the second reason?

SCHUMANN: NOVAC needs to keep up with the times. We have to broaden our horizons -- no pun intended -- and hit the 90's on the run. Jupiter is only a start. There are quite a few other radio telescopes which can be built in your own workshop to monitor the sun, meteor showers and other activities. A good place to start is the NOVAC Library. We have a good book that shows a number of different radio telescope designs and functions. Above all, please remember that radio astronomy is not a substitute for visual work; it is a complement. In fact, one could set up a radio telescope and still observe visually at the same time. What could be better?

July/August Sky Sweep

by Kevin Jones

This issue's celestial tour will begin with a collection of globular clusters best seen during the summer months.

Globular clusters are roughly spherical aggregations of about 100,000 stars and are, on average, 200 light years from edge to edge. Most globular clusters appear quite similar to each other through the telescope. The primary differences of size, brightness, and resolution of the stars in the cluster are contingent on the distance of the cluster. The resolution is also affected by one other component -- the richness of the cluster. Globular clusters are classified by their degree of concentration on a scale from I to XII, with class I being an incredibly rich globular cluster, VI being average, and XII being a very loose cluster.

To begin the tour, start by finding M3 in the constellation Canes Venatici. M3 is one of the best and brightest of

the globular clusters in the entire sky, shining at sixth magnitude. The individual stars of M3 are 11th magnitude and fainter, so resolution is easy to achieve with amateur telescopes. The concentration class of M3 is VI.

From M3, move the scope across Bootes and Corona Borealis to the "Keystone" of Hercules. Along the west side of the Keystone is the legendary globular M13, the Hercules Cluster. M13 is extremely bright for a globular cluster at magnitude 5.7. Its stars, like M3's, are 11th magnitude and fainter. This cluster gives me a three-dimensional appearance when I view it with a wide-angle eyepiece; it looks like a pile of sugar crystals on the black backdrop of the sky. The Hercules Cluster has a concentration class of V. While observing M13, you may want to take a look at the 12th magnitude galaxy NGC 6207 quite nearby.

Moving south through Hercules and Serpens Caput you will come to the third of the "Big Three" globular clusters in the sky visible from the middle latitudes, M5 in Serpens Caput. M5 glows at magnitude 6.3, and also has 11th magnitude and fainter components. Its concentration is class V.

Moving east from M5 into Ophiuchus, you'll run into the region which I call the "Realm of the Globulars." In Ophiuchus, the brightest globulars include: M12, an 8th magnitude cluster, concentration class IX; M10, a 7th magnitude cluster, class VII; M14, 9th magnitude and class VIII but hard to resolve with stars 15th magnitude and fainter; and, near Scorpius, M19, a 7th magnitude cluster which is very hard to resolve with the brightest stars at 16th magnitude, concentration class VIII.

Journeying south into Scorpius there are still many globulars present. The best three are M62 (magnitude 6.5 and class IV), M4 near Antares (magnitude 7.4, class IX), and M80 (8th

magnitude and very rich at class II). M62 is unusually elliptical, with the major axis oriented in PA 75 degrees. M4 has a strange central bar-like feature which is surprisingly easy to notice. This bar is actually a string of 10 11th magnitude stars oriented toward PA 12 degrees.

Well, are you about globular-ed out? The summer Milky Way in Scorpius and Sagittarius provides many deep-sky objects to view other than globular clusters: star clouds, bright diffuse nebulae, sooty dark nebulae, and many open clusters of stars. Briefly, among the best (moving roughly up along the Milky Way) are: M6 and M7 in the tail of Scorpius, very bright open clusters; M8 and nearby M20 in Sagittarius, the Lagoon and Trifid diffuse nebulae; M21 and M23, two open clusters in Sagittarius; the string of M24-M18-M17-M16 in Sagittarius, M24 being a star cloud, M18 an open cluster, M17 the Omega nebula, and M16 another open cluster; and rounding out the sky sojourn with M26 and M11 (the Wild Duck cluster), two open clusters in Scutum.

Clear skies and happy observing! Let's hope the haze clears out during the new moon!

Charting Your Course

by Al and Lynn Schumann

We get a lot of questions from budding amateurs about star charts and publications which are helpful out in the field. The array of available books and charts can be somewhat mind boggling, so we narrowed things down to cover the basics. We figured a newcomer to the hobby would need something for planning a night's activities while at home, and a couple of simple documents for use at the telescope. No attempt was made to take a scientific approach; our selections are strictly subjective and based on what has worked well for us.

1. The Messier Album, Mallas and

Kreimer, Sky Publishing Corp., 1978. Costs about \$15 or so. Most everybody wants to start with the Messier objects as they are relatively bright and popular. It gives one a big boost to see the Ring Nebula, the Crab, etc.. Photos and drawings of each object. Excellent finder charts.

2. **Guy Ottwell's Sky Calendar.** Good single source document for what's happening all year long. Sky charts for each month with suggested viewing items. Details on planets, comets and asteroids. Published yearly, costs \$15.

3. **The Universe From Your Backyard, Eicher, Kalmbach Publishing Corp., 1988.** Available through Astronomy Magazine. Costs \$30. It's a beautiful book which shows you what's what in each of the constellations. Good finder charts. Worth the money for the photographs alone.

4. **The Edmund Sky Guide, Dickinson and Brown, Edmund Scientific Co., No. 9535.** It's a 36 page pamphlet, but for my money it is the very best little book for the novice. Very simple sky charts that will really help you find all the Messier objects and much more besides.

5. **MAG 6 STAR ATLAS, Dickinson, Costanzo and Chaple, Edmund Scientific Co., Book 9611.** This one is a bit more detailed than the Sky Guide listed above. Real nice charts for the Coma and Virgo galaxy clusters as well as the wonderful objects in Sagittarius and Orion. Easy to use, and probably the best field guide available.

6. **ASTRO CARDS.** Essentially, these are finder charts on 3 X 5 inch cards. One side of the card shows the constellation with a good guide star. The other side gives an expanded view which pinpoints selected NGC/Messier objects and double stars. Super handy for use right at the eyepiece. Sets of cards cost \$7.50 per set.

The above should do the trick in pre-

paring for a night out and also to help you find your way around when you're out there.

Every Picture Tells a Story

by Geoff Chester

The word was out. The best comet of the last two decades was wending its way to the inner solar system for a wonderful Spring apparition that, for a change, favored us North Americans. Even Brian Marsden, in a carefully worded IAU Circular, expressed optimism that this would be a good show. Having not put the sky on film for about a year and a half, I was psyched for some good shooting.

After the passage of Comet Liller in 1988 I had put the camera away, trying to make the most out of my precious "dark-sky" time for visual deep sky observing with my new 14.5-inch reflector. However, the prospects of a first or second magnitude comet passing high in the morning sky was too much to pass up...so I began to reassemble the astrophotography setup.

Then the wheels began to come off. Something wasn't "right" with the comet. I got my first fleeting glimpse of it on February 21 and estimated its brightness at around 7, about three magnitudes fainter than the current prediction. It was also a very diffuse blob, with no central condensation typical of active comets. However, it was still several months from perihelion and even at this rate it would be brighter than Comets Bradfield and Liller, which were very photogenic.

Next came the onset of a Washington, DC springtime. The weather went crazy, with summer-like temperatures in March and arctic blasts in April. And clouds...dense ominous rain clouds one day followed by thin mare's tails the next. While others revelled in the balmy air, I cursed the elements under my breath. One March evening a cold front raced through the area promising clearing skies and a good

chance to get a picture. I packed all my gear into the car and headed west to Rixeyville, Virginia, 65 miles away. The closer I got to the Blue Ridge the more my hopes sank as thick, roiling clouds billowed over the mountains. I pulled into my observing site and watched the sky become completely overcast. Skunked again!

April 21 was a rainy Saturday, which normally wouldn't bother me save for the fact that this particular day was the date of my Earth Day Star Party at Oatlands Plantation near Leesburg, Virginia. I drove out in a rain shower to the plantation and found an eager audience of 50 waiting for the observing to begin. Since it was still cloudy I set up a slide show in the barn, only to discover that my tray full of light-pollution slides was switched with that of my Mauna Kea observing run. Fortunately, the sky cleared and we set up telescopes in the pasture. The viewing was great until about 1 AM, when clouds rolled out of the mountains again. I pitched my tent and sacked out for a couple of hours, intending to rise at 4:00 AM and view the comet. Well, my alarm didn't work, so I finally stirred at six. It was too bright to see Austin, but the sky had cleared and the morning line-up of planets provided several good targets for me and a half-dozen other early risers.

The morning of April 24 found me up at 3 AM, slurping down a cup of coffee as I headed south on the George Washington Parkway towards Mount Vernon. I stopped at several potential observing sites before unloading at Riverside Park, a picnic area about a mile north of Washington's estate.

No sooner had I started setting up my gear when a van pulled into the park, high beams blazing. I finally persuaded the driver to douse the lights, then found myself dealing with a somewhat inebriated lady who wanted to see the comet there and then. Trying to explain the mechanics of rising and setting, light pollution,

weather, etc. got me nowhere, but she finally got bored and drove off.

I got back to setting up my gear when another even brighter bank of lights bathed me and a gruff voice told me that I had to move. It was the Park Police, making their early morning rounds to open the gates to the picnic area. At least this way I could set up closer to the river and a bit further away from the road, so I dismantled everything and moved about 100 yards into the parking lot.

Venus and Mars were peeking over the horizon when I finally found Austin in my binoculars. It was a small, greenish fuzzball with a hint of a tail...not a very inspiring sight at all. For the third time that morning the telescopes were assembled, polar aligned, and sighted on my quarry. Finally it was time to start shooting, and I figured that I had just enough time for one exposure. I switched on the drive corrector...no response! A wire had worked loose from all of the morning's rough handling.

The next lunation came and went with weather that would have frustrated Lord Rosse. Gorgeous clear days were invariably followed by nights of high clouds. My wife complained that I was the only person in the metropolitan area cursing the weather, and I began to question my own sanity. There were several false starts, evening commitments, and family obligations which kept me "grounded" for most of May, but I had purposely cleared my schedule for the week of the 21st in hopes of catching Austin at its closest approach to earth. It rained the entire week.

May 30th dawned clear and cool; the wet weather pattern had finally been dislodged. The forecast was for record cold temperatures that night, with clear skies predicted for the next 72 hours. I checked all of my equipment, packed the car, waited out the rush hour, and headed west on I-66 for

Rixeyville. As I approached the mountains, the deck of high, thin clouds that I'd first noticed several hours before began moving towards me. I pressed on...this would be my only night to try for the comet before the Moon came back, so I had to persevere. I arrived at my site as twilight settled over the Blue Ridge, filtered by the wafting cirrus. A friend joined me, and we sat back, eating fresh strawberries, sipping coffee, and watching the clouds grow thicker. I decided to stay, and proceeded to set up telescopes and camera.

I have a permanent pier set up for the telescope at the site, protected by discarded apiary boxes. This discourages curious humans, but the timid woodland creatures find it to be a very attractive home. As I opened the box, a family of field mice peered up at me from the wedge. I shooed the mice away and reluctantly dismantled their snug home knowing they'd be back in a day or two to rebuild.

A few "sucker holes" appeared in the clouds, and through one of them I got my fist peek at the comet with my binoculars. It was directly between M16 and M17, a perfect "photo op"! I started an exposure and began to guide. After about ten minutes, the guide star took off like a rifle shot. Counterbalancing my setup has always been tricky, and this time I hadn't taken the necessary time to do it well. When I finally got it under control, the hole had closed.

At last, at about 2:30 AM, a clearing trend began. I began another exposure and guided perfectly on the stars without a glitch. After 20 minutes, I closed the shutter and prepared for the next shot. I found a different guide star and re-focussed, then began what was planned as a 30 minute exposure through increasingly clear skies. About 20 minutes into that shot the guide star once again took off. After 15 minutes of tinkering I finally realized that the two drive motors weren't

running...my battery had run out of energy.

Despite it all, the two 20 minute exposures turned out very well. I spent the next morning in the darkroom processing and printing, and by the time I came out, I realized that I had finally achieved some success with this comet. It had been a long struggle, but the results were worth it. I'll probably take some parting shots of Austin next month, and Comet Levy now seems to hold some promise for the end of the summer. I just hope that I'll have better luck with the latter.

Events of Interest

by George Uhl

Once again it is time for Stellafane. The telescope conference is held on July 27 and 28 in Springfield, VT. If you are planning on going, maybe you should contact other NOVAC members and form a convoy for the trip. Blaine Korcel, Brent Archinal and Kevin and Brenda Jones are going for sure. But make your plans soon, before all the hotel, motel and camping spots are gobbled up.

Speaking of Stellafane, Geoff Chester is conducting a "Blue Ridge Stellafane" at Sky Meadows Park on Saturday, July 28 at 8:30 p.m. which is open to the public. All telescopes are welcome. He has also scheduled public stargazing programs for September 22 and October 28. There will be no program during August as Geoff will be at the beach in North Carolina. No doubt he will bring his telescope and do some observing at the shore.

Bill Burton's NOVA Astronomy Class is up to it again. Apparently, the last overnighter to Big Meadows was clouded out and he has since rescheduled it for Saturday, July 21. If you wish to go, contact Bill at home 860-0958 or work 648-6904 and he can tell you where the class will meet and set up in Big Meadows. The next class overnighter will be on Saturday, Sep-

tember 14 (cloud date September 22). Bring your telescope!

Blaine Korcel will be hosting a public skywatch on Friday, July 13 at Burke Lake Park. Additional telescopes are definitely welcome. Contact Blaine for further information (256-4430).

Brent Archinal will be hosting the next NOVAC Executive Meeting at his house on August 9 at 7:30 p.m.. Key topic for the meeting will be the planning of the Northern Virginia Telescope Meet. Contact Brent at home (448-7466) for directions and further information.

REDLICH OPTICAL has moved to a new location. Their new address is 711 W. Broad St., Falls Church, VA 22046. Call (703)241-4077 for all your astronomical needs.

NOVAC Tidbits

by Bob Ridgley

NOVAC membership is now at 102. Of that number 88 are active, 1 is past due, and 13 are complementary. The amount of your dues and the membership expiration date are listed in the upper left hand corner of the mailing label. If it is highlighted in red this will be your last issue! So please take a minute to check the status of your dues. If you are past due, send a check to me as soon as you can. To those of you who's membership expires before the end of the year please consider paying the amount shown. This will help with both bookkeeping and with planning the club expenditures thru this year. As of July 8th. the NOVAC treasury contained \$1,164.26.

We would like to welcome the following people who joined the club since the last newsletter issue:

Joe Edge
Bill Cassels
James Kenny

Bernard Van Order
Richard Hamby
Ray Young

June 1990 NOVAC Meeting Minutes

by George Uhl and Brent Archinal

Last's months NOVAC General Membership Meeting was held on June 20 at the Arlington County Planetarium. Brent and I have included the meeting's minutes for your interest.

The meeting was opened by President Blaine Korcel at 7:38 PM. George Uhl agreed to serve as acting secretary and to take minutes of the meeting in the absence of Secretary Al Schumann. The minutes of the previous meeting were read and approved.

Under old business, it was announced that the program at PrimaVera had been cancelled and had not been rescheduled as of yet.

Under the topic of new business, several announcements were made as follows:

- Bill Burton was holding a program for his NOVA Astronomy class at Big Meadows on June 23 (*ed. note., rescheduled to July 21*). Volunteers are welcome to attend.

- Geoff Chester's programs of June 30 and July 28 at Sky Meadows Park were announced. Again, volunteers are welcome to attend the July program.

- Stellafane will be held July 27-29 at Springfield, Vermont. Brent Archinal, Blaine, and Kevin and Brenda Jones will be attending. George Uhl is a definite maybe.

- Blaine drew attention to a brochure he had on seeing the 1991 Siberia solar eclipse at a price of only \$3500.

- Brent described several new publica-

tions, including the periodical The Practical Observer, the book "Observing Variable Stars" by David Levy, and the star charts "Bright Star Atlas 2000.0."

- Brent also announced that Herschel Payne will be discussing telescopes he has made and telescope making in general at the July NOVAC meeting.

- Brenda Jones announced her family will be at Snow Mountain for camping and observing on June 22 and 23. Anyone interested in observing there should contact her.

- JoAnne Archinal announced a new exhibit, "Trust but Verify," at the National Air and Space Museum, which includes on display a U.S. Pershing II missile and a Soviet SS-20 missile.

- Laurel Wanrow announced her astronomy program at River Bend Park on July 14.

The meeting adjourned at 7:58 PM. Blaine then gave a talk and demonstration on the NOVAC BBS system which he operates.

Minutes taken by G. Uhl, June 20, 1990. Typed and edited by B. Archinal, June 28, 1990. Further edited by G. Uhl, July 7, 1990, for enclosure in the Newsletter.

Advertisements

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

For Sale, contact Bob Ridgley at 681-0286 (home) or 287-3441 (work): official NOVAC logo tee shirts. Available

in black or white, sizes: S, M, XL, price \$9.95. All profit goes to NOVAC.

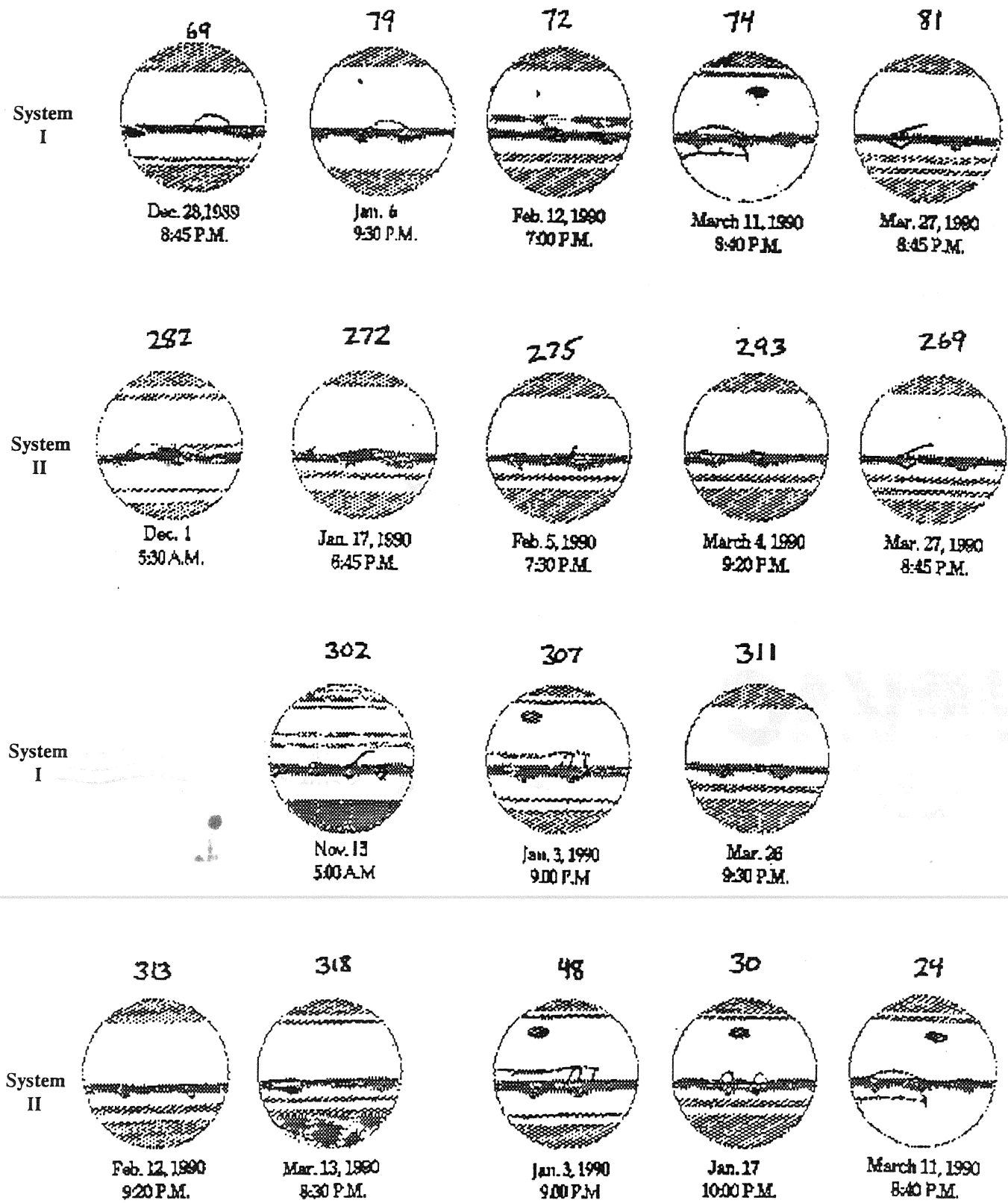


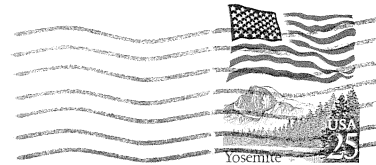
Figure 1
The Changing Face of Jupiter

Central Meridian Longitude above each image, time below and system at left

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



12/90 - \$0.00

Bill Burton
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