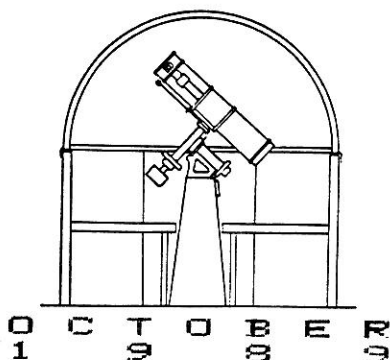


THE SPECTRUM

S E P T E M B E R



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* SPECTRUM DEADLINE *

FOR THE NOVEMBER-DECEMBER ISSUE IS OCTOBER 13TH!

MEMBERSHIP DUES

September 1 marks the start of a new dues year. Send your check (payable to B.A.A.) to: Diane Borowski, 4096 Loring Ave., Blasdell NY 14219. Rates are: Family-\$15, Individual-\$10, Students and Seniors-\$5, Spectrum Subscription Only-\$4. Dues may also be paid at any meeting.

PLEASE MAKE PAYMENT TO - BUFFALO ASTRONOMICAL ASSOCIATION, INC. AND SEND TO DIANE BOROWSKI - 4096 LORING AVENUE, BLASDELL, N. Y. 14219 OR YOU CAN GIVE YOUR DUES TO DIANE AT A MEETING.... CASH PREFERRED!!

elg

MEETING NOTICES

SEPTEMBER:- Friday, September 8, 1989 at 7:30 PM in the New Science Building Auditorium, Buffalo State College on Elmwood Avenue, will be our business meeting and election of three board members as the June meeting was cancelled. I will start the meeting promptly at 7:30. Following will be our regular (short) meeting with our guest speaker, Mike Jefferson from the Hamilton Centre RASC. His talk is entitled, "Selecting the Ideal Telescope." If you are planning to purchase a new telescope, this talk should be most informative. Refreshments after.

OCTOBER:- Friday, October 13th at 7:30 PM we will again meet at the New Science Building Auditorium, Buffalo State College. This month's speaker will give us an opportunity to learn about some of our larger telescopes. From London Centre RASC, Eric Clinton will present, "Observatories of California and Arizona." Refreshments follow....



Doris Koestler, Pres.

PRESIDENT'S CORNER

Our thanks to everyone who hosted star parties this past summer and to all those who attended. A variety of parties was offered from social to serious observing.

Darwin Christy has accepted the position of editor for the "Spectrum" for the 89-90 season. An official appointment will be made at the September Board meeting.

Diane Borowski has accepted the position of Membership Director for the 89-90 season. If there are any changes in telephone numbers or changes of address, please notify Diane as soon as possible.

Joe Provato has accepted the duties as refreshment host for the 89-90 season. Anyone wishing to help Joe, please contact him.

I would like to thank Conrad Stolarski for the many hours he has spent at the Beaver Meadow Observatory, holding the public nights, helping with Boy Scout Troups, and opening the observatory to the public for the total Lunar Eclipse on August 16th. I would also like to thank Ed Czaplak for helping with Boy Scout Troups. They have contributed greatly to help promote astronomy and our organization.


I would like to thank Mr. Vincent Chiarenze, Director of Accounting at the Bell Aerospace Textron Co. for the donation of an oscilloscope and a telescope mount with motor drive. These items were donated to the B.A.A. through Rowland Rupp, an employee of Bell Aerospace.

The Bob Mayer College of Fellows Award is again in the possession of the B.A.A. Ed Lindberg was able to obtain the award from the Bob Mayer estate. On August 5, 1989, Ed placed the award in the Beaver Meadow Observatory as a memorial to the man who devoted much time and love in the building of the Beaver Meadow telescope.

There will be a board meeting on Tuesday, September 5, 1989 at 7:30 PM at my home.

At the January Board meeting, Carl Milazzo was appointed to head a committee to do a feasibility study for the purpose of building a new telescope on a new site. During a conversation in July between Carl and the President, Carl stated he would step down from the commission. I will hold a meeting on Thursday, September 12th at 7:30 PM for those members who are interested in this project. The meeting will be held in the Conference Room in the New Science Building at Buffalo State College.

The Photographic Showcase has been rescheduled for the December Meeting. Please contact me if you wish to display photographs or slides.

 Doris Koestler, Pres.

The following is a report, prepared by Bill Rogers, of a Study Section meeting held this past Spring. The topic was Neptune prior to the recent Voyager encounter. The Study Section plans to discuss at a future meeting the discoveries made by Voyager, and to contrast them with what was known before the fly-by.

The Study Section is open to all BAA members. Topics are chosen in advance by the members and can be tailored to beginning or intermediate interest in astronomy. If you would like to join the group contact Bill Rogers, Marilou Bebak or Rowland Rupp. Meetings have been held at Buffalo State on the Tuesday following the general meeting.

NEPTUNE BEFORE VOYAGER II FLY-BY

On August 25, 1989, Voyager II will sail over the north pole of Neptune at a speed of more than 17 miles per second, passing within 2,700 miles of the cloudtops.

In anticipation of that event the Study Section met on March 14th to share their researches into the planet Neptune under the direction of Dr. Fred Price. What follows is a compilation of notes submitted by Dr. Price, Rowland Rupp, Marilou Bebak, Geraldine Lupo, and Bill Rogers.

DISCOVERY

Spotted by Gottfried Galle on September 23, 1846 on the basis of mathematical calculations by Leverrier (1846), Adams (1845), and in agreement with prior calculations by Bessel (1840) and Bouvard (1821). Probably observed by Galileo in 1613.

Triton, moon of Neptune, discovered by William Lassell in 1846. Nereid, another moon, discovered by Gerard Kuiper in 1949. Rings, as of mid-1988, eight sightings of ring arcs had been made.

ORBIT AND PHYSICAL PROPERTIES

Average distance from the Sun is 2.8 billion miles. The period is 164.75 years. Mass is 25.2 times that of the Earth, with a density of 1.66 times that of water. Taylor's 1968 determination of Neptune's diameter by the occultation method gave a figure of 31,000 miles at the equator (slightly larger than Uranus). Wildt's model for the internal structure predicts a core of 12,000 miles (iron and silicon) surrounded by an ice layer 6,000 miles thick, and topped with a 2,000 mile thick cloud layer. A model by Ramsey predicts that the globe contains much water, methane and ammonia.

Infrared studies of the atmosphere have revealed the presence of a haze of aerosol particles or ice crystals. There should be methane clouds at the predicted temperatures and pressures (85 degrees Kelvin and 2 bars). Voyager II will be able to image these clouds if they are there, but its radio waves will not be able to penetrate deeply enough to detect lower clouds of water ice.

The upper atmosphere (haze layer) rotates at a rate of 17.7 hours while the lower atmosphere takes 18.4 hours (= strong wind shears). Voyager II is expected to pick up the planet's magnetosphere and to gauge the true rotation rate based on the interaction of the planet's magnetic field with the solar wind of charged particles. The rotational axis is tilted 29 degrees from perpendicular to the plane of its orbit.

TRITON

Triton may be the largest moon in the solar system. Jupiter's Ganymede is its rival for that title. That its atmosphere contains methane was discovered by Cruickshank et al. and nitrogen has also been observed. Methane ice and water ice may form its surface and there may be a liquid nitrogen ocean near the south polar region.

Triton's methane ice may be concentrated in one hemisphere because Triton is brighter for one half of its orbit than it is for the other. (This would imply that the rotation and revolution periods are the same.) Triton's diameter (1,400 to 3,100 mi.) has been calculated from apparent brightness and albedo estimations. If the surface is composed of methane ice, the diameter is probably about 2,200 miles. If the surface is composed of dark hydrocarbons, the diameter may be 3,055 miles. If bright ices, then 1,400 miles. Since the mass of Triton (1.9 x Moon) is pretty well known from perturbations on Neptune, the diameter measurement would have a profound effect on density (if 1,400 miles, then 8 grams per cubic centimeter).

Because Triton's orbit is retrograde (period = 5.88 days), it appears that that the moon may have had a strong interaction with another body in the past. The speculation is that Pluto may have been a satellite of Neptune and, in an interaction with Triton, was flung out of its orbit while reversing Triton's (Lyttleton, 1936).

Objections - If Pluto had been a close moon of Neptune, it would have been thrown out of the solar system by the encounter. If Pluto were a remote moon, it would not have interacted with Triton at all.

- W. McKinnon suggests that both Triton and Pluto formed as independent planetesimals. Triton may have been captured by Neptune. The energy of capture would have been dissipated in Triton and would have catastrophically melted its icy surface.

- If Triton were captured, is it consistent for it to have an orbit of zero eccentricity?

Researchers agree that the orbital distance of Triton (220,000 miles at closest) is decreasing and that the moon will fall into Neptune's Roche limit eventually and be destroyed by tidal forces. T. McLard (1966) puts the event in the range of 10 to 100 million years, while A. Harris feels that 10 billion years is more appropriate, due to the effects of Neptune's tidal dissipation factor.

Voyager II will pass within 25,000 miles of Triton and be able to image features as small as 0.6 miles (9 football fields).

NEREID

Nereid is believed to have a diameter anywhere between 190 and 680 miles. It is known to have an orbit with an eccentricity higher than any other moon (0.75), and must be a captured minor body. According to calculations by R. Rupp, its greatest distance from Neptune is just over 6 million miles and its closest approach is just under 900,000 miles. It has a mass of 1/2500 Earth's moon and a sidereal period of 360 days. Voyager II will pass 2.9 million miles from Nereid.

BAA ANNALS

5 YEARS AGO - Our own Dr. Jack Mack was our opening speaker for the 1984-1985 season. His topic, an entertaining "How Far Is a Star". Dr. James Houck, Professor of Astronomy at Cornell University, spoke on "Results from the Infrared Astronomy Satellite (IRAS)" in October.

Our lead article was "Further Thoughts on Observing Mars" by Michael Idem. In it he offers valuable suggestions for using filters to enhance features on the red planet.

Edith Geiger's biography was on Shaun Hardy, former President of the Lockport Astronomy Association. In her SPY and TELL feature she noted that Ernst Both had just been named Director of the Buffalo Museum of Science. Darwin Christy was also mentioned for having sent a tape-recorded lecture on his observations of a solar eclipse to a Japanese amateur astronomy meeting.

There appeared in this issue a detailed condemnation of the practice of astrology. (This was prompted by a talk we had on the subject a month of two before by Claudia Bielinski.) The next SPECTRUM carried comments and rebuttals. Who said astronomy can't be fun?

10 YEARS AGO - Ed and Olga Lindberg were our speakers in September 1979. Their topic, "The Story of Time", was highlighted by photos of sundials they had accumulated in their travels. Emil Pallos from the Broome County Astronomical Society spoke in October. Joe Provato's biography was the subject of Edith's BAA Profile.

15 YEARS AGO - RICHARD CLIFFORD, then President of the Hamilton, Ontario, astronomy society, spoke on "Unusual Astronomical Theories" to open our 1974 season. Orrin Christy spoke on "Astro-Logical Tides of Solar Activity" the following month.

Dr. Frederick West, a former member and professor at Buffalo State, wrote an article on research he had performed on the triple star system ADS 14893. His work extended over nearly a ten year period.

20 YEARS AGO - SPECTRUMs were published monthly in those days. The September 1969 issue was all of 1 & 1/2 pages of unreduced type. This Annals will probably contain as many words as that whole issue did. It announced that Richard Karlson from Rochester would speak on Stonehenge.

Ed and Olga had just returned from a Scandinavian trip. No doubt they were collecting pictures of sun dials. Walt Semerau, who had recently retired from Linde, was busily at work on his solar photography. Dues were \$5 then.

The October SPECTRUM noted that our speaker was to be Vice-President, Orrin Christy. His talk was "Amateur Radio Astronomy". Fred Price included his sketch of the Lunar crater Atlas, along with descriptions of his observations.

25 YEARS AGO - Paul Redding spoke on "Seeing" in September and Ronald Clippinger described results of a recent survey of stars in the solar neighborhood in October. Ron had just been elected President of the BAA.



Rowland A. Rupp

ROBERT H. HUGHES

Bob was born in Buffalo, and his early education took place at Hoover Elementary School in Tonawanda. Between elementary school and junior high, the family moved to Youngstown where Bob went to the Lewiston-Porter schools for junior and senior high. The family moved back to Tonawanda and Bob spent his senior year at Kenmore East. In junior high he became interested in astronomy as he observed the constellations and planets. He owned a 2.4" telescope, which he now uses for solar observations. He continued his new found hobby through high school, and also became enthused over electronics and short wave listening.

On graduating from high school, he received a Regents Scholarship and went to Erie Community College, North, to study electronic technology. After graduation, he went on to Clarkson University where he studied engineering for a year, but decided that he wanted to get busy on a career. He passed the required examination to receive his radio commercial license (FCC) for repairing and servicing, and got a job in the Radio Shack Service Department in Tonawanda where he has worked for twelve years.

In 1977 he married Cindy Gifford, a psychology major at SUNY at Potsdam. Cindy works at United Parcel Service in Cheektowaga. The Hughes have two cats, and Cindy collects cat figurines. Bob and Cindy took a trip to Israel in '78, visiting the Sinai Peninsula, the Red Sea, Golan Heights, Jerusalem and Bethlehem, and while in northern Israel, put foot into Lebanon.

Bob worked along with Jack Empson and Dave Sepulveda at Radio Shack. Bob and Jack decided to attend Astronomy Day at Buff State in '82, where Bart Bok was the distinguished speaker. As a result of that Astronomy Day, Bob and Jack became members of the BAA, and were instrumental in getting Dave to join our association.

Bob's main interest in astronomy is solar activity and its effect on the ionosphere and short wave communications, and he is greatly impressed by auroras. He follows the space program, checks satellite tracking signals on VHF radio, and contacts WWV in Colorado for information on solar activity, the ionosphere and auroras.

He has given talks on solar activity before the Buffalo Amateur Repeater Association, the Genesee Amateur Association, South Town Radio Association, and the BAA. On some weekends he has helped with Sun Shows at the museum. He was Director of the Beaver Meadow Observatory in 1987-88, and helped with Public Nights before becoming director, and also after resigning as director. He took an active part in serving the public when Halley's Comet made its appearance. Repairs to the observatory were also part of his many services to the BAA.

He remembers well the 30 streak of light from Comet Bennett in 1970, and recalls the excitement of seeing the fireball in 1966 which landed on an Indiana farm, setting a wheat-field on fire. These things created an additional impact on his fascination with the heavens.

He received his ham-radio license in 1984, and helps with ham-radio public service communication using ham-radio to ham-radio. In this capacity he has been involved with the Buffalo Marathon, Empire State Games, and the big Hydroplane Regatta on the Niagara River. He has helped organize communications and given logistical help for the Regatta. Orrin Christy runs the clock and Bob is in charge of communications. Bob was also in charge of thirty amateur ham-radio operators who provided communications for the 1989 Grand Prix Championship held on July 22-23. He took a flag and communication course for auto racing and received his SCCA license permitting him to be a marshal (track official). He has worked at the Watkins Glen races and at the Trans Am races in Niagara Falls.

Bob has had a strong interest in meteorology for a number of years. He follows the weather on a regular basis, and is a member of the Skywarn Amateur Radio Service, a national organization working with the Weather Bureau. If threatening weather conditions exist, a couple members of the organization receive a call from the Weather Bureau, to go to the airport Weather Service office where they use ham-radio to receive reports from other ham-radio operators concerning localized threatening weather conditions, funnel clouds and severe thunderstorms in the surrounding area from Canada to the Pennsylvania, New York State line. Reports from members of Skywarn are relayed to the Weather Bureau. Skywarn is an invaluable organization, and Bob's contribution to it is of great importance.

Bob likes his trips to radio flea markets where he collects electric "junk" which he uses to fix radios. As his mind gravitates toward the electrical, he has great skill as a fixer-upper.

He is a fine chess player and has entered tournaments in which he has won cash. He organized a tournament while at ECC and was a member of the U.S. Chess Federation when he was at Clarkson. If anyone would like to play chess with a champ, here's your chance. Along with his other interests, he is a football, hockey and motor sports fan, and went to see the Bills play in Boston a few years ago.

Bob has a sparkling charm and though a quiet fellow, he has a very outgoing personality. He has an obvious sincerity in his undertakings and a modesty in his accomplishments. He gives generously of himself and his time to be of service to others. He is a really fine young man.



Edith L. Geiger

ASTRONOMICAL HAPPENINGS

SOLAR:- The sun will travel out of Leo by September 12th and into Virgo through October 24th. It will then enter Libra and remain there into November. The days are becoming shorter as the Sun's apparent motion is taking it towards the south. A conjunction will take place on the 29th of September with Mars. And, again we can try that old trick of standing an egg on its end when it crosses the celestial equator on September 22nd (Autumnal Equinox). It worked last March, I KNOW!

LUNAR:- The MOON's phases for the next two months are First Quarter on September 8th and October 7th; Full (Harvest) on September 15th and (Hunter's) on October 14th; Last Quarter on September 21st and October 21st; and New on September 29th and October 29th.

LUNAR CONJUNCTIONS:- Mercury on September 2nd; Venus on

September 3rd and October 3rd; Uranus on September 9th and October 6th; Saturn on September 9th and October 7th; Neptune on September 10th and October 7th; Jupiter on September 22nd and October 19th.

PLANETARY EVENTS:- Pluto reaches perihelion on September 12th, look for it! Mercury is at inferior conjunction on September 24th and on October 10th is at greatest elongation west (18 degrees).

STATIONARY PLANETS:- Uranus on September 9th; Mercury on September 11th and October 3rd; Neptune on September 20th; and Jupiter on October 28th.

METEOR SHOWERS:- On September 11th the Epsilon Perseids, a lesser known shower, has fast, variable streaks out of right ascension 04h 04m at declination +36 degrees. Their duration is about 24 hours, with only 5 to 10 reddish fourth magnitude meteors can be seen. Observational data is needed. Other meteors in September are Beta Lacertids on September 1st as are the Aurigids; the Southern Piscids on September 20th; Kappa Aquarids on the 21st; Alpha Aurigids on the 22nd; and the Sextantids on the 29th.

On October 9th are the well known Draconids. They radiate from 17h 40m R.A. and declination +55 degrees. They were caused by the Comet Giacobini-Zinner of 1900. It is an irregular shower with a duration of 1 to 2 days, giving off a bluish hue, and of third magnitude. As many as 20,000 have been counted in 1933. It is perhaps as irregular as to have a 12 to 13 year cycle of greatest counts. The next predicted maximum is in 1992, when an amount greater than 2,000 should be seen. Other meteors in October are:- the Quadrantids on the 2nd; Andromedes on the 3rd; the Northern Piscids on the 12th; Epsilon Arietids on the 17th; Epsilon Geminids on the 19th; the Orionids on the 21st; Leo Minorids on the 24th; and the Taurids on the 31st.



Darwin Christy

SPY AND TELL

Hugh Pettit's picture appeared in the Buffalo News on July 4th in which he is seen with a sea gull perched on his extended hand over his head at the Erie Basin Marina, feeding curly-Q fries to the bird.

Congratulations to Margaret and Art Rabe who celebrated their 50th Wedding Anniversary on July 15th with an afternoon reception in their honor, given by daughter, Linda Rabe Barnes.

Ernst Both spent the last two weeks in July on his annual trip to the Adirondacks in search of mushrooms.

Gene Witkowski has a kayak, 17' long by 24" wide. He takes it out in the lake and has confidence in his kayak and himself, and has ways of saving himself if a serious situation should arise. He was out on the water during the wind storm on July 10th when waves were 8' high. He maneuvered the swells with great dexterity, arriving safely on shore. Gene enjoys the friendliness of boaters on the lake as they wave to him in passing, with an occasional surprising incident.

The 20th anniversary of the Apollo lunar landing was celebrated at the museum on July 20th, at which time Gene Witkowski exhibited some of his lunar photos, Fred Price had some of his lunar drawings on display, and Edith Geiger had her lunar sketches on view.

The Skyline Horseshoe Club at the Darien Center campground invited the Crow's-Nest Horseshoe Club to which Rowland Rupp belongs, to a horseshoe match at the Darien campground. After the match, Rowland and Doris Koestler's husband, Bill, of the Skyline Club, played two members of the Crow's-Nest Club and won five out of nine games. The Crow's-Nest Club invited the Skyline Club to a return match the first two weeks in August.

Shaun Hardy, who has been research librarian at the Buffalo Museum of Science for two-and-one half years, resigned to become librarian of the Carnegie Institution of Washington, D.C. We wish him the very best in his new position.

Jack Empson coaches a girls' softball team comprised of 9-12 year olds as part of the Town of Wheatfield Recrea-

tional Department program. The girls didn't win any games last year, but as of July this year they were in 2nd place.

Wedding bells will ring this fall for Bill Smith and Carol Lorenc.

One of the highlights at the museum during the summer months was the Summer Science Circus from July 17-August 11, designed for ages two through adult, with special events each week. Marilou Bebak and Bill Rogers of the museum staff were seen on TV, discussing some of the happenings.

Dave and Cathy Sepulveda and son, Adam, went to visit Cathy's Mom in Sandwich, Massachusetts, from July 29th to August 5th. They had a great time. They went whale watching and saw twelve humpbacks, one minke and one finback. On the way back they were surprised to see a leatherback turtle which is rare for that area. They took in the Boston Red-Sox-Cleveland Indians game, and visited the Eda-ville Railroad which is a steam locomotive museum located on a large cranberry bog. This is a working railroad but a small gauge train. The Sepulvedas did a lot of swimming in the ocean, and had a wonderful vacation.

And now for a few goofs:

Jack Empson ran over a handicap sign with his truck.

Doris Koestler spent some time at her trailer on the campground at Darien Center. On the way to the camp, someone using a lawn mower, propelled a stone which put a dent in her car. To add further insult, she ran her car into a tree on the campground, and also had a shopping cart crash into her car in a supermarket parking lot.

A baby girl, Colleen, was born to Jerry and Adrienne Morris on August 2nd.

A baby boy, Jamey, was born to Tristan and Debbie DiLapo on August 7th.

Jack Mack and family arrived at the Rupp's Star Party only to find they were a day late.



Edith L. Geiger

KELLOGG OBSERVATORY REPORT

Summer Sun Shows began on July 5th. Astronomy Assistants Dan Kujawinski and Nancy Adams have welcomed 2,200 visitors from 8 countries and 27 states while showing them some spectacular views of the sun. A large surge flare was observed on the western limb of the sun on July 19th at 11:00 am. A huge spike-like prominence was visible for 5 minutes before it dissipated. Sun Shows end on August 25th.

The "Return to the Moon Day" celebration of the 20th Anniversary of the Apollo 11 landing on the moon was a tremendous success. 700 people attended and saw original film footage from NASA of the lunar landing, and planetarium shows. **Special thanks to BAA members:** Bill Rogers who conducted space vacuum demonstrations, Bill and Carolyn Halbert who ran the "Lunar Pursuit" Trivia Contest, Gene Witkowski, Dave Bull, Nancy Adams, and Bob who demonstrated telescopes and answered astronomy questions, and Edith Geiger and Gene Witkowski for bringing their sketches and photographs of the moon. The Museum received many favorable compliments on the day.

Attention! Anyone interested in volunteering for the astronomy demonstration, "Reasons for Seasons" during the Big Chill: Return of the Ice Age exhibit, should plan on attending **one** of the following training sessions: Tuesday Sept. 5th 9:30 am - 12:30 pm, or Tuesday Sept. 5th 6:30 pm - 9:30 pm, or Saturday Sept. 9th 9:00 am - 11:00 am. Help is needed from Sept. 16th - Dec. 31st on both weekdays for school groups and weekends for the general public. Call Marilou at 896-5100 ext. 214 for more information.

Buffalo State College will be receiving satellite communications direct from JPL during the Voyager 2

Friday or Neptune. You can watch in the Communication Center-East on the Buffalo State Campus August 21-29 from 9:00 am - 4:00 pm. Call 878-4911 for more info. Ernst Both will lecture at the Museum on the Voyager 2 flyby at 7:30 pm on Friday Oct. 6th and Friday Oct. 13th. The Kellogg Observatory will be open to the public after the lectures.

ML. Bebak

OBSERVATORY REPORT

I would like to thank all those who held a star party this summer. Since it was partly cloudy for most of them, it was a challenge to find our favorite objects. When your "sky" marks are missing, you know it's there, but have troubles finding them. All who attended enjoyed themselves; At the Rupp's, we all learned to graciously loose in horse shoes, and viewed double stars. The Halbert's taught us to sing stellar melodies, and the advantages of a portable scope for viewing Venus. Bill Smith and Carol Lorenc taught us to dodge alley apples in the dark, and Carol's Dad showed us what a 24" stack of swedish waffles and pan-cakes looked like. (covered with **real maple syrup**) If you did not stay for breakfast, you missed a real treat! Larry Carlino gave us the wish list, ie I wish I had one of those. It is a real pleasure to have someone to discuss the nuts and bolts of astronomy with. Jack Empson, and Doris Koestler showed us how to handle 24 Boy Scouts at the Beaver Meadow picnic and public night.

Dave Junkin expressed his thanks for all those who helped with the Beaver Meadow Nature Festival. He has been getting favorable reports about public night, and would like to give special thanks to Conrad Stolarski.

The Lunar Eclipse was well attended by the public. Over 50 people came to view it! Conrad and I would like to thank all of those who brought extra scopes, as well as those who helped with the public.

There has been a donation of a tracking mount from Bell Aerosystems, that will be installed out at Beaver Meadow. More to be announced at the September meeting.

NEEDED volunteers for public nights. Please sign up before you get volunteered!

Have you tried our solar filter? The sun spot activity has been really spectacular! The week of August 13, had a spot group bigger than the group in March! Note: the Museum needs volunteers for the solarlab, please contact Marilou Bebak.

As usual **photographic sessions** will be the second Saturday after the meeting. Sept 16, Oct 21, Nov 18, and will start at 8:00pm, or after public night. This fall we will work on lunar photography, and piggybacking. This should prove much easier than long exposure prime focus photography.

Daniel R. Marcus

INSTRUMENT NOTES

If you've had your ear to the ground lately you may have heard rumblings of discontent. We seem to need a larger telescope and a bigger observatory to house it. Without going into the cost effectiveness (time, money and slave labor) of such a project, we can all agree that the matter needs study.

I don't intend to get into a discussion of the problem of a bigger telescope but merely to point out in passing that amid rumbling there was a still, small voice that drew my attention. The little voice was heard to ask, "How big a telescope can we BUILD?" This is a refreshing change from the grandiose plans and the elaborate fund raising drives.

It doesn't seem hard to make the decision to make a bigger telescope. But unless a lot of careful planning has been made we may meet some overwhelming problems. One of our problems as a group is that we have no central club workshop. Years ago we met in the Craft Shop of the Museum of Science, but this is gone to us, a victim of the budget axe. One alternative is to use some member's garage or basement. But the place will be locked up while the owner is on vacation. We need the basement of a public building like the Museum in Toronto where there is a larger room with a large mirror grinding machine and small individual pedestals and lockers to put away individual projects.

Another stumbling block is size. How big a project can a given group handle? I saw the 24 inch primary mirror built by the Jamestown Club in one of the member's basement. This was 150 pounds of glass flesh. Something like 24 inches would seem to me to be the biggest size and even this is somewhat beyond the practical range. Of course, the new thin blank may help, although a bit harder to control while grinding and polishing as well as placing it into a mount.

Another problem is the shortage of craftsmen. We have a few, but it takes a pretty good sized group. How many members do we have like Bob Mayer, who could build a huge mounting all by himself? If you divide the number of project hours by the number of workers you will find that someone is going to put in some horribly long hours.

This points up a still bigger problem. After the slaves have put in an interminable list of hours, they may begin to ponder. When they finally finish the job some young observer will come along. He knows where everything is, so is the natural to man the scope. Maybe that's why there is quite a few individual observatories. I don't like to be pessimistic but what would happen if we kept the installation we have, which has brought pleasure to many, and if an individual wants a bigger scope, put it in his own back yard?

Ed Lindberg

LUNAR ECLIPSE

In the Buffalo Evening News of the 18th, a multi-exposure of the eclipsed moon appeared. The moon's appearance was not the greatest, although appeared for the general public to see. What was the real reason for this small article was the caption under the photo. It said, "The orange glow is Earth's shine, or light from the surface of the Moon." My question is, "Who gave them that information, it being incorrect?" It is the refracted light from the sun through the earth's atmosphere that causes the reddish or coppery color reflected from the moon. Remember that when the sun rises in the east, we see the refracted light of the longer waves of the spectrum. Also when the sun sets in the west, the same thing occurs, giving us the red sunrise and sunset. This refracted light from the sun through the earth's atmosphere is also a part of the darkened cone shadow in an eclipse. The cone of shadow from the sun past the earth is but about a half of a degree while the refracted shadow is nearly 4 degrees angled past the earth. If it was not for the refracted light, the eclipsed moon would be black in all eclipses.

Ed.....

DUPLICATION

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SEPTEMBER CONSTELLATION

AQUARIUS, the Water Carrier or Waterman, is an old and ancient constellation among the Zodiacal family of asterisms. In ancient mythology, the pattern of stars seemed to represent that of a man pouring water out of an urn. Even on old Babylonian tablets or stones, this constellation had been shown to represent a man or boy pouring water from a bucket or cup, with a towel draped over his arm or hand. It was famous among the Arabs, Egyptians and Greeks, dating as far back as 1500 B.C.

While by the Horse's head
The Water Purer Spreads his right hand
-author unknown

Its place seems to be within all the constellations associated with water; Cetus the Whale; Delphinus the Dolphin; Eridanus the River; Hydra the Water Snake; Pisces and Piscis Australis the northern and southern fishes; and Argo the Ship close by.

New Testament Christians, during the 16th and 17th centuries, likened it appropriately to John the Baptist and to Judas Thaddius the Apostle; even to Moses who was taken out of the water.

The Egyptians assumed that the floods on the River Nile were caused by the Water Carrier as he dipped his jar into the river, refilling as it was setting in the west. This constellation was also considered an emblem of the rainy season by the Egyptians.

The Arabs connected the constellation with good luck. Alpha, called 'Sadai Melik', meant "the fortune star of the king" and Beta referred to by the Arabs as Sadai Suud translated into "the luckiest of the lucky." The stars of this region seemed to have appeared to be in great favor with early astrologers despite the fact that the inclement seasons of the year prevailed.

Aquarius has been identified with Deucallion according to Greek legend, who was the son of Prometheus and Clymene. Also, Aquarius represents Ganymede, Jupiter's favorite. So-- as the story goes, Ganymede, while guarding his father's sheep on Mount Ida, was suddenly transported into the sky becoming the Cup Bearer to the Gods.

Aquarius can be found within the borders of Pegasus, Equuleus and Delphinus on the north; Sculptor, Piscis Australis and Capricornus on the south; on the east by Cetus; and by Aquila on the west.

OCTOBER CONSTELLATION

The Fishes shine one higher than the other.
---Aratos.

PISCES, the Fishes, is one of the zodiacal members and is also an ancient constellation dating back well before 2,000 B.C. Because of precession, Pisces is now the First Sign in the zodiac, and the Sign of Aries lies entirely within its boundaries. The equinoctial point known as the First Sign of Aries is located south of Omega in the tail of the southern fish and about 2 degrees west of a line drawn between Alpha Andromedae and Gamma Pegasi, the Greenwich of the Sky. The fishes in modern times are now called the "Leaders of the Celestial Host."

A drama of Exile
by Mrs. Browning
is written the following verse:-
And here fantastic fishes dusky float,
Using the calm for waters, while their fires
Throb out quick rhythms along the shallow air.

In Greek Mythology, Venus and her son Cupid were caught up walking on the banks of the river Euphrates when suddenly they were confronted by an approaching Typhon of great proportions. They hastily threw themselves into the waters to escape this terrible creature and assumed the identities of fishes. Minerva seeing the two forms, and to commemorate their fortune of escape, placed them as Two Fishes in the sky.

Pisces, in ancient astrological form was considered as an evil or unlucky group of stars and the Egyptians pictured the fishes as odious in early times. The

constellation was regarded as representing two fishes in early times by the Babylonians, Turks, Greeks, Persians and Syrians. It was popularly thought to have taken its name which coincided with the sun during the rainy season, as two joined together by ribbons or strings knotted at the bottom of a well, near the star Alpha. This star was called Al Rescha by the Arabs.

The fish was a symbol of the early Christian faith. Pliny asserted a comet appearing within the stars of the fishes indicated great trouble from the religions differences besides war and pestilence. Only as a reputation was it common place even though they showed themselves throughout other constellations of sort. Postellus, too had his assertions, and said of them that they represented those with which Christ fed around five thousand men, beside women and children. Caesius also had his thoughts in the Christian faith as the fishes being a symbol of that faith. When the twelve figures (in the zodiac) were turned into the apostles, Pisces became Saint Matthias, the successor to the traitor Judas.

Al Biruni declared the name, in all languages, signified but one fish and is probable the original asterism as such.

Pisces, although inconspicuous, can be found within the boundaries of Andromeda and Pegasus on the north; Cetus and Aquarius on the south; Aries and Triangulum on the east; and Pegasus and Aquarius on the west.



Darwin Christy

A BOOK REPORT

NGC 2000.0

NGC 2000.0 is basically a modern day revision of J.L.E. Dryer's original catalogue of deep sky objects first published in 1888. In addition it is the only modern catalogue which includes objects listed in the above author's Index Catalogues published in 1895 & 1908.

I find the NGC 2000.0 to be useful for identifying faint galaxies on photographs (such as the Virgo Cluster for example). It's Epoch 2000 coordinates make it easy to use with modern atlases such as Uranometria 2000. Noteworthy is the correction it makes of the more than 700 errata present in the original NGC; unlike the data present in the revised NGC by Sulentic & Tifft.

Objects are listed on order of right ascension with an index according to the objects number which makes it easier to find in the catalogue.

Only one dimension is given for galaxies instead of both dimensions which are more helpful in identification purposes.

Modern descriptions of the objects such as types of galaxies would have been more useful instead of the original NGC descriptions which are merely visual descriptions by the objects discoverer.

Although no catalogue can list all known data about an object NGC 2000.0 goes along way towards achieving this goal.

I would like to give the Editor, Roger W. Sennott, a well earned note of thanks for producing an easy to use and well organized catalogue.



Lawrence Hazel

OBSERVATION

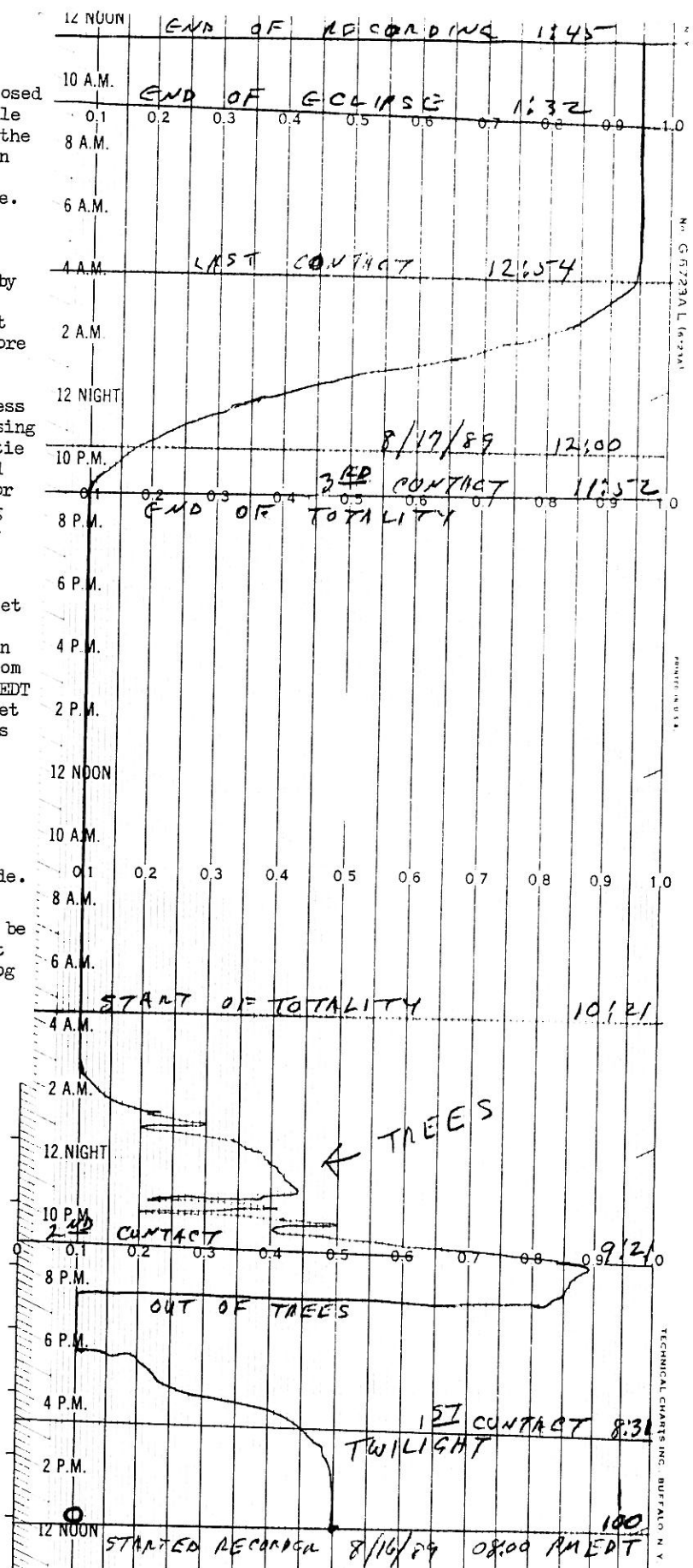
LUNAR ECLIPSE:---

On August 16th at 8:32 PM EDT the moon was supposed to have entered the penumbral shadow. I was not able to observe first contact due to one large tree in the front yard of my neighbor. At 9:21 PM EDT, the moon made second contact entering the umbra. From my observatory I was still not able to see the eclipse. But--shortly thereafter, the moon cleared the tree and I was able to set my recorders to observe the lunar eclipse. The recorders are light sensing instruments. The two chart recorders are operated by means of a Wheatstone Bridge and a Cadmium Cell as the sensor. The cell is light sensitive, when light strikes it, it becomes less resistive and allows more current to flow. In the circuit is a galvanometer which is sensitive to small amounts of electrical current. When light strikes the cell, it becomes less resistive and upsets the balance of the bridge causing the galvanometer to deflect. Through a mechanical tie a variable resistor seeks to balance the bridge and as it does, a pen connected to the variable resistor moves across a chart paper in the recorder, drawing an inked line which later can be examined to determine the value of percentage in magnitude the moon became during the eclipse. (See the attached graph)

Another tree in my neighbor's back yard caused yet another interference with the eclipse. This time though, was during totality and just before the moon began to come out of the earth's shadow, it came from behind the trees----no more trees----. At 11:28 PM EDT when it came from behind the trees, I was able to get a few photographs of it (hopefully!). My instruments again started to record the appearance of the moon as it gradually became lighted by the sun. On third contact the moon was completely aglow but I could discern a faint darkening of the penumbral shadow. Also, my recorder saw the faint shadow and kept on increasing in magnitude on the chart until 1:32 AM EDT on August 17th when last contact was finally made.

I don't think that the moon was as reddish as it might have been. It had been predicted that it would be quite brilliant. The atmosphere of the earth was not overcast with volcanic dust or manmade smoke and smog either. Perhaps someone can add to this as to the reason for it not being as bright.

Darwin Chrstity



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