

NOVAC

THE NEWSLETTER OF THE NORTHERN VIRGINIA ASTRONOMY CLUB

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540 788-4867
Savage Park (Paul McCray)
703 729-0596
Arlington Planetarium
703 358-6070

NOVAC's Web Page

<http://astro.gmu.edu/~novac>

President's Column

Brenda Clements Jones

A few months ago my son, Kevin, put together a tape as a birthday gift for me. It's a tape of songs that he and I enjoy listening to, including one by U2, "The Lady With The Spinning Head." How appropriate that song is right now - that's just how I feel! Where in the world has this summer gone? And for that matter, where have the years gone?

Kevin just now backed out of our driveway with his car packed to the gills. He's heading for Providence, Rhode Island, to begin graduate school at Brown. Wasn't it just last year that I was driving Kevin to NOVAC board of director's meetings, to regular monthly meetings and out to Crockett for observing because he wasn't old enough to drive??? Well, it seems like it was just last year, but he's off on his own now to study planetary geology.

Enough personal reflection! On to upcoming business: Our 14th annual Northern Virginia Telescope Meet is coming up on September 21. It will be held at Crockett Park and will begin around sunset. I hope that all of you who have telescopes and binoculars will bring them out and share the views with the public. We'll need volunteers to help with parking too. Please contact any of our officers or trustees if you are

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What Would I See with 80mm?

Ralph Kantrowitz

Having seen the recent ads for the 80mm Ver-nonscope APO, I decided to find out what I would see with an 80mm aperture. Many years ago, I purchased the 94mm Brandon from Ver-nonscope; it was well-made with good color correction, but I liked the whiter star colors of my 4-inch f/6.5 Astrophysics APO better and sold the Brandon. I'm still hunting for a good lightweight 'scope, so I made an 80mm aperture stop for the 4-inch and viewed some deep sky and bright objects as a simulation.

The early AM hours of July 4, 1996 were clear (about mag 4.5-5), but windy. Jupiter reigned over the southern skies, with a gibbous moon rising in the East. I set up the 4-inch on my Gaithersburg balcony and taped the aperture stop to the dewcap. I looked at the Lagoon, Omega and Trifid nebulae, M22, M11, Jupiter, and the Moon, flipping the stop in or out for comparisons.

I viewed the emission nebulae with and without an Orion Ultrablock filter. The larger 4-inch aperture made a noticeable improvement in nebula visibility at magnifications from 13-50x. The reverse was true for starry objects at low powers (13-28X). 80mm gave a darker sky

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Upcoming NOVAC Meetings at the Arlington Planetarium

Sept. 18, 1996
October 16, 1996
Nov. 20, 1996
Dec. 18, 1996

President's Column

(Continued from page 1)

able to help out. For those of you who don't have a telescope, this meet is the perfect opportunity for you to see what other club members are using and how those instruments perform. Mark the 21st on your calendar and hope for good weather!

Speaking of Crockett, you might have noticed that they have installed a new lighting system. They have plans to have some night activities such as concerts in the amphitheater. Don't panic though! They are extremely aware and concerned about our need for dark skies out there. They have asked for next year's observing schedule and will work with that to avoid any conflicts. I really appreciate the concern that they have shown for us in the past and they continue to keep in contact and are working with us to keep it an observing site that we can be pleased with (too bad they can't help with the lighting of the car dealers in Manassas!).

One more thing before I send this to Elliott. I want to thank Ted Roach for volunteering to be our Savage Farm maintenance coordinator. Ted, I've heard many good things already about the work you and your crew are doing out there. I'm sure that all who go out to Savage for observing will echo my thanks! If there are any NOVAC members who would like to help out with grass cutting and bush trimming, don't hesitate - give Ted a call at (h) 703-777-4138 or (w) 703-777-7377.

Brenda

Presentations at Upcoming NOVAC Meetings

Doug Jackson

On September 18, 1996, Dr. Paul Lowman of the Goddard Space Flight Center will give a presentation at the monthly NOVAC meeting. The subject will be: "Tectonic styles of Venus and Northern Ontario - A Study in Comparative Planetology."

On October 16, 1996, Dr. John Wood of the Goddard Space Flight Center is slated to give a presentation at the monthly NOVAC meeting. The subject will be announced at a later date.

On November 20, 1996, NOVAC member Brent Archinal of the US Naval Observatory will be our speaker.

I hope to see you there.

Doug Jackson

What Would I See with 80mm?

(Continued from page 1)

background, enhancing the visibility of M22 and M11. At 150x, M11 stood out better at 80mm aperture, due to the darker sky background. At 220x, the sky background in the 4-inch was comparable to that in the 80mm aperture - but the fine sprinkling of stars was now definitely easier to see. M22 was now (2 A.M.) low in the sky; neither aperture did well at high magnifications.

Jupiter was noticeably dimmer, but still bright in the smaller aperture at 150X. Since the seeing was only fair, the amount of detail visible in the major belts and polar regions was unchanged by the 20mm difference in aperture. The moon was viewed at 220-330x (yes, Astrophysics APOs really do support magnifications of 100X per inch!). The Messier doublet was close to the terminator and this area was used as a test. The full aperture enhanced visibility of very small craterlets nearby. However, there was no change in visibility of the "tail" behind the Messier. Irregularities on the lunar limb were clearly visible in both apertures. Overall, the moon was seen well at 80 mm aperture.

My conclusion is that an 80 mm APO would give good views of bright objects at all magnifications and good views of open or globular clusters at low magnifications. Nebulous objects are better viewed at larger apertures because the same light diffusion which darkens the sky background in small apertures or high magnifications also spreads out and dims the nebulae. Stellar objects are hardly affected and so stand out more at low to medium magnifications. If one travels extensively, a small, high quality APO on a photo tripod might be just the thing to satisfy one's star craving at a starry rest stop or campground. For home suburban use, I prefer larger scopes, to make the most of scarce weeknight viewing time. (Readers should note that the high power observations hold only for apochromatic refractors).

Notes on Comet Hale-Bopp

I finally found the next great comet in the early AM hours of July 5, 1996. It was dim in finderscopes and binoculars from my balcony in Gaithersburg. It truly resembled a Messier object at comet-seeker magnifications of 13-20x. At 95x in my 4-inch and 145x in my 5-inch refractors, it had a blunted V-shape with a stellar nucleus. Reports posted in the Astroforum on CompuServe also refer to the comet as fan-shaped. A forum library composite of a series of CCD images (hbtail.jpg) taken at increasing intensities indicated an unexplained change in apparent direction of the tail.

Observing at Sky Meadows State Park

Brent A. Archinal

Some of us were out observing Saturday night July 18-19 at Sky Meadows State Park and it was an incredible night. Geoff Chester was doing a public program, and there were a number of people with telescopes as well as about 100 people total from the general public.

The transparency was extremely good after the storms had moved through on July 17 so the Milky Way looked excellent. Comet Hale-Bopp was quite interesting in all the telescopes and was even a naked-eye object at about magnitude 6 to 6.5.

In any case, further observing is planned for the park this year. The Shenandoah Astronomy Club held a public Perseid meteor watch there on the evening of Saturday, August 10. To check on the possibility of observing there at other times call the park at 540-592-3556. The park manager is Jess Lowry.

Geoff Chester is also doing public programs again at the park on September 14 and October 19. His programs are usually arranged near the nights of first quarter Moon so the general public can observe in the evening and others can stay and observe all night. For further information contact him at 202-357-1529 (work, NASM planetarium). Programs may also be arranged in the winter or early spring months next year to observe Comet Hale-Bopp, then at its brightest.

Regards,

Brent

Time and Weather

Here are two handy phone numbers:

- Time: from the US Naval Observatory Master Clock, Voice: 202 762-1401
- Weather: from the National Weather Service: Local and Extended Forecast, Voice: 703 260-0307

Site Locations

Here are the locations of our four observing sites as provided by Bruce Miller:

- Savage: 39° 05' N, 77° 52' W;
 - Parsells: 39° 01' N, 77° 32' W
 - Crockett: 38° 37' N; 77° 43' W
 - Nichlason: 38° 44' N; 77° 21' W
- and Ken Harrington advises:

- Big Meadows: 38°32'N, 78°26' W.

If you need greater precision, William C. Burton gives us:

- Savage: 39 ° 04.7' N; 77 ° 51.7' W
- Crockett: 38 ° 37.2' N, 77° 43.0' W

Northern Virginia Astronomy Club Library Books

Marta Krause

Author Title Year Published H(ardbound) or P(aper)

Observing

Bishop, Roy (ed.)	Observer's Handbook 1991	1991	P		
Bishop, Roy (ed.)	Observer's Handbook 1987	1987	P		
Harrington, Philip	Touring the Universe through Binoculars: A Complete Astronomer's Guidebook	1990		P	
Holt, Terry	The Universe Next Door: A Complete Guide to Exploring the Skies and Understanding What You See	1985		H	
Kozak, John T.	Deep-Sky Objects for Binoculars	1988	P		
Moore, Patrick	Exploring the Night Sky With Binoculars	1986		H	
Muirden, James	Amateur Astronomers Handbook: A Guide to Exploring the Heavens 3rd edition	1983		H	
Muirden, James	How to Use an Astronomical Telescope: A Beginner's Guide to Observing the Cosmos	1985		H	
Newton, Jack and Philip Teece	The Cambridge Deep-Sky Album	1984		H	
Peltier, Leslie	Leslie Peltier's Guide to the Stars: Exploring the Sky with Binoculars	1986	P		
Watson, Brent	Finders Charts of the Bright Telescopic Objects 1992/93		P		
Webb, Rev. T.W.	Celestial Objects for Common Telescopes, Vol. 2	1962	P		

Equipment Selection and Construction

Berry, Richard	Build Your Own Telescope	1985	H		
Berry, Richard	How to Build Your Own Observatory	1985	P		
Hale, Alan R.	How to Choose Binoculars	1991	P		
Henry, Paul	Telescopes for Stargazing 3rd edition	1976		H	

Astrophotography

Connington, M	Astrophotography for the Amateur	1985		H	
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Phenomena

Clarke, Roy S. ed.	The Port Orford, Oregon Meteorite Mystery	1993	P		
Espenak, Fred and Jay Anderson	Total Solar Eclipse of 1997 March 9	1995	P		
Espenak, Fred and Jay Anderson	Total Solar Eclipse of 1995 October 24	1994	P		

Encyclopedias and Atlases

Donn, Betram	Atlas of Comet Halley 1910 IL	1986		H	
Lewis, Richard	Illustrated Encyclopedia of the Universe: Exploring and Understanding the Cosmos	1983		H	
Tully, Brent and Richard Fisher	Nearby Galaxies Atlas	1987		H	
Yenne, Bill	Atlas of the Solar System	1987		H	

General Information with Photographs

Dickinson, Terence	The Universe and Beyond	1986	P		
Friedman, Herbert	The Amazing Universe	1975		H	
Naval Research Laboratory	A Clementine Collection: Moonglow	1994	P		
Preiss, Byron ed.	The Planets	1985		H	

Cosmology

Bartusiak, Marcia	Thursday's Universe	1986		H	
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History of Astronomy

Calder, Nigel	Violent Universe: An Eyewitness Account of the New Astronomy	1969		H	
Jastrow, Robert	God and the Astronomers	1978	P		
Jastrow, Robert	Until the Sun Dies	1977	P		
Krupp, E.C., ed.	In Search of Ancient Astronomies: Stonehenge to Von Daniken: Archaeoastronomy Discovers our Sophisticated Ancestors	1978	P		
Levy, David	Clyde Tombaugh, Discoverer of Planet Pluto	1991	P		
Pannekoek, A	A History of Astronomy	1961		H	
Sagan, Carl	Cosmos	1980		H	

Video

8 mm video by Al and Lynn Schumann

Confessions of a Budding ATM Craig Tupper

As if staying out until all hours weren't bad enough, now I have a daytime preoccupation. I am building my first homemade telescope. Once I couldn't even spell ATM (amateur telescope maker), and now I am one. I already had a Meade 8" Newtonian, but when Rich Kaiser offered me some free 7" glass, I figured I could learn to make a mirror in preparation for that future 20 inch. at the same time building something that would not take up 1/3 of my station wagon as does the Meade.

Light weight and compactness were my primary design goals. I also wanted a fairly long focal length, partly so that the mirror would be easier to make, partly for the higher magnification and smaller secondary it would allow.

This led me to think about two-truss Newtonians that break down for transport. In these scopes, the primary mirror is housed in a box that is connected by two trusses (aluminum tubes in my case) to a board that holds the focuser and secondary. Starsplitter offers such scopes commercially in sizes up to 14.5". However, NOVAC's own Bob Bunge first built this kind of scope years ago, and I had seen his at Crockett. One of Bob's friends also has a design on the Web, at <http://www.tiac.net/users/atm/ravne.html>.

Anyhow, armed with borrowed books, catalogs, some free downloaded ATM software, and my obsessive/compulsive nature, I began designing. I decided to build a 7" f/8.8 Dobsonian with a 1.2" secondary. When completed, the entire scope with mount will weigh under 20 pounds (including a four-pound dew heater battery/counterweight), and will collapse down to a cube about 10.5" per side, plus the two 4.5' trusses.

This is definitely not a trivial project. I'm reasonably handy, willing to learn, have a fair collection of tools, and enjoy making things. I would have been lost without the ideas and guidance I got from Bob Bunge, the practical help of Rich Kaiser in mirror grinding, plus the correspondence from a friend in Florida. The books (*Amateur Telescope Making I*, Berry's *Build Your Own Telescope* and Texereau's *How to Make a Telescope*) have been indispensable. I have also benefitted from the software and other ideas available on the Web. I started about a month ago; as I write this, I have a well-polished spherical mirror, ready for parabolizing. Much of the woodworking is done, and most of the parts are in hand. I estimate that I have already spent 30 hours in design, and another 30 hours in manufacture, including building a Foucault tester and

various other tools. Thank goodness my wife got hooked on the Olympics, or my marriage might have been in jeopardy! I'll probably spend another 20 hours before I'm done. Couple that with the fact that I will spend about 75% of what I would have to pay for a comparable aperture commercial Dob; this is no way to save money.

I could have saved a lot of time if I were building a standard design, or if I were less detailed in my planning. But I'm getting an education, plus a scope that fits my needs. And I'm sure that my next scope (I'm addicted now, and that 20 inch awaits me) will go quickly, now that I have built up my tools and knowledge. Hopefully, by the time the next newsletter comes out I'll be able to give a happy report on the completed 7-incher.

If you've ever thought of becoming an ATM, I encourage you to look into it. There's lots of help available out there, including a great deal within NOVAC, plus in many other places I haven't tapped. Give me a call if you need a start, or e-mail me: ctupper@erols.com.

And if any of you ATM veterans want to pass along a hot tip to a newbie like me, please do. Happy Grinding!

Hidden Hollow '96 Astronomy Convention Brent Archinal

Fellow NOVAC'ers - Dave Hartsel, of the Richland Astronomical Society (Ohio) has sent me information on the upcoming "Hidden Hollow '96" astronomy convention, to be held in Ohio this October. Although this is about an 8 hour drive from this area I thought I'd forward the material as I know several people in the club are likely to be interested (and in fact several are already planning on going). Although I'm obviously somewhat biased - having been associated with this group in the past - in my experience the Hidden Hollow conventions have been among the best in North America. The combination of excellent speakers (if I do say so myself!), a good observing site, plenty of telescopes, access to a superb 31-inch reflector (and also a 36-inch this year), vendors, a swap meet, side trips to Leslie Peltier's Copus Hill, and a host of wonderful people in a wonderful atmosphere have made this a marvelous event in past years and promise to do so again this year. Certainly the skies of the Texas Star Party, or the scale of Riverside can't be beat, but this convention and star party is in my mind an equal to Astrofest or Starfest and above everything else. Although the RAS members are few in

number, in conjunction with other groups from the Midwest (such as the OTAA, of which NOVAC has been a member) they put on an excellent well-planned and run event.

For further information or registration material, I'd suggest writing the address given below (a large SASE would probably help). You could also contact Dave Hartsel (dhartsel@bright.net) or even myself if you have any questions.

Clear Skies!

Brent

HIDDEN HOLLOW '96

October 4 & 5, 1996, near Mansfield, Ohio

The Richland Astronomical Society invites you to attend the 8th Hidden Hollow Convention and Star Party.

This year's speakers are:

- Brent Archinal, of the U. S. Naval Observatory

- JoAnne Archinal, formerly of the Smithsonian Institution

- Stephen Edberg, of NASA's Jet Propulsion Laboratory

- David Levy, comet hunter, educator, author and contributing editor for Sky & Telescope Magazine

- Stephen James O'Meara, noted observer, author and contributing editor for Sky & Telescope Magazine

- possible additional speakers to be announced.

There will be a special Ohio Turnpike Astronomer's Association (O.T.A.A.) meeting and award presentation.

We will have our commercial vendor display area open on Saturday, along with a flea market area.

For the first time, we will have a telescope on the hill with more aperture than the 31-inch, f/7 "Big Blue Beast" of the Warren Rupp Observatory. Bob & Lisa Summerfield of *Astronomy to Go* will be bringing the 36-inch "Yard Scope".

For more information, write to:

HH '96
P.O. Box 1118
Mansfield, OH 44901

Oregon Star Party, or Oregon Star Trail - An Astro Novice Goes West to Party

Bill Jensen

Summertime is vacation time, and star parties abound. I have read notices about these parties in the magazines, and received many brochures as a club secretary, but I was content to sit on the sidelines. Perhaps it is because I am a 25-year novice, lucky to star stumble (as opposed to hop) onto a Messier object, and having difficulty using basic star charts. I thought star parties were only for dedicated and experienced amateurs, pursuing serious observing programs.

But the summer of '96 was different. As I studied the information on the Web and those incoming brochures, the lure of the dark sky stories from Nebraska, Montana, Massachusetts and other locations increased. The Oregon Star Party (OSP) brochure and Web site promised that it was a party for all amateurs: novice to expert. Contact via e-mail with the principal organizers, Chuck and Judy Dethloff, confirmed this. People who had attended past OSP's sang the praise of the dark, central Oregon skies. I was hooked. Plus, I REALLY needed a vacation. (My employees told me that!) The summer air fares were less than \$340, so I sent in my registration, bought my ticket, and away I went.

Well, sort of.

Going cross country to a star party takes a little more preparation, so if you should be as bohemian as I was in choosing to fly to dark skies, perhaps you can learn from my inaugural star party trek. I am going to file this in my "001" file for next year's trip.

First, getting there. The airline told me my Genesis case was too large to carry on the plane. Facing the choice of stowing it as baggage, or chancing rejection if I tried to carry it on (and ending up at a party with NO scope - yikes) I decided to buy a little scope (Meade ETX) just for the trip west. As I boarded the flight, I saw large guitars, oversize backpacks, and household goods being allowed on despite the very obvious rules about size of carry-on baggage. So, ignore the rules next time, and carry on the 4-inch APO refractor. My binoculars got more use than the scope anyway. Driving nearly four hours after a cross country flight was no small feat, but the views of the Cascades: Mount Hood, Mount Jefferson, the Three Sisters, and Broken Top, seemed to energize me.

Second, staying there. Since I am not a camper, I decided to drive every night after observing - about an hour to the closest town of Prineville. Nothing like a warm shower in the morning, but avoiding the deer and cattle that nightly greeted me on the road, while trying to stay

awake listening to the Best of Art Bell on AM radio, was a challenge. One guy pointed out that I could have rented a pop-up camper while there, but my luxurious \$30 per night room was just fine for me. Besides, I had enough trouble staying awake beyond 3 A.M., given the fact that I was still dealing with the 3-hour time change. Travel by air meant that I had to pack for both warm days and cold nights due to the near desert conditions east of the Cascade mountain range in central Oregon. So that left little room for chairs, accessory tables, and the like. Not really a problem if you buy a cheap lawn chair while riding to the site, and if you have some hard side luggage which is relatively flat, as it makes a great storage compartment for eyepieces and charts.

Third, being there. Going to a star party means staying warm at night, and despite the clothing that I did manage to pack, I forgot gloves. Really dumb. Plus, I packed numerous hooded sweatshirts and a warm jacket but forgot that my legs would also get cold - next time pack sweat pants as well as the jeans. Once there during the day, I enjoyed visiting the vendor booths, but since they did not take plastic, I had to venture to town and use the automated teller machine so I could buy that 15 mm Panoptic I was lusting after. Next time, take some checks! There were some pretty nice scopes and accessories for sale by the attendees as well. Hmmm, maybe it was better after all without that checkbook. At least I had enough money to get back home.

But these logistical considerations aside, OSP '96 at Indian Trail Springs in the Ochoco Mountains was FAR better than I could ever have expected. Approximately 600 people attended this very well organized event. From the comments and questions voiced during the beginner talk under the sky, I found I had plenty of company in the novice department. In fact, I was less a novice than I thought. And yet there was plenty for the expert including some detailed presentations on CCD imaging.

The main course on the menu for the party was the sky, and it did not disappoint. Dark. Darkest sky I have ever seen. Veteran OSP observers complained that the seeing and transparency was mediocre, due to surrounding wild fires. But I was left in awe of the naked-eye revelations. The most impressive sight: the vast, almost three dimensional view of the Milky Way, arcing from one horizon to the other. Never had I seen it so bright, so dark, so vast. Fields so rich, that I had a hard time making out the familiar "W" of Cassiopeia. Then, Jupiter called attention to the treasures

of Sagittarius. Later, as the Pleiades rose I was fascinated by the sheer number of stars. Meteors were more dramatic in their appearance due to the contrast. The Andromeda Galaxy brightly stretched my binocular field. And so it went - night after clear, cold night: too many objects, and not enough time. More than just hunting down the faint fuzzies, it was an emotional experience.

During the warm days, and even at 1 A.M. eating a "Star Burger" at the red-lit concession stand, the OSP people made the party complete. Hearing tips about observing, equipment, and club activity, sharing the eyepiece with large Dob owners, especially Chuck and Judy's Frequent Flyer Telescopes (which would put to rest my overhead compartment blues as they are designed to fly.) or even getting ideas on side trips to nearby scenic areas, it was a fun filled four days. Though I did not win any of the 50 or so door prizes (I was sooooo close to winning the complete set of Panoptics - sigh.) I had a blast, both astronomically and personally.

OSP's location made viewing the Cascade range a must, as I mentioned before, and a side trip to the Pacific was also easy to do prior to jetting out of Portland. Listening to Doug, the Country Western DJ on "JJ" AM playing "Rocky Mountain High" on my way to the airport made me laugh - different mountains, but the same feeling of peace and awe of nature, in this case mostly overhead. So, if you are plagued by humid, light polluted conditions, treat yourself, and GO (fly if necessary) to a star party. You may come back a better amateur, and person, because of it.

Kalmbach Book Orders

Nicole Mastej

All books in the Kalmbach catalog are discounted 20% and there is no shipping fee. The next order period is set for October 16-31. If you'd like to place an order, please call me at work (703 287-1589) or at home (703 476-1207).

If you have access to the web, you can get an index of Kalmbach products and books listed by Author or Title at <http://www.kalmbach.com/books/AstroBooks/Catalog.html>

Thanks!

Nicole

American Institute of Physics Bulletins Excerpts

(from) The American Institute of Physics Bulletin of Physics News Number 278, July 8, 1996 by Phillip F. Schewe and Ben Stein.

EXTREMELY HIGH ENERGY COSMIC RAYS show a slight preference as to their directionality. With no accelerators to boost particles above the trillion-electron-volt (TeV) range, scientists look to cosmic rays for supplying not only the highest particle energies but also hints about what must be a tremendous energy machine at work in our galaxy or beyond. This is especially true of cosmic rays with EeV (10^{21} eV) energies. A new study of 36 cosmic-ray events recorded with the Akeno Giant Air Shower Array (AGASA) in Japan shows that mostly they are distributed uniformly across the sky. A notable departure from this general pattern consists of three pairs of events whose directions of arrival are quite close, less than 2.5 degrees. And of these, two pairs are located within 2 degrees of the supergalactic plane, defined roughly by the agglomeration of bright nearby galaxies in the northern hemisphere. The Akeno scientists (Motohiko Nagano, mnagano@icrr.u-tokyo.ac.jp) suggest that most likely some kind of celestial accelerator lies in the direction of the collimated pairs and that the original cosmic ray (eventually detected on Earth where it spawns an air shower in the atmosphere) was a neutral particle. (N. Hayashida et al., upcoming article in Physical Review Letters.)

(from) The American Institute of Physics Bulletin of Physics News Number 279, July 15, 1996 by Phillip F. Schewe and Ben Stein.

GANYMEDE IS COVERED WITH A DIRTY CRUST OF WATER ICE. The Galileo spacecraft, now patrolling Jupiter's neighborhood, recently swung past Ganymede, the largest moon in the solar system. Galileo recorded the presence of a self-generated magnetic field at the moon, and new high-resolution pictures testify to the presence of tectonic-like forces at work, giving Ganymede's surface a network of fault lines. (JPL press release, July 11, 1996.)

(from) The American Institute of Physics Bulletin of Physics News Number 280, July 22 1996 by Phillip F. Schewe and Ben Stein.

EARTH'S CORE SPINS INDEPENDENTLY of the rest of the planet. Columbia scientists Xiadong Song and Paul Richards have combined computer simulations with measurements of seismic waves traveling through the Earth to deduce the rotational behavior of the planet's deep interior. They find that the solid inner core, which might consist

of a single immense crystal of iron 2400 km across, rotates slightly faster than the rest of the world. The tiny differential spin amounts to about one degree a year. This means that the equator of the inner core swivels past the inside of the outer core at a rate of tens of km per year, 100,000 times faster than the fastest tectonic plates move past each other up near the Earth's surface. A better understanding of how the core gimbals about would provide insights into the nature of Earth's magnetic field which has reversed itself many times over geological time. (Nature 18 July 1996.)

(from) The American Institute of Physics Bulletin of Physics News Number 281, July 29 1996 by Phillip F. Schewe and Ben Stein.

SOLAR NEUTRINO FLUX IS NOT CORRELATED WITH SUNSPOT ACTIVITY. The Kamiokande detector situated a kilometer underground west of Tokyo has been watching the Sun since January 1987. It sees not the photons that come from the bright surface but rather the neutrinos that issue from the sun's core. In the past decade Kamiokande has ascertained several facts: neutrinos do come from the direction of the sun (in case there were any doubt); the neutrinos are largely those from the decay of boron-8 (other detectors specialize in neutrinos coming from additional nuclear reactions in the sun); and the neutrinos show no day/night preference. Having monitored our local star over almost a complete 11-year solar cycle, the researchers (Yoshiro Suzuki suzuki@icrkm4.icrr.u-tokyo.ac.jp) now take stock of their neutrino inventory and report that the neutrino flux shows no correlation with sunspot activity. (Y. Fukuda et al. upcoming article in Physical Review Letters.)

(from) The American Institute of Physics Bulletin of Physics News Number 282, August 2 1996 by Phillip F. Schewe and Ben Stein.

DAYS WERE ONLY 18 HOURS LONG back in the Proterozoic era, some 900 million years ago. Charles Sonett of the University of Arizona has studied records of ancient tidal deposits preserved in rock strata. Like tree rings, the periodicity of tidal sediments or tidalites provide an accounting of ancient times. Sonett's data collected in Utah, Indiana, Alabama, and Australia, show that long ago the day was shorter the year longer and the moon much closer. Indeed, as the moon recedes from the Earth (at a rate of 3.8 cm/year) it continues to slow Earth's rotation, thus extending the day further. (C.P. Sonett et al., Nature, 5 July.)

NOVAC Newsletter Call for Articles

- Here's your chance to see your name in print! Be the first one on your block.
- Write an article for the NOVAC Newsletter describing your observing experiences: good, bad, or indifferent.
- Tell us how you liked observing sites both local and distant. Tell of your experiences buying telescopes and accessories.
- Article submissions, in ASCII please, may be posted to Elliott Fein on the Internet at edfein@cpcug.org. Questions? Call Elliott at 301 762-6261 or contact him on the Internet.

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The 1996 NOVAC Membership Directory

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Dinner Before the Meetings Brent A. Archinal

As usual, in September and October we're continuing our tradition of getting together for dinner before the regular NOVAC meetings. I wasn't able to meet the July-August newsletter deadline for an article on this, but we did meet as usual both months. Should I miss a deadline again, please rest assured that we will continue unless otherwise announced.

Anyway, all are welcome to attend, whether you're a regular NOVAC member or perspective member just checking us out, or whoever - just be prepared to discuss a little astronomy. Perhaps we'll be discussing the latest on Comet Hale-Bopp, whether the martian meteorite really shows signs of life (or whether it's from Mars!), the September Telescope meet, or Hidden Hollow '96 in Ohio in October (see article elsewhere in this issue).

As usual, dinner will be held just before the regular meetings, on Wednesday, September 18 and October 16. The place continues to be the *Santa Fe Cafe* in Rosslyn. You should plan to arrive at 5:45-6 PM. This is a nice Mexican

restaurant with reasonable prices, although credit cards are not accepted. Smoking is apparently allowed in one part of this (large) one-room restaurant, but so far, NOVAC members have not been smoking and the few others dining at that time have rarely smoked. If you do arrive first, we would appreciate it if you'd try to sit in the front in the non-smoking section. There's also always plenty of space, so don't worry about finding room with us.

Directions: The *Santa Fe Cafe* is located at 1500 Wilson Blvd., in Rosslyn, with entrances off of both Wilson Blvd. and Clarendon Blvd. This restaurant is easily found, just west of "downtown Rosslyn", on the southwest corner of Wilson Blvd. and N. Oak Street, where Wilson splits becoming Wilson one-way west and Clarendon one-way east. From I-66 East, take the Rosslyn exit to Lee Highway, and turn right at the second light onto Fort Myer Dr. Go two blocks and turn right onto Wilson, and the restaurant will be one block ahead on your left (on the corner across Oak/Clarendon from a big

outdoor sculpture). On street parking is usually available in front of the restaurant, on the other side of the street up the hill, or around the long block (make two lefts) on Clarendon just before it ends by the restaurant. However be sure to feed any parking meter if you arrive before 6 PM. This location is also quite close to the Rosslyn metroraill station.

As before, reservations are not necessary, although it does help to know who's coming so we'll know how big a table to get. So if you know you're coming or if you need a ride to the meeting and back to the metro, or just for more information or directions please give me a call (evenings) at 703-448-7466 or e-mail me at baa@casa.usno.navy.mil.

See you at dinner!

- Brent A. Archinal

Northern Virginia Telescope Meet



**C.M. Crockett Park,
September 21, at
Sunset.**

Be there!

Minutes of the July and August General Meetings Bill Jensen

Minutes of the July 17, 1996 General Meeting of the Northern Virginia Astronomy Club.

The meeting was called to order at 7:30 P.M. by Club President Brenda Clements Jones. She welcomed 60 members and guests to the meeting held at the Arlington Planetarium.

Announcements:

1. Brenda Jones announced that a volunteer coordinator to manage the upkeep of the Savage observing site was still being sought. Interested parties should contact her or any officer.
2. Brenda Jones announced that she was seeking permission for two additional observing dates for meteor showers on October 12 and November 17, 1996.
3. Brenda Jones announced that the library listing had been compiled by Marta Krause, and copies were available for review.
4. Sandy Sanders announced that he was chosen as the new Astronomical League Coordinator (ALCOR), and that Doug Mistler would assist him in that responsibility. He also announced that he would be attending the AL convention later in July.
5. Leif Holloway, Secretary of the National Capital Astronomers, announced that there would be information forwarded to NOVAC members concerning a trip to view the total solar eclipse on February 26, 1998.
6. Nicole Mastej announced that the new Kalmbach book order would be placed by August 2, 1996. She reminded members they receive a 20% discount as members of the club filing orders in this fashion.
7. Sandy Sanders described a recent Io occultation.

Officers Reports:

Bill Jensen reviewed the monthly mail received, including unique transportable Dobsonian telescopes by "Telescopes and More", and star party information for the Montana Star Watch, Rockland Astronomy Club's party in Savoy MA, and the Oregon Star Party.

Observing Report:

Jeff Stetekluh gave the observing report for July, and Brent Archinal conducted the monthly sky tour using the planetarium projector.

July Presentation:

Vice President Doug Jackson introduced Mike Comberiate, NASA Assistant Manager of the EOS Mission. Mr. Comberiate gave a presentation on "Cool Space", NASA's activities involving Earth science in Antarctica. Mr. Comberiate discussed ways to establish

and improve communication with various sites near the South Pole, by transmitting data off satellites in near-polar orbit. He described the environmental challenges that were overcome, and the numerous accomplishments, including sending data at 300 million bits per second back to NASA research facilities in the U.S. Mr. Comberiate augmented his presentation by showing slides and computer images of the Antarctic continent. He noted that astronomers on the southern continent could enjoy the advantage of a night six months long.

He concluded his presentation by answering questions and giving NASA patches to a number of club members.

The meeting was then adjourned at 9:05 P.M.

Respectfully submitted,
Bill Jensen
Secretary

Minutes of the August 21, 1996 General Meeting of the Northern Virginia Astronomy Club.

The meeting was called to order at 7:30 P.M. by Club President Brenda Clements Jones. She welcomed 64 members and guests to the meeting held at the Arlington Planetarium.

Announcements:

1. Brenda Jones announced that Ted Roach had volunteered to be the coordinator to manage the upkeep of the Savage observing site. Members interested in assisting Ted in the upkeep of the site should contact him for more information.
2. Brenda Jones announced that the Bulletin board System (BBS) has discontinued operation. She noted that the club's e-mail listserv and web site currently under construction made the BBS obsolete.
3. Brenda Jones announced that the Northern Virginia Telescope Meet would be held at Crockett park on September 21, 1996, and club members were urged to distribute handouts. It was agreed that white flashlights would be utilized that evening for the public's safety in directing parking. A volunteer sheet for parking duty was circulated among the members present at the meeting.
4. Brent Archinal announced that he had discovered a dark sky observing site at a national forest in the Harrisburg area, approximately two and one half hours' drive from the metropolitan area. No camping is permitted overnight, yet all night observing seems to be allowed.
5. Brenda Jones discussed Stellafane, a star party held earlier that month. Her family and Jerry Wolczanski attended this year, and

enjoyed dark skies and a variety of amateur built telescopes.

Officers Reports:

Vice President Doug Jackson announced that the speaker for the September 18, 1996 meeting would be Dr. Paul Loman, of the Goddard Space Center.

Secretary Bill Jensen reviewed the monthly mail received, including information on Capon Springs Resort, the International Dark Sky Association, the ASP's Real Sky CD-ROM for Macintosh and PC, Rivers Camera Shop's catalog, as well as the Starry Messenger Press's offering for the Astronomy and Space Weekly calendar. A club discount (up to 40%) is offered for volume orders for the latter item; interested members should contact Bill for order details. He also discussed the dark skies and natural beauty of the Oregon Star Party that he attended in the Ochoco Mountains of Central Oregon. Over 600 astronomers attended this well organized star party.

Astronomical League Coordinator (ALCOR) Sandy Sanders noted that he had attended the AL convention in Illinois, and was looking forward to next year's convention in Colorado.

The Observing Report:

Jeff Stetekluh gave the observing report for August, and Bob Bunge conducted the monthly sky tour using the planetarium projector.

August Presentation:

Vice President Doug Jackson introduced Deborah Jean Warner, Curator with the Smithsonian Museum of American History. Ms. Warner presented a slide presentation highlighting the collection of astronomical equipment that the American History Museum has collected. She noted that the purpose of the museum was not just to display artifacts of historical significance, but to collect and preserve items as well. Included in her slide show were pictures of a Garden Telescope designed by Russell Porter, a Spitz Planetarium model (similar to the one used by the Arlington Planetarium), stereo blink comparator, an 1835 Newtonian reflector, Schmidt cameras built during the Depression, and several Alvin Clark refractors. Ms. Warner answered several questions regarding the history of these instruments, and the members voiced their desire that the museum display the artifacts that they have collected.

The meeting was then adjourned at 9:00 P.M.

Respectfully submitted,
Bill Jensen
Secretary

NOVAC Notices and Benefits

Discounts on Sky & Telescope, CCD Astronomy, and Astronomy.

As a member of NOVAC you can get astronomy magazine subscriptions at a discount. To obtain *Sky & Telescope* for \$27.00 (instead of the standard \$36.00), make your check out to "Sky Publishing Co." for \$27. For *CCD Astronomy Magazine* at \$20 per year, make your check payable to "Sky Publishing Co.". You can subscribe to *Astronomy Magazine* for \$18.00 (one year) or \$36.00 (two-years). Make your check payable to Kalmbach Publishing Company.

In each case, note on the check: "new subscription" or "renewal." Send your check to Ken Pettijohn, 7916 Ivymount Terrace, Potomac, MD 20854.

You can also order any publication directly from Sky Publishing at a 10% discount. Just mention the Club Discount Plan and that you are a member of NOVAC.

There are no special 10% discounts offered on publications from Kalmbach Publishing, but read what follows.

Discount on Books

NOVAC is participating in the discount book sales program offered by Kalmbach Publishing. They will sell our members any astronomy related book for 20% off the list price when we send in a group order. Nicole Mastej is coordinating the sales. If you are interested, please see her at a meeting or call her at home (703) 476-1207 to place an order. Make your check payable to NOVAC for the price of the book minus the discount when you place the order. We anticipate doing this 3-4 times a year if demand warrants.

Club Telescopes Available for Use

NOVAC makes available two six-inch (f/5) Newtonian reflectors for club members to check out free of charge and use for a limited time.

One scope is a Celestron model SP-C6 on a Super Polaris German equatorial mount and wood tripod. It will readily fit disassembled in any car and is easily transported and can be set up quickly at remote observing sites. The scope comes with an Orion Ultrascope 10mm and Meade MA 25mm eyepieces with 1.25-inch barrel sizes. To borrow this scope you will need to show your NOVAC observing pass and leave a \$500.00 security deposit.

The other scope is a home-made six-inch

reflector on a dobsonian mount and comes with a 25mm Kellner eyepiece. It is easy to transport to dark sky sites and easy to use. To borrow this scope you will need to show your NOVAC observing pass and leave a \$250.00 security deposit. If you are interested in borrowing either of these scopes, contact Bob L'Hommedieu at (703) 978-0946. He will schedule a time for you to pick the scope up at his home. Bob lives at 4415 Eastwood, Fairfax, VA.

Note: Checks must be made payable to NOVAC. Checks used as security deposits on telescopes are not deposited and will be returned to the originator when the scope is returned in the same condition it was checked out. The scopes may be checked out for two to four weeks at a time, depending on demand.

NOVAC Library

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

NOVAC Observing Schedule for 1996

Observing at Savage Farm, C.M. Crockett Park and Nichlason site: see back cover of this newsletter.

Observing at Parsells Field: any evening.

General Membership Meetings

General Membership Meetings are held at the Arlington Planetarium, 1426 N. Quincy Street, Arlington, VA, on the third Wednesday of every month. Trustee Meetings are held the Tuesday before the week of the General Membership Meeting. Non-Trustees interested in attending should contact a Club Officer or Board Member for further information.

NOVAC On-line

NOVAC maintains an e-mail mailing list. Messages sent to the list include reminders about scheduled observing sessions, announcements for unscheduled sessions, requests for quick observing session

summaries, MIR observability predictions, etc.

For more information, send a message to Chewning Toulmin, pct@his.com.

NOVAC Observing Site Rules

C. M. Crockett Park

Any night that NOVAC observes at Crockett Park, the observing session will be open to the public. The gate will be locked and will not be unlocked unless a NOVAC member enters the park, at which time the gate should remain unlocked until 10 o'clock (or some other prearranged time) when David Petty, Assistant Park Manager, will come out and ask members of the public to leave. The gate will then be locked and should remain locked through the rest of the evening. NOVAC members may remain until they are finished with their observing session.

There is now a 2-week lead time requirement for permission to observe at Crockett Park on nights other than those listed on our schedule at the back of this newsletter. Gary Kwolek recommends that anyone interested in observing in that area on unscheduled nights drive out to the Crockett Park gatehouse, turn left and drive down to the cul-de-sac where you can set up your telescope on the public road.

If any NOVAC member out observing at Crockett Park notices any member of the public violating Park policy, he or she is requested to notify David Petty, who lives in the house adjacent to the end of the parking lot.

During EDT, set up on the large field to the left. During EST, set up on the paved cul-de-sac 200 yds. past the gate. No loud radios, alcoholic beverages or loose pets. Do not leave trash or debris behind. We are guests of the park and park management may revoke our observing privileges at any time due to the carelessness of one person.

Parsells Field: In addition to scheduled nights, NOVAC members may observe at Parsells field ANY evening, with no prior notice. You must park and set up only in the parking area: do not go onto the field itself. Please park to the left near the entrance and set up to the right away from the entrance. The usual NOVAC observing site rules apply: no loud noises, alcohol, or loose dogs, and pick up after yourself. We are guests of the Dulles Little League, and could have our access to this site revoked at any time if it is abused.

Savage Farm Site: The Savage Farm site is reserved for NOVAC use on the same nights as

(Continued from page 14)

Crockett Park plus all the major meteor showers. For non-scheduled observing sessions, call the park manager, Paul McCray, at (703) 729-0596 at least 24 hours in advance and leave a message with your phone number. You MAY use the site for that session UNLESS you receive a call from Mr. McCray stating otherwise. No loud radios, alcoholic beverages or loose pets. Pick up after yourself and do not leave any trash behind. Make sure the gate is locked whenever you are in the park, and when you leave. We are guests of the NVRP and could have our access to this site revoked at any time if it is abused.

Nichlason Site: The same rules apply as for the Savage Farm Site except that in seeking permission to use the site for non-scheduled observing call Smokey Jacobs (Northern Virginia Regional Park Authority) at 703-250-9124 and follow same procedure as with Savage Farm Site.

Directions to NOVAC Observing Sites

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

Alternate directions to avoid Manassas: Go west on I-66 (21.7 miles from I-495) to Exit 43A in Gainesville onto Rt. 29 South toward Warrenton. After 11.8 miles on Rt. 29, stay left (towards Culpeper), to bypass Warrenton (but still on Rt. 29 S.) Go about 1 mile to Rt. 643 exit, Meetze Road. At top of ramp, turn left to go East on Rt. 643. Go 7.5 miles on Rt. 643. Watch for the C.M. Crockett Park sign on your right, and turn right into the Park Entrance Road. Once on the park entrance road, go one-half mile to the park gate.

Parsells Field: From the Northern Virginia area go West on the Dulles Toll Road until you reach Route 28. Go North on Rt. 28 for 2.8 miles to Route 625, Waxpool Rd. (You may also take Route 7 West to 28, then go South to

Waxpool). Turn West on Waxpool, and go 1.8 miles to the Waxpool/Farmwell intersection. Turn left on Route 625, Waxpool Rd. (!), and go 1.6 miles to the Waxpool/Ryan/Shelhome intersection. Continue on Waxpool for about another 1.6 miles to the field. Turn left and follow the blue parking signs to the parking area.

Savage Site: Use some combination of Routes 7, 267 (Dulles toll road), and 28 to get to the Route 7 Leesburg bypass. Go around Leesburg on the bypass until you reach "regular" Route 7 again. From the intersection of the bypass and "regular" Route 7, continue on Route 7 west 18.5 miles to Route 601, at the top of Snicker's Gap. Turn left onto Route 601 south and go 2.4 miles to the park entrance. The park entrance is past the driveway whose gatepost reads *Ben Lomand*. The park entrance is the next driveway on your left. There will be a sign on a tree saying *Wildlife Sanctuary*. If you come to gateposts on the left that say *Belle Allee* and *Ball Alley 1875*, you have gone too far. You may also take I-66 west to Route 17 North. Stay on Route 17 North until it intersects with Route 50 at Ashby Gap. Turn left onto Route 50 and go 1.0 mile and turn right on Route 601. Continue on Route 601 (Blue Ridge Mountain Road) and go two miles past the main gate of the FEMA installation. Turn right at the park entrance after passing the gateposts with *Belle Allee* and *Ball Alley 1875* on your right.

The park entrance on Route 601 is marked by a small brown and white NOVAC sign. The neighbors periodically pull up the sign, so it may not be there. As you turn into the park, go straight ahead until you reach the gate, which is secured by both a keyed padlock and a combination lock. These locks are located to your left behind the gate as you face it from the outside. The combination is on your NOVAC observing pass. ALWAYS lock the gate behind you. The NOVAC lock MUST be locked to the keyed lock, not to the chain, to allow emergency access by the fire department. Drive to the observing area (the stone patio next to the house). There is very limited parking at the observing area itself, so please park in the parking area on the right as you face the patio.

Nichlason Site: I-66 to Rt. 7100 (Fairfax County Parkway) south to Ox Road (Rt. 123) south to second right on Chapel Road to immediate left onto Wolf Run Shoals Road (Rt. 610). Continue on Wolf Run Shoals Road (watch signs carefully at twists and turns in the road) for 3.9 miles to the site. It is immediately after a yellow house with white picket fence on the right. Nichlason Site is on the left marked by "Wildlife Sanctuary" signs on utility poles.

After third "Wildlife" sign there is a dirt/gravel lane into the site.

From Springfield/Burke area: go north on the Fairfax County Parkway (Rt. 7100) to left onto Burke Lake Road. Burke Lake Road becomes Clifton Road just after the intersection with Rt. 123. Continuing on Clifton Road, turn left at the Citgo station onto Wolf Run Shoals Road. Follow Wolf Run Shoals Road as above to site.

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

Membership in the Northern Virginia Astronomy Club is \$18.00 per year and is open to anyone interested in astronomy or the sciences. Contact Ken Pettijohn, Treasurer, 7916 Ivymount Terrace, Potomac, MD 20854, telephone 301 983-3199. All notices of change of address should be sent to Ken Pettijohn. Please include both old and new addresses.

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

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

Article submissions, in ASCII please, may be sent to Elliott Fein at edfein@cpcug.org, or to Elliott's address in Rockville, given above.

Deadline for submissions is three weeks in advance of publication, e.g., Oct. 10 for the Nov./Dec. Newsletter

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1996 NOVAC Observing Dates

C.M. Crockett Park, Nichlason Site

September 6,7,13,14

October 4,5,11,12

September 21

November 1,2,8,9

..... Northern Virginia Telescope Meet
(Crockett)

December 6,7,13,14

Savage Farm

September 6,7,8,13,14,15

November 1,2,3,8,9,10

October 4,5,6,11,12,13

November 17 Leonids

October 21 Orionids

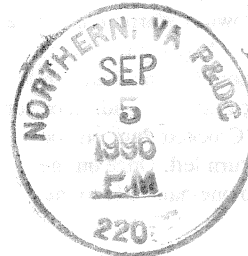
December 1,6,7,8,13,14

NOVAC

The Northern Virginia Astronomy Club

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Meg



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Inside:

**Members Experiences,
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- and much more!**

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