

SEPT.-OCT. 1995



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THE SPECTRUM

NEWSLETTER OF THE BUFFALO ASTRONOMICAL ASSOCIATION, INC.

MEETINGS NOTICE

FRIDAYS: SEPT 8, OCT 13

September 8: "An Evening With The Stars" - Come and spend the evening with Queen Cassiopeia, King Cepheus, Andromeda, Perseus and the other important characters of the early autumn skies (see meeting description below).

October 13: "Project Trinidad" - The ECHO I satellite was developed in the late 1950's, and was an introduction for the United States in the use of unmanned satellites for space exploration. Today, all of the probes and satellites being used for space exploration are a result of the early pioneering efforts of the ECHO project.

Meetings: 2nd Fridays @ 7:30pm Sep-June.
Location: New Science Building Auditorium at
Buffalo State College on Elmwood Ave.

We hope to see you at these meetings.
As usual refreshments will follow.

The main speaker for the September meeting will be Terry Farrell. Terry will present a constellation sky tour along with the mythology connected with some of these constellations ranging from the well

known Greek legends to the lesser known ones of the ancient cultures. Terry has several years of experience in constellation instruction and mythology gained through teaching and practical field study. By the way, clear skies are promised because this presentation will be held at The Ferguson Planetarium at Buffalo State College.

The October meeting will feature a presentation by Mr. Rodney Pratt. Mr. Pratt will speak on the development of ECHO I, NASA's first communication satellite. His presentation will include slides and an actual sample of the satellite material.

An electrical engineer, Mr. Pratt was project manager for the Terminal Segment of the Advanced Space Communications Program, specializing in the satellite communication link. Now retired, he is an electronics consultant for DIGICOMP Research, Corp., which is based in Ithaca, NY. He is a Senior Member of the Institute of Electrical Engineers. His hobbies include membership in the American Radio Relay League, the Quarter Century Wireless Association, where he served as chairman, and the Floyd Horseshoe Club, where he served as president. He and Mrs. Pratt live near Westernville, NY.

Bring a friend and your ideas!

PRESIDENT'S MESSAGE

Terry Farrell

As I begin my second year of my two year term as BAA president, I am encouraging all members to become more involved. After attending several summer star parties, I noticed a trend of the same people attending and sharing ideas. For several of the parties, mother nature dealt us a bad deck in terms of hazy skies or rain, but everyone still took advantage of the opportunity to discuss astronomy and enjoy the fellowship. In addition, during the summer I compiled the results of the membership survey which was recently conducted and discovered some interesting trends. The overall response was only 15 out of 105 members which was quite disappointing but the respondents feedback is very helpful. At future meetings the survey will be available, so please consider filling it out as your input is very important.

The survey respondents were generally happy with club meetings, but made mention that more members should give talks whether short in length or as the main speaker. Additionally, talks should focus more on a learning nature rather than just informative. Also, more observation reports should be presented at the meetings along with the opportunity for members to share ideas. The major portion of the survey focused on the use of the observatory. The overall response was extremely favorable concerning the use of the equipment available ranging from the computers to the scopes, but noted that more volunteers are needed for public nights. The Spectrum newsletter was rated extremely favorable with no need to make any changes at this time along with the presenting of summer star parties. There were several positive ideas offered concerning the offering of astronomy courses for the membership and the

general public, along with starting up sections such as the instrument and study group. Future ideas were offered such as increasing membership, increased public awareness of the club's existence, and continued improvements to the observatory. In an upcoming Spectrum, I will present a complete review of the survey results.

In conclusion, the club has a wealth of astronomical talent among its members, along with individuals who can make things happen. So, carefully consider ways you can offer your services, ideas, criticisms and assistance for the mutual benefit of all members.



A NEW THEORY OF BLACK HOLES

All my life I have dabbled in physics from an amateur's perspective; never did I think that my dream of making an honest-to-goodness contribution to science would be realized, but I believe it truly has. This discovery deals with one of the most acclaimed scientific marvels of recent times - the theory of black holes.

Let me tell you how this revelation evolved. It started one dreary winter day at my clothes dryer. I had just finished unloading it when I discovered I had one white sock - just one! How many times before had I had a similar disappointing experience? How many times have you had it? With stoic good humor I speculated that the errant sock had been gobbled up by a black hole, along with countless

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MEETINGS CANCELLATION POLICY

For any reason, (most likely snow or ice storms), there might be cause for cancellation of the meetings of the B.A.A., tune your radio to either WBEW (930) or WGR (550). Also if Buffalo State College has been closed due to inclement weather, so will the meeting of the B.A.A. be cancelled.

BEAVER MEADOW TELEPHONE

The telephone at Beaver Meadow, 716-457-3104, is for emergency use only at no cost. Local calls may be placed for a small charge - see the collection box by the phone. This phone cannot make long distance calls.

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TAXACOM computer bulletin board - 716-896-7581
for more information call Jack Empson at 716-745-3138

MEMBERSHIP CORNER

Joe Orzechowski

I hope that everyone had an enjoyable summer! I also hope that many of you had a chance to stop by the Beaver Meadow Observatory or attend one of the many star parties hosted by our members. These are great places to see, do or learn something new. Now that summer is coming to a close we can all look forward to cooler (and longer) nights and to an early evening look at Saturn.

The end of summer is also the end of the BAA's membership year. I'm happy to report that BAA membership now stands at 108. Contributing to this total are several new members who joined the BAA during the late spring and early summer months. I'd like to take this opportunity to present them to the club:

John Marino
3237 Broadway
Alexander, NY 14005
547-8364

Anthony & Ruth Mohler
9993 MacLaughlin Rd.
West Valley, NY 14171
942-6894

Lawrence Mead
75 Fernwood Ln.
Grand Island, NY 14072
773-3347

Nels Samuelson Jr.
47 Therin Dr.
Hamburg, NY 14075
649-7795

John, who is especially interested in variable stars, has been a member since May. He uses a 12.5" Orion scope to scan the dark skies of Alexander. The Mead family adds to the BAA's growing Grand Island contingent and their 17.5" Coulter makes a significant contribution to the amount of glass being pointed skyward from there. Obviously, they're well equipped to pursue their interests in galaxies and other deep sky objects. Tony and Ruth Mohler use a Meade SCT to observe the Moon, planets and variable stars. They are hoping to expand their knowledge of computers as well as of the night sky through their BAA membership. Nels, on the other hand, has a good working knowledge of computers. It comes in handy when he sets up his recently acquired LX-200 computerized telescope (or should I call it an Astronomical Object Acquisition System). Nels is interested in many aspects of astronomy as well as wood working, metal working and amateur radio. Please join us in welcoming all of them to the BAA.

I'd like to repeat a recommendation that's often made in this column. All our recent members should make an effort to attend our regular meetings or come out to the observatory on public nights. It's the best way for you to find out what the BAA has to offer and the best way for you to take advantage of those things that interest you. Coming out to the observatory is a great way to pick up some observing tips, learn to find a new object or two, and become familiar with the observatory's equipment. And once you know your way around the observatory well enough you'll get free access to the equipment. Hey, it's one of the reasons you pay dues.

Speaking of dues, it's that time of year again. (I'll pause a moment while the moans and groans fade away.) Dues for the 1995-1996 membership year are due starting in September. You may pay in person at one of the monthly membership meetings (which begin again on September 8th) or you may mail your dues to me at 125 Roycroft Blvd., Amherst, NY 14226. How can you tell that your dues have been received and properly credited rather than used to fund my purchase of a new 6" refractor? Just check the mailing label on your copy of the *Spectrum*. If your name is followed by "(96)" it means that your membership is paid until August, 1996.



TREASURER'S NOTES

Steve Kramer

SKY & TELESCOPE MAGAZINE
ASTRONOMY MAGAZINE
RASC OBSERVER'S HANDBOOK

Astronomy club discounts are available for subscriptions to the two popular magazines, *SKY & TELESCOPE* and *ASTRONOMY*, and for annual copies of the *RASC OBSERVER'S HANDBOOK*.

Officers

Terry Farrell - President
Bob Hughes - Vice President
Lynn Sigurdson - Secretary
Steve Kramer - Treasurer

Board members at large

Joe Drabek - Joe Orzechowski - Bill Smith

Rowland Rupp - Fellow Representative
Dr. Jack Mack - Museum Representative

Joe Orzechowski - Membership

Observatory Directors

Dan Marcus & Bob Titran

Make checks out to Buffalo Astronomical Assn.

SKY & TELESCOPE is \$24 a year. It renews individually around January for most of us. When S&T sends you the RENEWAL CARD, give or send this with payment to me. If your renewal month is not January or February, please check with me first. I will have another reminder in

>>>>> FIRST & LAST CALL <<<<<

Astronomy magazine and RASC ordering
deadlines this month

the next *Spectrum*. However,:

Deadlines for *ASTRONOMY* and the *RASC* book will not have time for notice in the next *Spectrum*. *ASTRONOMY* is \$20 a year. It renews annually by group list, which has already arrived and I need to return at the beginning of October. All current subscribers except: Belter, Goller, Olszewski, Titran bring payment to the September meeting or mail to me by the end of September. Drabek add \$3.34.

OBSERVER'S HANDBOOK of The Royal Astronomical Society of Canada for 1996 is US \$ 11.00 (regularly \$ 16.95).

Stephen Kramer
80 Donna Lea Blvd.
Williamsville, NY 14221



BAA ANNALS

Rowland A. Rupp

5 YEARS AGO - In September, Rick Albrecht of Rochester spoke on George Hale, the telescope maker whose final achievement was the 200-inch on Mount Palomar. In October we heard from Peter Jedicke of London, Ontario. His talk, "Recipe for a Star", covered stellar evolution in a lighter vein. New officers were installed for 1990-1992. They were:

President	-	Rowland Rupp
Vice-President	-	Bob Hughes
Secretary	-	Lynn Sigurdson
Treasurer	-	Steve Kramer

The *SPECTRUM* contained a book review authored by Ken Biggie. The book was sent to the BAA (heaven alone knows why), and Ken volunteered to review it. To Ken's surprise (and probably dismay), it turned out to be a treatise on Seventh-day Adventism. Ken did his best anyway. On a more familiar footing was an Instrument Note by Ed Lindberg on the trials and tribulations of NASA.

10 YEARS AGO - At our September 1985 meeting, Dr. David Meiss from Geneseo State College spoke on the coming apparition of Comet Halley. We didn't know whom we would hear from in October; it hadn't been decided as the *SPECTRUM* went to press. Does anyone remember what happened?

Ed Lindberg wrote an article for the *SPECTRUM* on the dinosaur extinction problem and how it might relate to astronomical events. We had observation reports from Michael Idem and Darwin Christy. Edith Geiger wrote brief biographies of the six candidates for admission to the College of Fellows. They were: Ken Biggie, Rowland Rupp, Darwin Christy, Ken Kimble, Larry Carlino and Jack Mack.

15 YEARS AGO - John Paris from Rochester spoke on "Visual Allusions" (sic) at our first meeting of the 1980-1981 season. Jack Mack spoke in October about the microwave radiation background in space. New officers were: Al Kolodziejczak, Ken Biggie, Ken Kimble and Joe Provato, in the previous order. (I haven't seen an obituary in the *SPECTRUM* for Joe as yet - he died while in England in February of this year. He will be missed, especially at the Christmas Party.)

Fred Price contributed a *SPECTRUM* article on "The Future of Amateur Earth-Based Lunar Observation". Fred

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SPECTRUM STAFF

Bill Smith - Editor / Layout
Bev Orzechowski - Circulation
Luann Szucs - Illustrator

College of Fellows Inductees

The following distinguished members of the Buffalo Astronomical Association were inducted into the College of Fellows at the June 1995 meeting:

Robert Hughes, for his knowledge about solar activity and its effect on the ionosphere, short wave communications, and auroras; observing geomagnetic systems, and for being a speaker on solar activity before several organizations.

He has served the BAA in many ways: Helping on some weekends with Sun Shows at the Museum; serving the public when Halley's Comet returned in 1986; coordinating Astronomy Day at Buff State and Beaver Meadow; assisting with repairs at our observatory at Beaver Meadow, and with the building and wiring of its new addition. Bob was the Director of the observatory in 1987-88, and helped with Public Nights before becoming Director and also after resigning as Director.

He was on the Board of Directors of the BAA in 1988-89, and he is again on the Board. He was Vice President from 1990-92, and is presently serving as our Vice President.

Engene Witkowski, for his excellent work as an astrophotographer, and trying out new techniques and equipment with outstanding results. He has four of his fine photos in Fred Price's latest book, *The Planet Observer's Handbook*. He was recently involved in the building of his new 18" telescope.

He has served the BAA by helping with our Mall Exhibits; the Annual Telescope Clinic at the Museum; with special events, and astronomical computer programs at Beaver Meadow. In 1986 he donated an off-axis guider to enhance astrophotography at the observatory. He has also served as a member of the Board.

Gene is highly intelligent and devotes much time to studying, as he tries to understand the inner nature of things.

Stephen Kramer, for his continuing research on the "Rittenhouse Orrery," and his well-known research on the ancient Antikythera Mechanism, finding correct ratios of the dials, and making the first complete reconstruction of the gears and dial rings, and determining that the mechanism was probably an ancient lunar-solar eclipse calculator. Steve and the late Bob Mayer worked together to produce a fine replica in brass, aluminum, steel and bronze. He hopes to publish his research and work on this remarkable device from the ancient world. He was presented with the College of Fellows Award in 1992 for his Antikythera Device Studies.

Steve has served the BAA on the Board of Directors, and as our meticulous and unerring treasurer for the terms 1990-92, 1992-94, and is now in his third term as our very capable treasurer.

Edith L. Geiger



EDITOR'S NOTE

Bill Smith

Thank yous and SPECTRUM changes

First we would like to extend a hearty "thank you" to both Darwin Christy for serving as SPECTRUM editor for these past 16 years and to retiring SPECTRUM banner artist Edith Geiger. Edith said she has finally run out of ideas (We'd have run out long before!). You will see submissions from them and Edith will maintain her 'Spy and Tell' and biographies columns.

There are some changes in the look and feel of the SPECTRUM and we welcome your comments, suggestions and submissions. Some changes include:

- similar articles are grouped together on the same page
- article continuations are grouped on two pages
- astronomical calendar will include events readily seen from Buffalo
- press-time information from Sky and Telescope's SKYLINE

SPECTRUM DEADLINE

The deadline for the November-December issue is
October 13th.

Send all submissions to Bev Orzechowski
125 Roycroft Blvd., Buffalo, NY, 14226.

SPY AND TELL

Edith L. Geiger

Joel Stuckey has been in Argonne, Illinois, since last January, working at the Argonne National Laboratories, where, by the way, part of the Manhattan Project was produced. He likes his job very much, and the company is so impressed with his work, that it is paying his tuition to graduate school at Northwestern University, where he is majoring in physics. He has also been given a full-time job with the company. He works with computers, medical imaging, and CAT scanners, among other things, and has even taken X-ray pictures of a box of potatoes from Idaho, checking for disease. We're very proud of Joel's accomplishments and will watch with great interest as he climbs the ladder of success.

The August issue of *Sky & Telescope* (pg. 51), lists Bud Abate's development of the Telrad Dew Shield which "slips over the viewing end of the finder" and "incorporates an adjustable mirror to aid in using the Telrad with a reflecting telescope."

With all the heat from which we suffered this past summer, Ed Czapla gave up a trip to a family reunion on Cape Hatteras, to stay home rather than encounter even more sweltering heat in North Carolina. One can take only so much heat.

Carl Milazzo visited former member, Shaun Hardy, who is librarian at Carnegie Institution in Washington, D.C. Carl attended the convention of the Astronomical Society of the Pacific which was held in Washington. Talks on the Keck and Hubble telescopes were part of the program. One of the speakers was Jack Newton, well-known astrophotographer. Carl and Shaun enjoyed a tour of the U.S. Naval Observatory during Carl's visit. Shaun and his wife, Claire, live in Silver Springs, Maryland.

Bill and Elaine Deazley, who left the area awhile back, are now living on Chairfactory Road in Elma. Perhaps we can interest them in returning to the BAA.

Dr. Clifford Stoll is not a former BAA member, but is known to our long-time members as he popped in occasionally at the end of our BAA meetings after helping Ernst Both with public nights at the Kellogg Observatory, when Cliff was a high school student. He is widely known as author of the *Cockoo's Egg*. His new book, *Silicon Snake Oil: Second Thoughts on the Information Highway*, was the subject of his lecture at the Museum last May.

On August 25-27, Gene Witkowski, Bud Abate, Carl Milazzo, Bob Titran and Joe Orzechowski attended the Starfest '95, held at Mount Forest, north of Hamilton, Ontario. Don Parker, former BAA member, who, is a specialist on planets, held a workshop on the subject.

Joe Drabek says he has nothing to report for Spy and Tell. His life is "dull and happy."



WANTED

Your submissions of...

articles
artwork
book reviews
CCD images
comics
equipment reviews
for sale items
observations
photographs

poetry
quotes

plus

comments
suggestions



Preferred format is typed or PC readable WordPerfect for DOS 5.1 or earlier, MS Word for DOS or ASCII.

- scanning available -

Handwritten or other formats are fine too - we really like submissions!

ASTRONOMICAL HAPPENINGS

TIME WELL SPENT IN ASTRONOMY

Moon

1st Qtr Sep 2	Full Sep 8	Last Qtr Sep 16	New Sep 24	1st Qtr Oct 1	Full Oct 8	Last Qtr Oct 16	New Oct 23	1st Qtr Oct 30
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Excellent or very pretty events are italicized and bold.

REMEMBER: After midnight events are for the proper day! Thus an event at 1 am on Jan 10 means you must be prepared be up late on the evening of the 9th.

Date	Time	Elevation	Direction	Evening events left aligned	Event description	Morning events right aligned
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Astronomical Events In September

1	8:40pm	22°	SSW	Jupiter is 3° left of the Moon.
2	dusk-10pm			Public night @ Beaver Meadow Observatory Sagittarius, Lyra and Vulpecula - Quarter Moon
7	7:30pm	8°	ESE	Saturn is below Full Moon; closest around 4:30am
8	7:30pm			MEETING of the BAA
16	dusk-10pm			Public night @ Beaver Meadow Observatory Jupiter, Saturn, Neptune, Uranus - No Moon
24	7:30pm	14°	SW	<i>Jupiter grazes mag 4.5 ω Ophiuchi - see S&T 2/95 p 73</i>
28	8:00pm	10°	SW	Jupiter and bright star Antares left of the Moon

Saturn is starting on the way up the eastern horizon after sunset. On the 10th the sun and the Earth see the rings from identical angles so there is no ring shadow! Watch Jupiter all month as it changes position relative to the background stars especially fast this month due to our shifting viewpoint on Earth.

Astronomical Events In October

7	dusk-10pm			Off-site public night - NOT @ Beaver Meadow call BAA Skyline for info 457-3104 Cygnus, Pegasus and Andromeda - Full Moon
13	7:30pm			MEETING of the BAA
15-27	6:00am	10°	ESE	<i>Best morning appearance of Mercury this year</i>
19	6:00am	12°	ESE	<i>Mercury is highest above the horizon</i>
21	dusk-10pm			Public night @ Beaver Meadow Observatory Saturn, Neptune, Uranus - No Moon
22	6:00am	10°	ESE	Mercury is 5.5° left of the Moon
22	* *			<i>Excellent conditions for Orionid meteor shower - no Moon!</i>
26	7:10pm	11°	SW	Thin Moon between Jupiter and very low Mars & Antares

The year's best morning appearance of Mercury. Venus is a very low "evening star". Saturn's rings are tilted only 2-2.5 deg. to our line of sight but the Sun's angle to the rings is only about 0.5 deg. - GET A VIEW! October is normally the most cloud-free month. No moon for the Orionid meteor shower.

BEAVER MEADOW OBSERVATORY 457-3104

Summer is over, and what a scorcher it was. The fun started at Rowland and Irene's cottage at Lime Lake. The day appeared to be a real washout at first, but most caught a glimpse of a beautiful rainbow. It cleared up that night, and Rowland gave us a guided tour of the night sky with his 6". The seeing was so good, Rowland decided to show off the special imaging camera made from antique adding machines, some older hi-fi equipment, and a reel to reel tape recorder that he gave the talk about in APRIL 1993. With it we were able to "see" the central stars in ring!!! It is amusing what you can do with some old electronic junk parts. Bob Rzoska and Dan Marcus still don't believe their eyes! Jack and Jayne Mack's was clouded out, but we all had a wonderful time socializing, and discussing various astronomical theories. The Beaver Meadow Nature Festival was extraordinarily HOT. There were very few people who showed up during the day, but public night was fairly well attended. The following Sunday we had more people show up at 5pm than we had the whole day. All in all it was a productive weekend. The people who came were really interested, and we may have gained several new members. Larry Carlino's was also clouded out, well sort of, we did manage to view the ring nebula under the worst sky conditions possible. Larry was able to find Vega through the clouds in his finder and miraculously came up with the ring! Bill and Carol's was crystal clear with good seeing! Surprise surprise, Bill actually had his 20" in working condition. (he has been promising it for the last 4 star parties! Can't wait for Bill's annual spring Messier Marathon! Thanks to all for sharing your viewing sites and assisting at the Observatory.

CCD Camera: We have purchased the updated Cook Book Camera instructions, as well as the new program. Classes on the camera will be held on the 3rd Saturday of the month before public night, and we will practice it during public night! The club still needs a program to process the images, especially one that you can track and stack images. If you know of a good one give Dan Marcus a call and let him know the name price and where one can buy it.

Observatory User's Meeting: October 21, the topic will be what we

need to purchase to make the observatory more usable. Eyepieces, filters, periodic error correction, digital setting circles, video equipment, computers (parts). While you are collecting this info, get a price list ready. I am also looking for a volunteer who once we get board approval will have the authority to make the purchases from the Starry Messenger, and other sources of used equipment. The current plan is to try to get things used first before paying full price!

Dan Marcus

PUBLIC NIGHTS LATE SEASON UPDATE

As Public Night season draws to a close, I'd like to take a moment to look back at what we've done this season and forward to Public Nights still to come. First and foremost, I'd like to thank everyone who helped make this year's public events successful. Public Nights can't happen without our crew of volunteers to aim telescopes, point out constellations and answer questions. Special thanks are in order for those who made the commitment to sign up for a public night or two in advance, thereby guaranteeing that someone will be at the observatory on a given date. This takes some of the pressure off of Dan and myself and is greatly appreciated. These dedicated folks include Joe Orzechowski, Bill Smith and the team of Gene Witkowski and August Grillo.

We've had some new speakers and seen some new slide shows this year. Rowland Rupp, Richard Jones, Joe Orzechowski, Bill Smith and Dan Marcus have all presented slide shows to eager crowds on cloudy as well as clear nights. Jack Mack and Bob Hughes guided walking tours of the solar system across the grounds of the Audubon Center. Bruce Newman gave his "outdoor planetarium" tour of the night sky to folks waiting for a look through the 20". Terry Farrell has offered to do a presentation, but so far the fates have conspired to keep him off stage. Terry, the way our weather works, I'm sure you'll have the opportunity sooner or later! Thanks to everyone!

There have also been some improvements made to our facilities this year. Most people realize that the 12" scope was briefly taken out-of-service for work on the mount, and that the 'scope

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THE BEST SEASON FOR OBSERVING

Ask some average amateur astronomers what season is the best for observing and chances are the majority would say it's definitely summer. They'd give as reasons the relatively warm nights and steady seeing conditions brought about by the haze formed from high water content humidity, dust and pollen-laden air. Steady seeing gives high resolution views of the Sun, Moon, planets, and their bright satellites.

In contrast, the winter atmosphere is not only dry and transparent, but bug free. One can even see stars between the bare branches of trees that obstructed the horizon in summer. The winter twilight is short, and it's dark even before 6:00 p.m. This means one can get 5 hours of observing in by 11:00 p.m. In the summer, it doesn't even become dark until 11:00 p.m., limiting observing to the occasional cloudless, moonless weekend. In winter, one can observe seven days a week.

Those cold, dark crystal-clear skies are best for hunting faint planets and moons, absorbing naked eye views of the Milky Way, aurorae, faint double stars, and dim variables. The velvet blackness of the winter sky complements the jewel-like brilliance of globular clusters. Extended objects with low surface brightness, like galaxies and many nebulae, are shown to their best advantage under these conditions.

Different latitudes and seasons vary the beginning and ending of astronomical twilight. For example, if you live near Philadelphia, at latitude 40°N, twilight ends at about 10:30 p.m. on June 22. For observers in Toronto (44°N) twilight ends about 45 minutes later. If you happen to live at 54°N like the folks in Edmonton, twilight never ends during the months of June and July.

At latitude 40°N, there is 2.5 times more dark moonless observing time in winter than in summer. But if you don't count the week nights because of the lateness of the hour when serious deep-sky observing can begin, then winter allows an amateur eight times more observing hours.

In the winter, a person can have a dark sky viewing session lasting 6 hours before the first quarter moon rises, but only 1.5 hours in the summer. In winter one can observe during three moon phases of the month, avoiding full moon. In summer, only the new moon weekend is suitable. There are only three summer weekends falling during new moon, and you can count on at least one of them being clouded out. Of the two remaining, one will be taken up by attendance at conventions such as Stellafane and Starfest; this leaves only one free for an all-night deep-sky session. Try going to sleep at dawn in the summer - it will seem you've just laid your weary head down when the birds start screaming. This isn't a problem in the winter because our feathered

friends have migrated to the deep south. Daylight savings time is anti-astronomy and so is ground fog. An all-nighter during the new moon of June is only 4 hours 45 minutes at latitude 40°N, yet in December you have over 6 hours of darkness before the last quarter moon rises, and a whopping 11.5 hours observing time during new moon.

Many amateur astronomers think that the summer constellations can only be seen in the summer, or that you have to wait many hours after sunset to see them near the meridian. For example, Sagittarius and its beautiful billowing Milky Way is near the meridian just after twilight ends in July. The same is true in October, but it occurs three hours earlier because sunset and twilight end much sooner. Sagittarius can be seen as early as March just before dawn; you don't have to wait for summer. The summer constellation Cygnus can be found in the northwest during a December evening, and again the next morning rising in the northeast for a second viewing opportunity. This is part of the reason why Messier marathons are not held in the summer.

The main thing that discourages amateurs from taking advantage of all the opportunities of the winter skies is the cold. In the February 1993 issue of *Sky and Telescope* (p. 28), there is an article on the subject of how to stay warm. Adding to it, I recommend getting a Carhartt arctic weight coverall or a snowmobile suit. The suit should be one or two sizes larger than you normally wear which leaves room for extra layers of clothing, if needed. Wear an oversize ski-type face mask which leaves extra room for a knit hat or two underneath. The face mask will keep the others in place so they can't fall off. This is necessary because 40% of your body heat escapes from the head and neck area. On nights below zero Fahrenheit, most amateurs are freezing in less than an hour, forcing them to give up and go home. Using these techniques, I've observed many times in the winter for 6 to 11 hours. One night in particular when it was -25°F, I gave up after only 6 hours of observing - not because I was freezing, but because the Moon had risen.

Amateurs in the far north, like Edmonton and Anchorage, and those of the deep south, like Miami and Honolulu, are quite aware of the best season. But it is the telescopes of amateurs in between that are untouched in the winter and are collecting dust instead of photons.

Carl Milazzo

AUTHOR PROFILE

Carl Milazzo has been an active amateur astronomer since 1969 and at various times has been a member of five astronomy clubs in the western New York area. He has built five telescopes, the largest being a 26" Dobsonian. Carl is also an avid astrophotographer, has observed over 2600 deep-sky objects and 38 comets, and has attended nine different astronomy conventions since 1979.



JOHN PRINGLE NICHOL

John Pringle Nichol was a Scottish Astronomer who was born in Brechin, Forfarshire on January 13, 1804 and died on September 19, 1859 near Rothesay.

He was originally educated at King's College, at Aberdeen for the Scottish Church but his attention was turned to astronomy and in 1836 he was appointed professor at Glasgow University. He retained this post with great credit until his death.

Among his works which have been mentioned are: "The Architecture of the Heavens" 1838; "Phenomena of the Solar System" 1838; "The Stellar Universe" 1847; "The Planetary System" 1851; and "The Planet Neptune" 1855. They have the merit of having been written in a very attractive and interesting style, which obtained a very wide popularity. He also edited a "Cyclopaedia of Physical Sciences", finishing it in 1857.

HIPPARCHUS

Hipparchus was a Greek Astronomer born in Nicaea, in Bithynia. He lived around 160-125 B.C. and resided in Rhodes. Later he went to Alexandria, then on to the great school of science. A commentary on Aratos is the only known work of extent. He first ascertained the true length of the year, discovering the precession of the equinoxes and determined the revolutions and mean motions of the planets. He also prepared a catalogue of the fixed stars, among other attributes lost in his journals of time.

Darwin Christy



OBSERVING SITE AT BEAVER ISLAND STATE PARK

Thanks to the efforts of Bud Abate, a BAA member, the club has a Special Permit to use Area 4 at the Beaver Island State Park on Grand Island as an observing site. The only requirements to use the site are that you be a member of the BAA and that you call the park police before 3PM on the day you plan to be use the site. I decided to try this new site this past July 3rd. This article describes my experiences at the site and my impressions of it.

Having made the requisite phone call to the Park Police in the afternoon, I packed my scope and gear into my truck and headed for the park in the early evening. It's certainly a much shorter drive to the park from my home in Snyder than it is to the Beaver Meadow Observatory. I arrived at the park at about 8:00PM and followed the signs to Area 4. I set up my scope off the west end of the parking lot and made the five day old Moon my first observing target as I waited for the Sun to go down. People were still in the park enjoying their holiday picnics and a park visitor from New Jersey took a break from packing his car to take a look at the Moon and chat a bit.

By 9:00PM I made a naked eye sighting of Jupiter. My 3" refractor at 72x showed three of the planets belts. The moon Io was close to the western edge of the planet, moving in for an occultation later that evening. The other three Galilean moons were strung out to the east of Jupiter. At 9:40 I could no longer separate Io from the planet's disk and at 9:45 by my watch I was no longer able to detect any hint of the moon. *Sky&Telescope* listed the time of occultation as 9:45PM. What can I say but "Good watch!"

After Io was gone I turned my attention once more to the Moon. Viewing the crater Alexander I was reminded of Crocodile

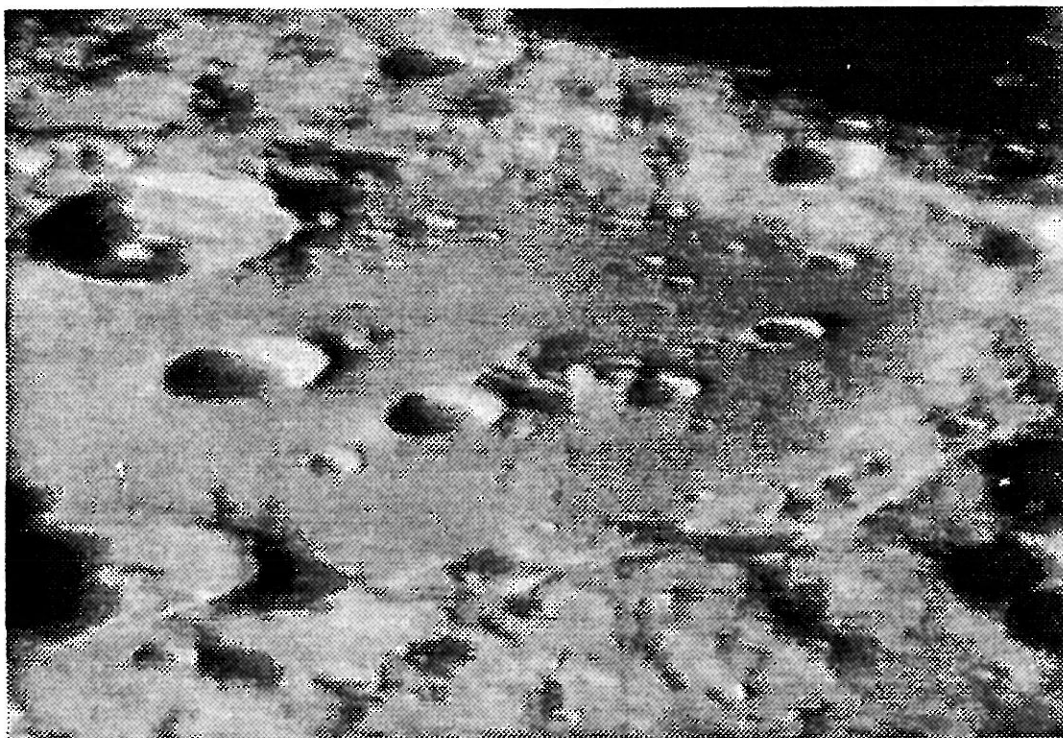
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LUNAR PHOTOGRAPHY with a VIDEO CAMERA

Longtime member Gene Witkowski has been using black and white security cameras for the past few years with great success for lunar and planetary photography. Being based in Buffalo, owning a large telescope and a small car dictates that he observe pretty much from the end of his driveway. His equipment will be briefly described as the proof is in the photography.

His camera is a Panasonic WVBP-500, which has a CCD chip a third of an inch square and has an automatic shutter exposing between 1/60 and 1/10000 of a second. The camera exposes 30 times a second or 1800 frames per minute. Costing \$400 new this is an inexpensive way to do this type of work.

If you have done much high power viewing of the Moon or planets, then you know how infrequently steady the sky can be. Since this is a video camera you can view your image off a TV screen to check the focus "live". This is a big advantage. Gene will often run exposures for



Clavius

All the pictures shown here were done with a 14" telescope. Gene has recently upgraded the scope to an 18" and had the mount reworked with help from BAA members. These are single frames that have been enhanced through SKYPRO, a PC based image enhancing program. A 'frame grabber' is used to capture the video in the PC for further enhancing. Future plans call for using other software that can add images taken at different times together which minimizes the noise and seeing errors and results in better images. Many CCD planetary images in recent Sky and Telescope magazines use this multiple stacked image technique.

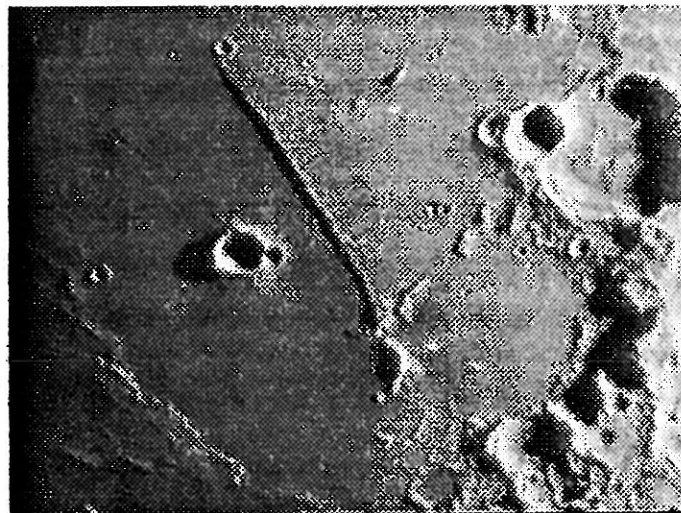
Gene truly enjoys this type of imaging and gets up at all hours of the night in search of steady skies. He says that if anyone has questions or an interest in this type of photography to feel free to give him a call and he is willing to help in any way he can. Augie Grillo got just so interested and now owns Gene's old camera with which he

enjoys lunar and solar imaging. You can too.

Gene welcomes questions and is willing to help anyone get started in this field.

20 minutes with several trials of refocussing. The sky's seeing or the steadiness of the image is the most frustrating part of video photography. For high magnification work, the seeing has to be very, very good and viewing the results of a 20 minute shoot may reveal only a few good stills out of thousands taken. All you need is one good one however - this is a big benefit of this method.

The camera can be hooked to the telescope via a 'T-adaptor' available at larger camera stores. Prime focus, barlow or eyepiece projection may be used to obtain a variety of magnifications. Naturally the higher the magnification, the more difficult it is to get the object in the frame and keep it there under windy conditions.



The Straight Wall

METEOR SHOWER SPOTLIGHTS

Leo Minorids

Another lesser known shower which will occur on October 24th, are the Leo Minorids. They radiate from right ascension 10h 48m and declination +37°. This is an annual shower with short, slow, reddish, 4th magnitude meteors lasting but 2 days. Probably this shower is from the 1739 comet of an unknown name. It is reported that only about 5 can be observed hourly.



Sextantids

On the 29th of September, the Sextantid meteors can be observed from right ascension 10h 08m and declination 00°. This insignificant shower is supposedly irregular in nature, although, lasting about 11 days. The little data known is that they average from 0 to -6th magnitude, white and about 5 to 10 may be observed hourly. A few might be seen in the night skies but most are seen during daylight hours. Perhaps the brighter meteors will leave trails as well as causing sonic booms from their breaking up as bolides. Some years ago, I did observe one while at work, but at that time I did not realize this shower had ever existed.



Darwin Christy

What's Happening In...

As many of you know, Bill Smith and I are both members of the BAA and the MMMAA. From time to time at the meetings, various members of the BAA have approached me to update them on activities at the Martz Observatory. As editor of The Probe, the MMMAA's newsletter, and a member of the Oil Region Astronomical Society, I personally update the Frewsburg and Oil City crowds about the BAA and Bill thought it would be a good idea if I would do the same for the BAA in the Spectrum. So here goes nothing.

Frewsburg (Martz Observatory)

What's new at the Martz Observatory? Well, the big news of the year has been the construction of a 30" Dobsonian by Bill Smith, Tom Bemus and Dave Hezel. The project was funded by my company, The Camera Infirmary. This massive instrument (10' tall, about 350 pounds) is as easy to use as the Obsession and was built in less than two months. Although crude in appearance compared to the beautiful woodwork of the Obsession; with 30" of aperture, obscure deep-sky objects take on the appearance of showpiece objects in smaller scopes.

The MMMAA's other major project of the year has been the purchase of a little over 4 acres next to the observatory. This means that the Martz Observatory will remain a viable educational institution well into the next century. As part of this acquisition, the MMMAA has constructed a new storage building adjacent to our 20"x60" observing terrace behind the dome of Marshal's 30" telescope. This building houses the new 30" dob, the 17.5" dob and a new 8" long focus planetary dob.

A new project just finishing up is the construction of a mini-planetarium for use in member training classes and on cloudy public nights. The small facility will have a 6' dome and will seat 12 adults. Although we would like a much larger set-up, the cost of a building to house a larger dome is not in the budget in the immediate future. This small planetarium will also allow us to develop our skills before diving into the larger unit we would all like to build in the future. The amazing part of this project is that the total cost of the system will be less than \$200.

And, finally, serious damage was done to the wiring and electrical systems of Marshal's 30" equatorial telescope when lightning struck the dome during a major storm in late June. It is likely that this and other problems will keep the original 30" out of service for some time.

Oil City (Oil Region Observatory)

There is a new astronomy club in the area you may not have heard of. It is the Oil Region Astronomical Society. This 3-year old organization has managed to raise over \$70,000, build an observatory on one of the best sites in the region and equip it with some of the best hardware currently available. And they've done all this with a club composed mainly of novices.

The Oil Region Observatory's main instrument is an 18" f/5.5 Newtonian on a massive fork mount. The observatory building has a 16'x16' warm-up/classroom attached to a 20' diameter dome housing. The telescope is elevated above the rest of the building on the second story with a utility/storage area below the observing floor. The "dome" is unlike anything seen in an amateur observatory. From the outside it has the appearance of a conventional roof on a round building. This roof however splits in the middle and the entire top rotates to allow an unobstructed view from horizon to horizon through a 6' wide slit. As a matter of fact, Bill Smith and I contributed major modifications to the plans and we rescued the club from what could have been a disastrous set of miscalculations that would have made the entire facility almost useless. We also were instrumental in designing the unique roof when the original company that was to donate the dome backed out at the last minute and left the club needing a low cost substitute for an expensive dome.

This club has 55 EXTREMELY enthusiastic members. Unlike many clubs though, almost everyone in the club pitches in while doing projects. Former club President (now Treasurer), Tim Spuck, has been the driving force behind this small town astronomy powerhouse. He might prove to be a very interesting speaker on how to motivate members and fund raise for a major project.

Tom Bemus



"NEW" ASTRONOMICAL HAPPENINGS

The biggest change in the SPECTRUM is the content of the Astronomical Happenings column. The intent of it has changed to include the better sky events that can be seen from Buffalo, club meeting notices and Beaver Meadow events. Many more events are normally listed in Sky and Telescope, Astronomy magazine and other sources. The problem

with this information glut is that the better visual events get lost.

Informational events that do not really tie into observing are removed. These include dates of planetary aphelion, perihelion, max latitude north or south, ascending and descending nodes, and when stationary in longitude or R.A.

For Mercury and Venus, greatest elongation east and west are usually close to, but not always, the planet's maximum height off the horizon. These have been replaced by best periods of visibility. Planetary conjunctions are generally listed only if the Moon is within 6 degrees (3 for Uranus and Neptune) and the Moon is 3/4 full or less.

Meteor shower listings will include only the major showers. A meteor shower spotlight from Darwin will be a standard part of the newsletter to keep folks up on some of the minor showers. A handout containing a broad range of major and minor showers together with more information than could normally be in the SPECTRUM (active dates, peak date and direction, duration of the maximum to 25%, typical rates, and comments) is being planned.

For members who relish looking for planets near solar conjunctions, 1 day old Moon/planet conjunctions, observing full moon conjunctions and similar difficult observing can refer to the magazines. The Astronomical Happenings will appeal to the more general, casual observer.

Since this is the major change in the SPECTRUM your comments (pro and con) and suggestions are needed. Send them to any of the editorial staff, or club officers.

Bill Smith, Editor



POETRY CORNER: An ode to Phoebe

Phoebe is one of Saturn's moons and was discovered by William Pickering in 1899. It is Saturn's outermost moon and moves around Saturn in a direction opposite to that of the rest of the moons (retrograde motion). It has been theorized that it may be a former asteroid since captured by Saturn.

*Phoebe, Phoebe whirling high
In our neatly plotted sky,
Phoebe, listen to my lay,
Won't you swirl the other way?
Never mind what God has said,
We have made a law instead.
Have you never heard of this
Nebular hypothesis?
It prescribes, in terms exact,
Just how every star should act.
Tells each little satellite
Where to go and whirl at night.
(Disobedience incurs
Anger of astronomers
Who - you mustn't think it odd -
Are more finicky than God.)
And so, my dear, you'd better change;
Really we can't rearrange
All our charts from Mars to Hebe
Just to fit a chit like Phoebe.*

Author
unknown

Banner contest

Since Edith Geiger has retired from designing the SPECTRUM banner, we are in need of one. The Editors are offering a year's membership (or extension) to the BAA for the best banner idea as to be voted upon by the membership at the December meeting.

The allotted space is 2.1" x 7.9" and you should take into account where to put the issue months and year, and the "Newsletter of the Buffalo Astronomical Association".

As the newsletter is xeroxed it must look well xeroxed.

Please send your ideas, or copy of, in final art form to Bill Smith, 184 Creek Rd, Jamestown, NY 14701. Enter several!

Continuations ...

A New Theory on Black Holes

continued from page 1

others in the past, color notwithstanding. Then came the revelation: Why not a black hole? A very, very tiny black hole.

I had heard of miniature black holes—objects so small that their influence could be felt only over very short distances—black holes far too small to eat stars, planets, even asteroids, but still large enough to devour a sock. Could this really be so? Could a black hole be selective about what it consumes? It was a theory a bit hard to swallow, but it explained scientifically a laundry-room tragedy enacted thousands of times daily across the length and breadth of the continent, perhaps the world. Having a scientific explanation elevated this event from mundane carelessness to scientific wisdom.

But then I lost confidence. I remembered past lost socks. I remembered storing away the survivor along with other single socks. Not all were white. There were black ones and brown ones, even a chartreuse one on one occasion. Always I hoped to find their missing mates; it seemed I never did. Eventually, reluctantly, I would discard those orphans I had saved longest, only to find their counterparts appearing in the next wash. Now, how could my theory accommodate that?

I thought at first that in some arcane way the recently discarded sock was the one that reappeared. Cleverly, I experimented. It took a long time. Each time I threw out a widowed sock I noted if it was a left one or a right one. Sure enough, the one that reappeared was the opposite, powerful evidence that it was the one that had vanished into the black hole in the first place.

I mulled over what I knew about black holes. I recalled hearing about white holes (places where material is spewed into the visible universe instead of being absorbed as in black holes), worm holes (connections between black holes, maybe white ones too, through which material can travel from one side of the universe to another in no time at all) and dissolving black holes (black holes that radiate away their material and disappear). Could one of these theories explain how the missing socks reappear?

Although I still consider myself an amateur in physics (I hope without undue false modesty), I believe in being very conservative in the physical principles to which I adhere. For example, I rejected the white hole theory of sock reappearance on two grounds. First, I think white holes are dreams made up by eclectic (though clever) physicists with too little to do. Second, why would a white hole spit out exactly the sock eaten by the black hole (remember, I had proven that) unless they were somehow connected?

"Connected" made me recall the theory of worm holes—those hypothetical connections between black holes. For a while it sounded like a feasible explanation, but then I realized worm holes were only good for traveling from one side of the universe to another in no time at all. After all, I hadn't moved the washer and dryer one inch from the time the sock was lost until it was found. Moreover, if things moving through worm holes get to where they are going in no time at all, how could I explain the long time interval between losing the sock and its reappearance? Besides, worm holes are pretty unconventional physics

too—like something out of a Disney movie. I rejected wormholes.

That left me with black holes. I felt more comfortable dealing with black holes instead of white ones or worm ones because their theory was much more firmly established. I also felt secure in aligning my theory with that of Dr. Stephen Hawking (after all, he invented the concept of evaporating black holes). Perhaps in the process of dissolving, tiny black holes return their contents intact to the universe. (Here I must digress for a moment and admit I went through a brief period during which I thought that black holes might be associated with the behavior of black socks and white holes might have something to do with white socks. I abandoned further study of this intriguing possibility when I recalled the missing chartreuse sock.)

Having settled on a mechanism for the re-emergence of missing socks, I determined to read in detail the popular works of my new-found colleague, Dr. Hawking. Alas, I might have been better off had I not done so. In reading about the bizarre nature of black holes I came upon the devastating statement that black holes "have no hair". Once I got over my literal interpretation of that phrase, I came to understand that it meant that, except for some hard-to-understand properties like mass, electrical charge and angular momentum (whatever that is), anything that enters a black hole loses its identity forever. If that is so, how can those socks return intact when the black hole evaporates?

But I continued my study hoping for a way out of my dilemma. Hawking showed me the path. He mentioned the anthropic principle. Now if you think angular momentum is a mind-boggling concept, the anthropic principle will really put you in a spin. I won't try your patience with all the ramifications of this concept, but I will tell you that it has to do with the notion that somehow the universe is the way it is because we, personkind, are in it. (Please note, I bow to political correctness.)

In one version of the anthropic principle it is speculated that we actually influence the behavior of the universe because of our presence. If that is the case, it may explain why just socks are selected by these tiny black holes—at least those tiny black holes that live in washers and dryers—instead of towels, shirts and underwear. (I am currently developing another theory that there are also tiny black holes that specialize in devouring other things that come in pairs but don't necessarily live in washers and dryers, like earrings, cuff links, gloves, etc., but that's for another time.)

I am still working out the details of how the tiny black hole spits out the missing sock just after its counterpart has been discarded. I may have to collaborate with my friend Stephen about that. One line of thought is that if our consciousness can influence the behavior of the universe, as the anthropic principle proposes, perhaps the universe and the things in it, like tiny black holes, have a consciousness of sorts too. Maybe those tiny black holes are aware of our actions and wait until the least welcomed moment to return the purloined sock. In which case black holes, at least the tiny ones, do have hair. Worse yet, they are diabolical.

This latter concept is too monumental to contemplate alone. I had better get a letter off to Steve right away.

Gunther C. Wang

— submitted by Rowland Rupp —



BAA Annals

continued from page 2

asserted that suggestions that lunar photographs from orbiting cameras make amateur efforts obsolete is an unfounded premise. He offers suggestions for continuing amateur studies. Also in this SPECTRUM is Edith Geiger's biographical profile of Dr. Gil Brink.

25 YEARS AGO - Speaking at the September 1970 meeting was our own member, Ray Manners. His topic was entitled "Pulsars, Quasars and Gravitational Collapse". In October, William H. Ottemiller from the Finger Lakes club spoke on auroras.

The new officers weren't listed in the SPECTRUM, but according to the BAA History they were Richard Zygmont, Les Stoklosa, Larry Hazel and Edith Geiger, respectively. (BAA histories are still available for \$7.50. If you are interested contact me at 839-1842, or catch me at a meeting.) We had nominees for the second induction into the College of Fellows. Nominated were: Ron Clippenger, Walt Whyman and Richard Zygmont. Zygmont had an observation report of a bolide, and Kurt Erland had a tangy SPECTRUM article on "The Moon is Not Made of Green Cheese Or Is It?" Ernst Both wrote on "Dark Streak in the Crater Aristillus".



Observing site at Beaver Island State ...

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Dundee's hat band with the 'gator teeth. Most of the crater was beyond the terminator and just the peaks of the crater wall were illuminated. The bright peaks separated by gashes of black reminded me of that toothy hat band. I also took quick looks at Aristoteles, Eudoxus, Posidonius, Proclus and the crater trio of Theophilus, Cyrillus and Catharina. The small crater Proclus, with its asymmetrical ray pattern, is one of my favorites on nights when the Moon is full. The night looked to be just a touch on the hazy side but it was quite easy to see the unilluminated part of the Moon's face (Old Moon in the New Moon's arms) both through the scope and with the naked eye. Mars was visible about 5° north of the Moon but since it was well behind the Earth in its orbital path and quite distant, I decided that there would be little more to see than a diminutive red disk.

Shortly after 10:00PM my viewing was interrupted by headlights and a bright spotlight. The Park Police stopped by to check on who I was and what I was doing. Apparently my telephone call to the Park Police office did not get passed along to the officers in the field. When I offered to get a copy of the permit out of my truck, the officer insisted on keeping me in sight and accompanied me to my vehicle with his flashlight. After checking my papers he agreed that I was authorized

continued page 9

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COMA BERENICES

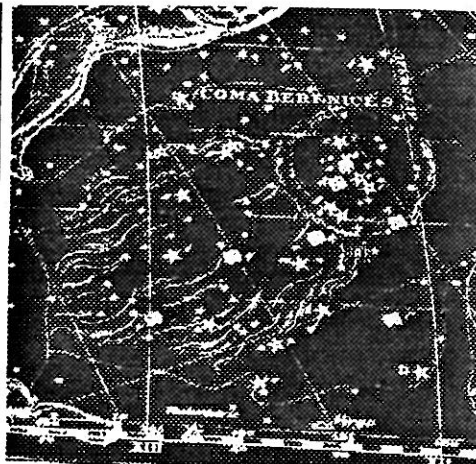
The streaming tresses of the Egyptian Queen
William Cullen Bryant's, "The Constellations"

Not Berenice's locks first rose so bright
The heavens bespangled with dishevelled light.
Pope's, "Rape of the Lock"

COMA BERENICES, Berenice's Hair, was the locks of a great beauty named "Berenice." She was of a royal family and married Euergetes, one of the ancient kings of Egypt. This constellation is not much older than Canes Venatici, although it was, perhaps, formed about the same time, 1600 A. D.

When her husband, the king, was about to set out on a very dangerous expedition, Berenice was so fearful harm would befall him, she vowed to dedicate her beautiful hair to the goddess of beauty if he should be returned safely. Good fortune did attend him and when he did return, Berenice, true to her vow, cut off her beautiful tresses and had them placed to the temple of Venus.

Now behold the glittering maze of Berenice's Hair



The tresses were later found to be missing from the temple, but Conon, the Royal Astronomer, assured the king that Jupiter was so inspired by her sacrifice that he took her tresses from the temple and enshrined them forever among the stars. Proving this, he pointed them out to the king and people the glittering star cluster known everafter as "Berenice's Hair." There is a beautiful bronze bust of Berenice in the National Museum at Naples.

Coma Berenices can be found encircled by Bootes, Canes Venatici, Ursa Major, Leo and Virgo.

Darwin Christy



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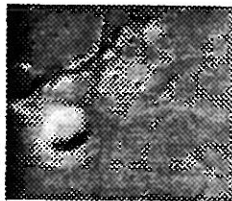
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