THE NOVAC CORONA

THE NORTHERN VIRGINIA ASTRONOMY CLUB NEWSLETTER

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UPCOMING EVENTS

Club Observing Dates	Monthly Meetings
January 15,16,22,23	January 20
February 12,13,19,20	February 17

1993 Annual NOVAC Meeting - January 12

Annual NOVAC Meeting

The 1993 annual meeting of the Northern Virginia Astronomy Club (NOVAC), a non-profit corporation, will be held at 7:30 PM, Tuesday, January 11, 1993, at the home of Brenda Jones, 883 North Kentucky Street in Arlington, Virginia. Members interested in attending should contact Brenda at 703-527-7963 in advance.

NOVAC is a non-profit corporation dedicated to the promotion and education of astronomy to all interested persons and parties. NOVAC pledges "to observe and help others observe."

Upcoming NOVAC Meeting Programs

by George Uhl

If you have any interest in astrophotgraphy or digital image processing, you won't want miss the January NOVAC General Membership Meeting on Wednesday, January 20 at the Arlington County Planetarium. NOVAC President and ALPO observer, Myron Wasiuta, will present a talk on charged-coupled device (CCD) image processing.

CCD cameras capture light and convert it into digital signals. These signals are then sent to a computer or other device that reassembles the digital signals into a picture that can be displayed on a computer or TV monitor. Like film cameras, CCD cameras are attached to the telescope and take exposures of celestial objects. CCD cameras are very sensitive to light, much more so than film, and as a consequence can take very short duration time exposures. Sophisticated CCD cameras can relay images of objects in the telescope's field of view, in real-time, to the astronomer who observes the image on the computer or TV monitor. Thus the astronomer can freeze and capture digitized images of celestial objects and do a whole night's observing without ever directly looking through an eyepiece. This is the technology used by most professional astronomers to make observations in the visible light spectrum. Be sure not to miss this meeting!

As of the publication date of this edition of the newsletter, no presentations have been announced for the February meeting. The topic and speaker will be announced at the January General Membership Meeting, however.

The monthly meetings of the Northern Virginia Astronomy Club are held on the third Wednesday of every month at 7:30 P.M., 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 upcoming events, special announcements, or to leave a message in order to obtain further information.

NOVAC Election Results

NOVAC held elections for Club Officers and 2 seats on the Board Of Directors during the December 1992 General Membership Meeting. The results of the elections are as follows:

President - Myron Wasiuta

Vice President - George Uhl

Secretary - Bob L'Hommedieu

Treasurer - Brenda Jones

Board Of Directors - Bob Ridgley and Tom Parry

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Departing from the Board Of Directors are former NOVAC President Blaine Korcel, and long-time member Bill Burton. NOVAC thanks these two gentlemen for their services rendered on behalf of the club. Blaine will continue to operate the NOVAC computer bulletin board.

The other members of the B.O.D. who will continue to serve their terms through 1993 are Steve Bodner, Sikander Daryanani, Enid Levine.

NOVAC Financial Statement For January 1, 1992 to December 31, 1992

by Brenda Jones, Treasurer

INCOME

Dues, renewals	1,369.00
Dues, new members	974.00
Donations for Concessions at NVTM'92	178.50
Interest on Checking Acct	12.80
Interest on Savings Acct	80.31
Donations to NOVAC for BBS	50.00
Donations to NOVAC	7.00
TOTAL INCOME	2,671.61

EXPENSES

Newsletter Printing and Postage	903.10
NVTM'92 Expenses:	
• Donation to Crockett Park	200.00
• Printing	80.80
• Portable Toilet	67.93
• Food for Concessions	72.56
• Door Prizes	22.86
NVTM'92 subtotal	*444.15*
Insurance	259.00
Incorporation Fees	202.27
Dues - Astronomical League	183.56
Phone Charges - Hotline	130.68
Printing - Applications, Welcome Letter, Letterhead	67.75
Postage - Welcome Pkgs, Observing Passes	65.73
Donation for BBS Expenses	10.00
Supplies - Checks	9.87
TOTAL EXPENSES	2,276.11

1992 FINANCIAL SUMMARY

Income	2,671.61
Expenses	(2,276.11)
NET GAIN	395.50
1992 Beginning Balance	2,822.57
Net Gain	395.50
1992 ENDING BALANCE	**3,218.07**

Pope Says Galileo "NOT GUILTY!"

by Al and Lynn Schumann

In a stunning October 31 announcement, Pope John Paul II cleared Galileo Galilei of heresy charges dating back 359 years. Mr. Galilei (1564-1642), world famous Italian astronomer, mathematician, physicist, and all round bon vivant found himself in hot water with the church when he maintained that the earth was not a stationary body, but one which spins on its axis and revolves with the other planets around the sun. He was directed by the Roman Inquisition in 1633, at age 69, to disavow his beliefs or lose his life. Senora Galilei did not raise any stupid kids, so he accepted the offer to live. However, according to legend, at the conclusion of his confession Galileo muttered under his breath, "E pur si muove" (Nevertheless it does move). He spent the last eight years of his life under house arrest.

All astronomers have a warm spot in their hearts for Galileo, since it was he who constructed the first astronomical telescope in 1609. With his very primitive instruments he was able to see the mountains and craters on the moon and noted the Milky Way was composed of individual stars. Of course, in 1610 he also discovered the four large moons of Jupiter: Io, Europa, Ganymede and Callisto. Chances are that studying the motion of Jupiter's moons and observing the phases of Venus helped Galileo deduce that the moons and planets are indeed in orbit about the sun. Polish astronomer Nicolaus Copernicus had reached a similar conclusion more than 100 years before Galileo's birth. The Copernican system was also denounced as dangerous by the church in 1616, many years after his death.

While we sometimes focus on Galileo's astronomical achievements, the fact is he was very busy in quite a number of other activities throughout his life. Originally, he received early training in medicine at the University of Pisa, but he became fascinated with mathematics and physics and dropped the study of medicine. Perhaps malpractice insurance was a problem even then. Among his early discoveries in the physical science arena involved the specific gravity of fluids and the effect of temperature thereon. As a note in passing, we happen to have a floating thermometer which is based on his findings; glass balls of different weights rise and fall depending on the temperature of the fluid in the tube. Also, Galileo discovered that the time of a pendulum's swing is the same regardless of the length of the arc. He went on to do experiments which proved that projectiles travel in a paraboiic arc, and one might say his work on bodies in motion set the stage for Newton's later discoveries. Sometime, legends have a way of becoming accepted as truth. Ironically, the one big experiment we all learned about in school involved Galileo's dropping objects of different weights from the leaning tower of Pisa. As you recall, the weights hit the ground at the same time. Galileo may have performed that experiment, but he wasn't the first. That honor goes to Simon Stevin, who performed the experiment several years before Galileo's work. Poor Stevin just couldn't put it all together. Close, but no cigar as they say. In time, Galileo put it all in place and discovered that acceleration is proportional to time and independent of both weight and density. With that, Galileo hit the big time and Stevin became a footnote! Actually, that's not fair, because Stevin, a Dutch engineer and mathematician made some significant contributions in his own right. Among them, the hydraulic press and the introduction of decimals into common usage.

Anyhow, a sad misunderstanding of 359 years duration has finally been corrected. A great figure in science has been vindicated, and we can all rejoice in the fact that, "Nevertheless it does move."

A Pilgrimage To Mauna Kea

by George Uhl

Hawaii. Just hearing the name conjures up images of warm tropical breezes, coconuts, surfers, pineapple fields, and volcanoes. Now imagine an alpine desert where it is dry 11 months out of the year, and it suffers storms that may dump over 10 feet of snow. Not in Hawaii you say? Wrong! This is the climate at the summit of Mauna Kea, a dormant volcano rising 35,000 feet from the ocean floor to its peak just shy of 14,000 feet above sea level. It is here that the largest optical telescope, the Keck 10-meter telescope, is just beginning its unprecedented exploration of the limits of the universe.

Why observe from Mauna Kea? Why not some remote mountainous desert in South America? The location of Hawaii at 20 degrees North Latitude, and its virtual isolation in the mid-Pacific Ocean give astronomers distinct advantages. The location allows observations to be made within all of the northern sky and most of the southern sky during the course of a year practically down to the horizon. Mauna Kea is the highest peak in the entire pacific region - nothing dominates its summit for thousands of miles. The impact of humankind's activities, such as air and light pollution, are minimized on the loosely populated island of Hawaii. In fact, 80% of Hawaiians live on the island of Oahu, well over 100 miles to the northwest. But the primary reason in using Mauna Kea over other remote locations is the "seeing". The trade winds create nearly flawless observing conditions for the observatories on the summit. It is almost always clear and the atmosphere is very stable.

My wife Julie and I had planned to be married on Maui in early November. We were then going to honeymoon on the Big Island (a.k.a. Hawaii), Molokai and Oahu. I had convinced her that a trip to the Big Island would require a visit to the Mauna Kea Observatories and the Keck Telescope in particular. All I had to do was to make sure I could find the mandatory 4-wheel drive to get us to the top. Brenda Jones recommended I contact a family friend, Peter Michaud, who heads the astronomy department at the Bishop Museum in Honolulu. I contacted Peter and he gave me some tips on my planned pilgrimage. One of those tips was to rent a Jeep from an agency that tuned their carburetors for the high altitude. He also warned of the engine conk-outs that could occur if I used a "tourist" rental vehicle.

Upon the first full day (Thursday) after my arrival on the Big Island, I called the recommended rental agency (I forget their name now) to rent a 4X4 for a one day. Unfortunately, all their vehicles were reserved. Worse, I wouldn't be able to get one until the following week. Did I panic? Yes! The next morning I drove to the airport to see if I could upgrade my rental compact to a 4-wheeler for a day. I went to each rental agency (their must have been 10 of them) and not one had a 4-wheel vehicle available for the weekend. As I walked out in disgust, an Avis representative called me over. Apparently someone turned their Jeep in early.

Yahoo, I'd take my chances with an engine stall-out!

The vehicle was an open-air Jeep Wrangler, but that was no problem, since we brought all our winter gear with us in anticipation of this most holy of excursions. I called the Mauna Kea Visitor Center to get the schedule of activities for Saturday. The talks began at 1 PM with the tour to the summit starting at 2 PM.

Saturday morning, was a typical Hawaiian morning lots of sun, clear blue sky and warm trade winds. As we set out from our condo in Kailua-Kona, we were (well I was, at least) all jacked-up for the BIG ADVENTURE. On the Big Island, as you go away from the beach, you go up in elevation. It wasn't long before the temperature began to fall at a rate proportional to our ascent. So, we began to don our warm clothes. Since we had a few hours to kill, we drove down (shedding layers of clothing as we went) to the Waipo Valley on the north shore of the Island. The Waipo Valley is a deep and wide gulch that begins in the Kohala Mountains and drops down to the sea. It is very scenic and beautiful. We killed some time and took pictures.

Getting to Mauna Kea was easy enough. Just take the Saddle Road connecting both the east and west sides of the Island. Make the turn at the hunter checkpoint station at mile 26 and head for the top. A car will get you to Hale Pohaku, the main facility for the observatories located at 9,000 feet above sea level. When we got to the Visitor Center at Hale Pohaku, we met our tour guide, Tom Peek, and he directed us to a nice picnic spot where we could eat our lunch. He pointed out that the road to the summit is restricted to 4-wheel drive vehicles. Moments later some tourists in a lily-white Monte Carlo came *down* the mountain. Apparently they didn't have a problem at all. Tom told the driver he should reconsider that option. Someone had died last Spring in an auto wreck caused by burnt-out brakes while coming down the mountain.

After lunch, Tom gave a little talk about Mauna Kea from the ancient Hawaiian days to modern times. The Hawaiians maintained a basalt quarry which was used to make adze tools prior to the coming of the Europeans. We saw a nice, but dated, film on the observatories.

After the talk we were all to meet Tom at the University of Hawaii 88-inch Cassegrain Observatory. Besides Julie and myself, there were two other people who came for the tour, but didn't have a 4X4 to get to the summit. We offered to drive them, but with the caveat that they would be exposed to the elements. They gratefully accepted the ride, hopped in the back, and we were on our way.

The ride up had some interesting sights. There was a valley where the lunar rover vehicle was tested, there was glacial moraine on the sides of volcanic cinder cones, and there were the old Hawaiian basalt quarries. It was about 8.5 miles from the Visitor Center to the summit. The road surface was gravel, until the last 3.5 miles where it was newly paved. At 12,000 feet we began to see snow from a storm that blew in threw several days earlier and had left 4 to 6 inches of the stuff.

As we went higher, the effects of altitude became more noticeable, and it made us feel all happy and high (no pun intended). We took a sharp turn and lo and behold, there were two observatories: the James Clark Maxwell 15-meter submillimeter telescope and the Cal-Tech submillimeter 10.4-meter radio telescope, housed in a shiny, metallic dome. On the hill above them both was the great Keck Observatory! After snapping a photo or two, I jumped back in the Jeep and sped up to the Keck. Julie shot a picture of me bowing before the Mother of all Observatories. Unfortunately, the Keck Observatory is closed to the public on weekends, but maintains an informal visitor gallery which is opened during weekdays. Of course we were unaware of this little known but upsetting fact, and only learned of it when Tom Peek told us.

After paying homage to the Keck, we drove up to the U. of H. Observatory. Tom gave us a tour of the facility. He showed us the air-conditioning units used to keep the dome cool, the computer that controls the telescope, and the control room where the observations are made and the data recorded. I got to sit in the telescope operator's chair and fought back the urge to punch in a few R.A. and Dec. coordinates.

We went inside the dome and Tom showed us the 88-inch Cassegrain. It was big! Not as big as the Keck, but certainly much bigger than anything I'd ever seen. We then proceeded out to the cat walk that circled the dome. I made sure I got photographs of all the observatories on the summit. I felt somewhat appeased for not being able to see the Keck through the knowledge that I had visited the highest observatory on Earth!

Combat Astronomy

by Robert Bunge

In this day of age, it is easy to forget that 200 years ago one of the most important aspects of astronomy was its use in surveying and geodesy. Often, early boundary surveys would shape the land and play vital roles

in history. More often than not, these boundaries were set with astronomical observations. Territorial boundaries have been known to fire the human spirit to a frenzy. Wars have been fought over some of these boundaries. This is the story of one such conflict.

As Columbus, Ohio, amateur Tony Hohenbrink and I loaded up his car in preparation to a 1988 weekend trip from our home in Columbus to sightsee and visit friends in the Washington D.C. area, I noticed that Tony was carefully putting his camouflaged painted 4-inch RFT, that has been nicknamed "Combat Pringles", into the back seat of the car.

I stopped what I was doing and looked up at the sky. It was solid overcast. In fact, it was starting to rain. Satellite maps had shown the entire east coast to be under clouds and I had more or less given up on being able to do any observing on this trip. I asked, "What's with the scope, it looks pretty hopeless for this trip." He said, "You have to be ready for anything," as he assured himself that the scope wasn't going to be damaged by the cooler sitting beside it. As the packing continued, I turned my thoughts to other things, including the past history of where we were going on this trip.

Sometime around the year 1684, in Colonial America, a boundary dispute rose between Lord Baltimore's territory and William Penn's newly founded colony, Pennsylvania. While an early agreement was reached in 1732 some problems still remained. Finally, in 1763, The proprietaries sent two surveyors to set the boundaries once and for all. Charles Mason and Jeremiah Dixon were the surveyors. Mason had also been an assistant at Greenwich Observatory in England, and was quite well versed in astronomy. They were well equipped for their mission and had the assistance of several laborers.

Tony and I were finally on the road. Planning our trip had been something like planning a wartime campaign; where strategists know conditions can change with little or no notice. Several times in the past several weeks the trip had been canceled or postponed because of one detail or another. Now, once and for all we had committed our plans with phones calls to meet friends in distant and unknown places.

We might have won the early battles of the planning stages, but the war was not over yet. The rain had turned to ice. Ten miles east of Columbus, you could not miss the shimmer of ice on the freeway. "Maybe we should abort," I ventured. Tony didn't say anything, he was driving and the look in his eye told me that it would take a lot to stop us. I continued to review the story of Mason and Dixon.

After determining the latitude of the house in which they were staying in South Philadelphia, Mason and Dixon traveled by wagon to a point 31 miles west of Philadelphia. Somewhere behind the Chester County Poor house, they put up a temporary observatory with a reflecting telescope of one foot focal length and 70 power. Once set up, they observed eclipses of Jupiter's moons in order to obtain their longitude by comparing the times of events with the predicted event times for Greenwich. From this point they measured fifteen miles to the south to a place which became the start of Mason and Dixon's line, the boundary between Pennsylvania and Maryland. A hundred years later, Mason's and Dixon's line would become more than a simple line on a map to a nation involved in the bloodiest war of its history.

At Zanesville, Ohio the ice turned back into rain. We had scored a victory. I could not think of much else that could stop us now. Luckily a bad car wreck on the Pennsylvania turnpike was in the west bound lane. For half an hour we passed stopped cars and trucks. Some people were even walking around, talking to new found friends. Philadelphia and a good nights rest were next.

It was the site behind the Poor House, called "Star Gazers Stone" that interested me. I had found a short mention of this site in "Early America Observatories" by Willis Milham, printed in 1938. There was not much information on the stone's location in the book, so some research was necessary. Topographical maps allowed me to guess it's position from descriptions of the site in the book, but a call to the Chester County Historical Society in West Chester firmly pinned the stone's location firmly along a road known, not surprisingly, as Star Gazer's Road, a couple of miles west of West Chester.

In the morning, Tony and I made a quick tour of historic Philadelphia, noting that the house that Mason and Dixon had stayed in had been torn down to make room for I-95. At noon we started for the stone where we were set to meet Brent Archinal, a friend from Washington DC, at the stone or a prearranged meeting spot nearby if we could not find it. Winding along Pennsylvania Rt 162, we passed the Embreeville State Hospital (Remember the Poor House of 1763?) and turned north onto Star Gazer's road just east of Embreeville. A quarter of a mile up the road we found Brent and his wife, JoAnne, waiting inside their truck with a pouring rain pounding outside.

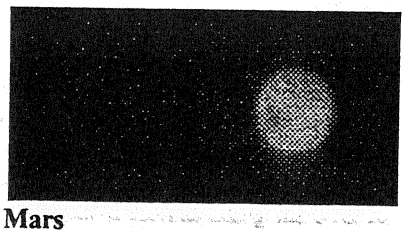
After exchanging greetings, we slogged though some mud as we climbed up a short hill to a small stone fence placed in the middle of a clearing. Inside the fence was a cat sized piece of quartz rock set in concrete. A plaque confirmed that this was, indeed, "Star Gazer's Stone". It was something of a letdown, since we had been expecting a somewhat larger stone, even though we had not found a description of the stone. A rock the size of a house would have been nice! We had won the war, but the victory was a hollow one.

As Brent and I snapped pictures of the site, Tony appeared holding an umbrella in one hand and Combat Pringles in his other hand. After driving 400 hundred miles, Tony was determined to observe from the stone even though it was raining! With some difficulty Tony climbed into the fence, set the telescope up over the top of the stone and waited.

Backyard Martian Imaging

by Blaine Korcel

Amidst the antenna farm here in Springfield, Gilbert Swift (fellow club member and system operator of the Troll BBS) and myself set out to image Mars before the opportunity passed this year. After all, the weather has been awful for months. Just one day before opposition, the sky cleared and provided an excellent opportunity to image Mars and the first quarter Moon.



Mars

After the new year's hangover cleared and repairs to the 8" F/6 were completed we proceeded to set up all the equipment. The telescope was set up in the back yard on a permanently mounted pier (No polar alignment required!). All of the electrical hookups were made including the data cable which ran about 75 feet to the computer we were using to capture the images.

The CCD camera was mounted using a conglomeration of adapters and eyepiece tubes to the telescope focuser. The CCD camera is made by Panasonic and is not sold to perform astronomical imaging. However the camera is VERY light sensitive and will provide usable images in a room without lighting. It is used primarily for low light security applications but also works just fine in bright daylight. This added sensitivity is all but required when using eyepiece projection to magnify the image of a distant planet.

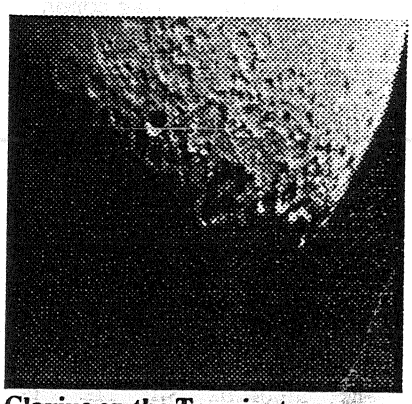
The camera ran to a video terminal at the base of the telescope pier so we could see what we were looking at and achieve a near perfect focus. The data line (actually an analog video cable) ran into the house and connected to the back of my 486 (66 Mhz) computer. That fast of a machine as not really required but it sped up the image processing routines tremendously. Besides, it was the only machine available. Everything else has been dedicated to the operation of the club's bulletin board service.

Once the image was acquired in the CCD and proper focus obtained, the monitor at the scope was bypassed to maintain the best image quality possible. The rest of the observing session was completed inside the warmth of the house. We still had to go out and change eyepieces and move the telescope to a new object.

The computer software we used (ComputerEyes for Windows by Digital Vision) allowed us to watch the image through the scope in real time. Each frame was displayed about one every quarter of a second. When the seeing provided a good stable image, we captured one of the frames and saved it to disk. After about 15 to 20 images we would move to the next object or change eyepieces, then resume the process.

The image of Mars was taken using eyepiece projection with a 4.8mm Nagler. I now realize that a better choice would have been a 12mm Orthoscopic and a 2x barlow. The Nagler has just too much glass for planetary observing. I also wanted to try using some colored filters but time did not permit. I'll save that for the next session.

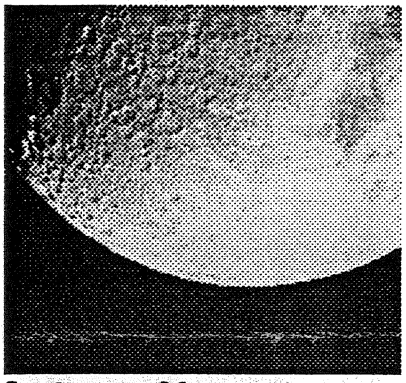
The Moon was imaged using the CCD at prime focus (CCD was placed onto the telescope without an eyepiece such that the telescope itself acted as an F/6 camera lens). This method provided the sharpest, clearest images of them all. Unfortunately, Mars is so small at F/6 it gets lost in the dots that make up the CCD image. Some degree of magnification is required.



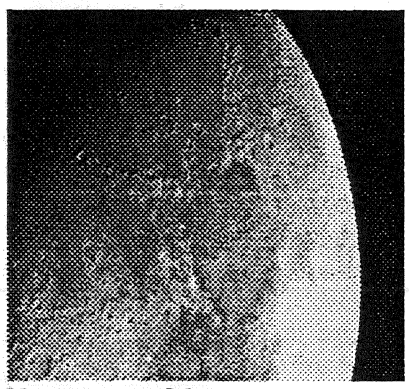
Clavius on the Terminator

The next day, I used two image processing programs to provide the images you see here. IMPROCESS, a shareware program available on NOVAC RBBS, and Dr. Halo Desktop Imager. Dr. Halo provides the easiest means of boosting

contrast and magnification. The moon images required little processing but Mars required some contrast boost and image sharpening to pull out even the slightest hint of a polar cap. I'm sure the printing process used to generate this newsletter degrades the pictures considerably. If you have a computer and modem, you can call the NOVAC RBBS (phone number located on the front page) and download the images to your PC. You can use any popular .GIF format viewer like VPIC or CSHOW to view these images.



Southeastern Moon



Northeastern Moon

All things considered, the images are pretty good considering the seeing conditions we had. Our setup was not the best to achieve the highest obtainable resolution and clarity. I'm currently working on the equipment to try and bypass the analog or video link between the computer and camera. A pure digital to digital link would provide much better clarity and contrast. However, one of the advantages to using a camera like this is that you can video tape your observing session, take the tape home and capture the images later with little loss of clarity. This way, there is no need to lug a big computer or even a laptop out to the field to capture good CCD images.

"Yes, Virginia, It's Another Telescope!"

byAl and Lynn Schumann

It's an old one this time: a 13.1 inch, F-4.5 Odyssey 1, one of the original Coulter big guns from the early eighties. Bob Ridgley had one back in the Greenville Farm days. It's a monster. Kinda reminds us of one of those massive Civil War mortars, squat and very heavy. In this case, wood replaces the steel, but the effect is the same. Heavy plywood must have been cheap when these suckers were made. The rocker box weights in at 50 pounds, but it has a couple nicely placed handles which make it manageable. The tube assembly, however, is something else! That comes in at 60 pounds -- without the mirror. Worse, if you're alone, there is nowhere to grab hold of it to move the damn thing more than a few feet at a time. It's Hernia City unless one uses a hand truck or gets help to move it about. The round Sonotube is encased in a massive rectangular box of that same bodacious plywood, so it's a real piece of olde timey Dobsonian technology. The bearings and movements, by the way, are exquisite.The mirror mount is very primitive. The back end of the tube opens up tailgate fashion, and the mirror is held in place by a couple of clips and a nylon sling edge support. It's really flimsy, and one can not leave the mirror in place while transporting the telescope. The nine point flotation setup consists of three thin plywood triangles with dinky little felt pads glued to the corners of each triangle. It's ghastly. The mirror mount will be the first thing to be replaced. A catalog is already on the way from Novak. It's hard to imagine how the woodwork could be so OVER engineered and the optics side of the equation so underplayed. Then again, it just about follows chapter and verse John Dobson's own description of how to build an inexpensive telescope, mirror sling and all. The primary mirror is one inch thick Pyrex glass: probably plate glass or "porthole" glass. It has been well cared for and seems to be in very good condition. Coulter says it has been figured to 1/8 wave, but who knows? The 3.1 inch secondary needs to be re-aluminized and coated. The two-point spider mount is very sturdy, and we'd like to try and keep it in use. After all, we're talking silk purses and sow's ears here, right? Finally, it has a 1.25 inch rack-and-pinion focusing mount; nothing fancy, but it should work just fine. It came with an 8x50 finderscope and a 27mm Kellner eyepiece. The big problem is how to cope with the weight and bulk of the cradle box/tube assembly. Don't even have to worry about the profile. Since it is an F/4.5 the whole works stands only five feet tall. No step ladders required, so that magnificent rocker box can stay as is. Also, the aluminum on Teflon vertical bearings are too good to lose. They will have to be incorporated in any weight reduction scheme. Similarly, the tailgate for mirror access is so beautifully simple that it ought to stay as well. Balance might be a little tricky since the mirror weighs only ten pounds. If any of you out there have any experience with one of these old Odysseys or have any ideas on how to put this rascal on a serious diet, we'd be delighted to hear from you.

December Meeting Minutes

The meeting was called to order at 7:30 pm by Myron Wasiuta. The meeting was held at the Arlington County Planetarium on December 16, 1992. There were 21 members and guests present.

Old Business

The annual club elections were held and the Officers elected were: President - Myron Wasiuta; Vice President - George Uhl; Secretary - Bob L'Hommedieu; Treasurer - Brenda Jones. The Trustees elected were Tom Parry and Bob Ridgley.

New Business

1. The Annual Meeting will be held on Jan. 12,1993. This is a very important meeting to which all members are invited to attend. The Annual Meeting is our equivalent of a stockholders meeting now that NOVAC is incorporated. Goals and projects for the year will be discussed and new ideas are always welcome.

2. Our new Newsletter Editor will be Tom Parry. He will assume the reins this spring. Thank you Tom for taking over this important job.

3. Jim Schaeffer has agreed to be this years Northern Virginia Telescope Meet Chairman. Doug Mistler will be Vice Chairman. They will coordinate the event and will ask all of us to help put on another successful NVTM as George Uhl steps down after 2 years service to the club.

3. Al Schumann showed us his excellent photos of the recent lunar eclipse and several other members described the eclipse as they viewed it from different sites around the area. It was a every dark eclipse and all agreed it varied quite a bit from other recent lunar total eclipses.

The program for the evening was given by George Uhl who spent part of his honeymoon touring the observatories at Mauna Kea in Hawaii. George and his understanding bride went to the top of the volcano to see the Keck telescope and other astronomical marvels.

Respectfully submitted,
Bob L'Hommedieu, Secretary

NOVAC NOTICES

Sky & Telescope Discounts

As a member of NOVAC you can get a subscription to Sky & Telescope for $20.00 instead of the regular $27.00 rate. To start a new subscription or renew an established subscription, make your check out to SKY & TELESCOPE for $20, noting on the check if this is a new subscription or a renewal. Send your check to Brenda Jones, 883 N. Kentucky St., Arlington, Va. 22205.

You can also order any S&T publication at a 10% discount. You may order publications directly from S&T. Just mention the Club Discount Plan and that you are a member of NOVAC.

1993 NOVAC Meeting & Observing Schedule

The tentative schedule below lists the 1993 NOVAC General Membership Meeting and NOVAC Observing Schedule. The dates in normal text are the observing nights and the dates in ***bold italics*** are the monthly meetings. The General Membership Meetings are held at the Arlington Planetarium on the third Wednesday of every month. Trustee Meetings are held on an as needed basis, usually the Tuesday before the General Membership Meeting. Non-Trustees interested in attending should contact a Club Officer or Board Member for further information. The NOVAC Observing Sessions are held at C.M. Crockett Park in Midland, VA.

JAN	15, 16, ***20***, 22, 23
FEB	12, 13 ***17***, 19, 20
MAR	12, 13, ***17***, 19, 20
APR	9,10, 16, 17, ***21***
MAY	14, 15, ***19***, 21, 22
JUN	11, 12, ***16***, 18, 19
JUL	16, 17, ***21***, 23, 24
AUG	13, 14, ***18***, 20, 21
SEP	9, 10, ***15***, 17, 18
OCT	8, 9, 15, 16, ***20***
NOV	5, 6, 12, 13, ***17***
DEC	10, 11, ***15***, 17, 18

OBSERVING SITE RULES

Crockett Park:

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.

The gate is locked at sunset and the combination is shown on your Observing Pass. Do not reveal it to anyone. You must lock the gate behind you after entering and please remember to lock it after you leave.

During EDT, you must set up on the large field to the left. During EST, you may set up on the paved cul-de-sac 200 yds past the gate.

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.

The Kilpatrick's:

NOVAC members may use Jim and Sheree's property for observing on any night - BUT, YOU MUST HAVE PRIOR APPROVAL FROM THE KILPATRICKS. Call early in the day on which you wish to observe; the telephone number is 703-547-3501. 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 site, THERE ARE NO EXCEPTIONS! Use of the site is limited to NOVAC members only.

No loud radios, no alcoholic beverages; no loose pets; do not leave trash or debris behind. We are guests of the Kilpatricks and our observing privileges may be revoked at any time because of the carelessness of one person.

Directions to Crockett Park

From the Washington DC/Northern Virginia area, go west on I-66 to the 47-a exit which is 234 South to Manassas. Continue on 234 for 2.8 miles until then turn right on Godwin Drive at the "Po Folks" restaurant. Follow Godwin Dr. for 1.8 miles to where it merges with Rt. 28 West.

Once on Route 28 continue driving for a another 13.7 miles through the towns of Nokesville, Catlett and Calverton until you turn **right** on Rt. 643 towards Warrenton. There is a small country store (Mayhugh's) on the corner of the intersection. Proceed about a mile up Rt. 643 to the Park Entrance road. Look for a small sign for C.M. Crockett Park on your right directing you to turn left. Once on the park entrance road, go 1/2 mile to the park gate.

Directions to The Kilpatrick's

From the Washington DC/Northern Virginia area, go west on I-66 to Route 29. Take Route 29 South exit to Warrenton. Continue on 29 past Warrenton and Culpeper. When you pass the last exit for Culpeper, stay on Route 29 for 8 miles. At Route 631, turn left, and go 2.5 miles. At Route 630, turn right and go 1.5 miles until you come to Route 632. Turn left, go about 100 yards up the hill. On the right there are three mailboxes . Turn right onto the driveway, go straight to the Kilpatrick's home. Let them know you have arrived and they can help you find a spot to set up.

ADVERTISEMENTS

For Sale, contact Jim Schaeffer during working hours only at 370-9033: 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, $29.95.

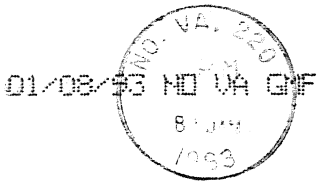
The NOVAC Newsletter is published six times a year. Subscriptions are available through membership in NOVAC. Dues are $18.00 per year.

For club membership information contact:

Brenda Jones, Treasurer,
883 North Kentucky Street,
Arlington, Virginia, 22205,
telephone: 703-527-7963.

NOVAC

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



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