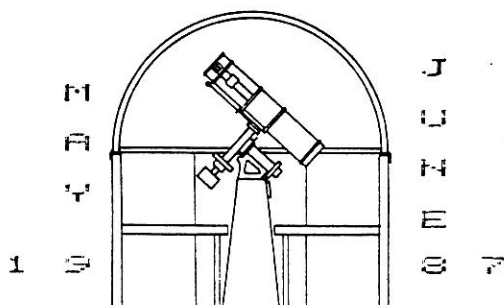
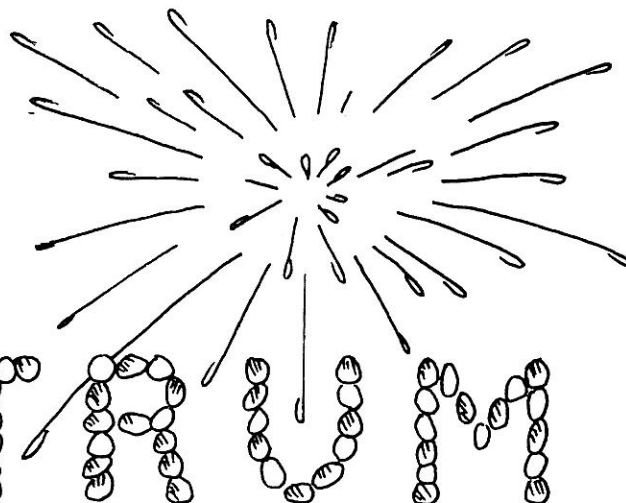


# THE

# SPECTRUM



BUFFALO ASTRONOMICAL ASSOCIATION, Inc.

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## !! MEETING NOTICES !!

**MAY 8, 1987 - DINNER MEETING** - For this month we will all meet at Moot Hall on the campus of the State University College at Buffalo on Elmwood Avenue. This will be our 3rd annual dinner meeting and it will be at the same location as last year. Moot Hall is just off Rockwell Road, which is the main entrance into the campus, running between Elmwood Avenue and Grant Street.

Our featured after dinner speaker will be James Orgren from the College's Department of Geophysical Sciences. Dr. Orgren's topic is expected to be related to the history of astronomy, and since Jim is a fine speaker, it should be an enjoyable presentation for all those in attendance. There will also be an awards presentation by the B.A.A. College of Fellows, and we expect to have an item or two or more to raffle off during the evening.

The event will begin at 6:30 PM when you can arrive for some predinner mingling and mixing with others, or perhaps have a cocktail downstairs at the bar. Dinner will be served at 7:30 and our speaker will be getting under way around 8:30 PM.

Dinner tickets are available for \$ 8.00 and will be available at the door as well as anytime before that from Doris Koestler at the membership table. Call Doris at

683 2970 for ordering your tickets. If you come for the 'speaker only' at 8:30, there will be a \$ 3.00 fee.

You are encouraged to get your tickets early, or let Doris know you will be attending so we can get an idea of what the attendance will be. Please feel free to invite family members and/or friends to this event. SEE YOU THERE

**JUNE 12, 1987 - ANNUAL BUSINESS MEETING** - Our June meeting will be at 7:30 PM and we will be back to the Museum of Science. This will be our yearly business meeting and also the last regular monthly meeting before the SUMMER break.

There will be elections for three members of the B.A.A. Board of Directors held at this meeting, so your attendance is very important. The seats of Rowland Rupp, Edith Geiger and Al Kolodziejczak will expire this year. Doris Koestler has graciously agreed to be our Nominating Committee Chairperson, and she will be contacting the individuals now holding those seats for renomination. Anyone else interested in running for membership on the Board of Directors should contact Doris for more information. Nominations from the floor will also be accepted prior to the election. Be sure to come and vote your choice in June. The Board of Directors is the primary decision making body for the organization, and this is your opportunity to get really involved directly by running for a Board seat, or indirectly by voting for those who do run. **BE THERE !**

Don't think the meeting is all business. There will also be a regular presentation as well as our usual refreshment which follows.

Our speaker for June will be John Stull from the Physics Department at Alfred University. He is the director of their observatory complex and his talk should be very informative and interesting.

Ken Biggie, President

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## MEMBERSHIP DUES

FAMILY - \$ 15.00  
REGULAR MEMBER - \$ 10.00  
STUDENT - \$ 5.00  
SENIOR - \$ 5.00  
SUBSCRIPTION ONLY - \$ 4.00

PLEASE MAKE PAYMENT TO DORIS KOESTLER -  
166 POINCIANA PKWY., CHEEKTOWAGA, N. Y. 14225 OR  
JOHN RAYMONDA -  
80-A FOXBERRY DR., GETZVILLE, N. Y. 14068 OR  
YOU CAN GIVE YOUR REMITTANCE TO EITHER OF THEM AT ONE OF THE MEETINGS.

## NEW MEMBERS

Lets welcome David Street & Ted Zendarski

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I have not made many observations of Jupiter since my last report appeared in these pages in 1981 because during recent apparitions the planet has been rather low in the sky even when in transit on the meridian. Atmospheric turbulence is simply too great under these conditions for worthwhile observations to be made. Jupiter is now climbing higher again and during the latter part of 1986 was at a respectable elevation when on the meridian although seeing was still generally not ideal. I observed Jupiter with my eight-inch reflector on fifteen occasions between August 31st and October 19th 1986 and made several disc drawings as well as a few transit timings of the Great Red Spot across the planet's central meridian. An anti-diffraction screen was used for all observations to improve image contrast and reduce the effects of atmospheric turbulence.

Jupiter came to opposition on September 10th, 1986. On this occasion it showed the largest apparent disc (49'.6) since 1975. This is very nearly the largest it is ever seen (about 51'). Hence, this year it would take a telescopic power of only 36 times to make Jupiter look the same size as the full moon with the naked eye and a power of 190 times would make the major axis of the Great Red Spot the same as the apparent naked eye diameter of the full moon.

The disc of Jupiter is decidedly elliptical and is crossed with dark cloud belts and bright zones. Generally, these remain more or less unchanged in general appearance over years although they may show changes in intensity, latitude and width as well as more rapid 'activity' in the form of short-term appearances and disappearances of localized detail within the belts and zones.

The following is a summary of the general appearance of Jupiter during the above observational period. The accompanying diagram (fig. 1) shows the nomenclature and abbreviations used in describing the major belts and zones of Jupiter.

#### DARK CLOUD BELTS

SPR. Dusky

SSTB. Glimpsed on three occasions as a thin grey line varying from faint to dark.

STB. Sometimes seen as a thin and sometimes as a wider pale neutral grey belt of varying distinctness. Appears to be discontinuous as it did not extend right across the disc in some of the observations. Once, a dark condensation was seen within the belt and a bright 'oval' on several occasions.

SEB. Next to the NEB, the most distinct of the cloud belts and of a 'warm' grey-brown color. Broader than the STB. sometimes appeared as a single band, sometimes as two bands (probably the well-known north and south components of the SEB, separated by a very thin light zone. Straight edges, the south edge sometimes darker than the north edge. No rifts or other detail seen. The SEB. appeared rather quiescent during the whole period of observation.

NEB. The darkest belt on the planet, somewhat darker than the SEB. and somewhat narrower. Warm grey-brown tint. Very faint wisps seen at times extending from the south edge into the light EZ. The north edge sometimes darker and more sharply defined than the south edge. Protuberances and irregularities sometimes seen on the south edge. No light rifts seen in the belt.

#### Light zones.

South south temperate zone (SSTZ)

South temperate zone (STZ)

South tropical zone (STrZ)

Equatorial zone (EZ)

North tropical zone (NTrZ)

North temperate zone (NTZ)

North north temperate zone

#### Cloud belts.

South polar region (SPR)

South south temperate belt (SSTB)

South temperate belt (STB) (GRS = Great red spot)

South equatorial belt (SEB)

Equatorial band (E Band)

North equatorial belt (NEB)

North temperate belt (NT)

North north temperate (NNTB)

North polar region (NPR)

fig. 1

Direction of rotation

Leading

Following

NTB. Usually seen as a continuous thin distinct grey line often as an edge to the dusky NPR. and the area south. Dark 'rafts' (short linear condensations) occasionally seen just to the north in the adjacent light NTZ.

NNTB. Was seen once (October 7th, see drawing (fig.2)) as very thin grey line.

NPR. Dusky. On one occasion a distinctly dark diffuse area was seen within the NPR. on the central meridian at the time of observation.

E.Band. Faintly glimpsed on one occasion and doubtfully or another.

GRS. The GRS. itself was very faint and of a just perceptible faint salmon pink color. The GRS. hollow appeared as distinct bay on the south edge of the SEB. The accompanying drawing (fig. 2) shows the GRS. as seen on the evening of October 7th, 1986 between 21:15 and 21:37 EST.

#### BRIGHT ZONES.

All the bright zones appeared to be of about equal brightness and of the same ivory-white color throughout the observational period. Two differences from the previous year (1985) were noted in that in 1985 the NTrZ was of a warm ochre color rather than white and the EZ was the brightest zone in that year.

Fred W. Price

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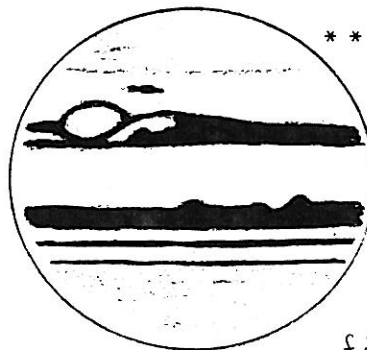


fig. 2

October 7th, 1986

21.15 - 21.37 DST

② F.W.Price. 8-inch reflector X224

## ASTRONOMER FROM THE PAST

HALL - Asaph Hall was born in Goshen, Litchfield County, Connecticut on October 15, 1829. He passed away in Annapolis, Maryland on November 22, 1907. After studying privately, he attended Central College in McGrawville, New York. He was a student of Francis Brunnnow from 1855-56 at the University of Michigan and later taught at Shalersville Ohio. Later he was appointed assistant to Bond in the Harvard Observatory. In 1862 he became assistant in the Naval Observatory and in 1863 was made professor of mathematics in the Navy with a relative rank of captain.

He continued in government service until 1891 when he was retired on account of age. While at the Naval Observatory, he was dispatched on several expeditions. He observed eclipses at the Bering Straits in 1869, in Sicily in 1870 and then to Colorado in 1878. Another journey was to Vladivostok, Siberia in 1874 to observe the transit of Venus. He was chief astronomer of an expedition to San Antonio, Texas for the transit in 1882.

Among his many discoveries, the most important was of the Moons of Mars in August 1877 of which he named Deimos and Phobos. He also calculated their orbits. One of his later work is the valuable studies of double stars.

In 1895-1901 he was professor of astronomy at Harvard. In 1878 he received the Lalande prize of the French Academy of Sciences, its Arago medal in 1895, also the Gold Medal of the Royal Astronomical Society in 1879. He became president of the American Association for the Advancement of Science in 1902 and in 1906 was made a Rear Admiral. For many years he was the vice-president of the National Academy of Sciences, as well as a long standing member. Lastly, France created him a chevalier of the Legion of Honor.

Darwin Christy

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### FOR SALE

8 inch Dobsonian, f:7 plus 32mm Branden Eyepiece plus Books etc. Will dea, though asking \$350.

Bill Halbert - 683 6425

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wanted ! ? WANTED ? !

Used equatorial mounting - 8 x 50mm or larger finder-scope and various Orthoscopic or Plossl eyepieces for 10" Newtonian Scope I am building. Contact Gary A. Kielich at 825 5626 (days) or 662 2940 (evenings).

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### INSTRUMENT REPORT

At a recent instrument meeting, Gary Kielich brought in a Criterion 6 inch f:8 mirror for testing. At a glance, the mirror looked very good, having a completely polished surface. However, it tested spherical.

For a mirror of this speed, a spheroidal surface is not satisfactory. The system will exhibit bad spherical aberration, a fault that the perfect paraboloid eliminates. This mirror would be considerably inferior to the "pretty good" under-corrected first mirrors made by our telescope making classes. It would not stand comparison to a good amateur mirror.

Such a mirror would appear to be working well at low powers on the moon with the moon's sharp clear features. But at 150 power on Mars, it would be surprising if any detail could be seen at all.

One would think that a mirror made by skilled craftsmen of a commercial firm would be a standard of excellence. Instead, it may be poorer than a "pretty good" amateur mirror. The trouble is that the craftsman is shackled by economics. The firm cannot allow him to spend the time to turn out the quality product that he is capable of making. He CAN do beautiful work but he is NOT ALLOWED to do so.

So don't belittle the "home made" mirror. It may be better than the one you bought.

Ed Lindberg.

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## OBSERVATORY REPORT

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As of the 31st of March, I became the Director of the Beaver Meadow Observatory. I am happy to announce that the new cable has been installed on the roof and is working fine, thanks to the help of my co-directors Hugh Pettit and Ed Czepla.

In regard to Public Nights, they will still be held on clear Saturdays running from dusk until closing, from the dates of April 4 to October 31 inclusive. I still need volunteers to work the Public Nights. Anyone interested, please contact myself or either of my co-directors.

There is also a new combination being put into the Observatory lock on April 11th. To find out the new combination, please see myself or one of my co-directors.

One final note, the Observatory will be closed on April 29th (rain date of May 6th) and also on May 17th for a couple of charter groups to use the Observatory.

Thank you very much and I hope that this year will be just as good as last year, and with the members' help I know it will be.

Dave Williams

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## ASTRONOMICAL HAPPENINGS

**SOLAR:-** The sun is still on its journey northward making the nights become shorter and the days longer. The sun will be at its high point on June 21st--Summer Solstice.

**LUNAR:-** The phases of the moon are as follows:-

**LUNAR:-** New Moon will occur on May 27th & June 26th  
First Quarter Moon will be on May 5th & June 4th  
On May 13th will be a Full Moon called the Flower Moon  
On June 11th another Full Moon called the Strawberry Moon

On June 11th another Full Moon called the Strawberry Moon  
Last Quarter Moon will occur on May 19th & June 18th.

**LUNAR CONJUNCTIONS:-**

Mars - May 1st, May 29th & June 27th

Saturn - May 15th & June 11th

Uranus - May 15th & June 11th

Neptune - May 16th & June 12th

Jupiter - May 23rd & June 20th

Venus - May 25th & June 24th

Mercury - May 29th

**OCCULTATIONS:-**

Spica - May 11th at approximately 7 AM EDT. It may not appear as such here, but will show a close conjunction.

**PLANETARY CONJUNCTIONS:-** Venus & Jupiter on May 4th

**PLANETARY EVENTS:-**

Mercury at greatest elongation (24° e.) - June 7th

Saturn at opposition on June 9th

Uranus at opposition on June 16th

Neptune at opposition on June 28th

Mercury at superior conjunction on May 7th

Mercury stationary on June 20th

Pluto will be seen passing south of the star 109 Virginis between April 25th & May 15th, moving towards the Galaxy NGC 5740 by about June 24th, its path will be between 14h 48' & 14h 42' R.A. from April 25th to June 24th, staying near Declination 01° 20' (± 10'). A good opportunity for you astrophotographers to get a couple photos and try your skills at blink photography.

**METEOR SHOWERS:-**

For May, Phi Bootes will show a few on the morning of the first. About 3 to 12 per hour at magnitude 4 or 5,



whitish in hue from radiant 16h 00' right ascension and +51° declination. It is not a well defined shower and needs observational data. These meteors are seen for a period of 13 days plus and minus of the date in reference.

For June, Tau Herculis should seem to be about the same as the Phi Bootes in all respects except the date of June 3rd, maximum and the radiant which is 15h 12' right ascension and +39° declination. The two mentioned meteor showers would be ideal showers to study from Beaver Meadow in the dark skies afforded, because of their magnitude being but fourth or fifth.

Other meteor showers during May are the Omega Scorpiids (3rd), Eta Aquarids (4th), O Cetiids (15th), Zeta Herculis (17th) & Eta Pegasids (30th). For June we can observe the Tau Herculis (3rd), Chi Scorpiids (5th), Librids (8th), Arietids (8th), Zeta Perseids (8th), Alpha Scorpiids (9th), Sagittariids (11th), Theta Ophiuchids (13th), Lyrids (15th), Ophiuchids (20th), Corvids (26th), Bootids (26th), Draconids (28th), & beta Taurids (30th).

Darwin Christy

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## MAY CONSTELLATION

Here the vast Dragon twines  
Between the Bears and like a river winds.

DRACO, The Dragon is one of our circumpolar constellations which is bordered by Ursa Minor & Camelopardalis on the north; Cepheus on its east; Ursa Major, Bootes, Hercules, Cygnus & Lyra on the south; and Camelopardalis on the west.



In Mythology Draco is supposed to represent the monster which guarded the golden apples in the Garden of Hesperides. Even Heracles (Hercules) had dangerous encounters with the Dragon and finally got the upper hand slaying it and carried the precious fruit away. It is also said that Draco was slain by Cadmus, the Hero of Thrace. The monster was the guardian of a sacred spring in this case where Cadmus was ordered to obtain some water. Upon his arrival, he met with the dragon and had great battle. Cadmus finally subdues the monster and then plucked out its teeth, then sowed them in a field whereupon a great number

of warriors sprang up and engaged in a royal battle. At the end of battle, there were but five survivors. The five assisted Cadmus to build the city of Boeotia, known as the City of Dragons

"City of the Dragon." It is also related to the war of the Giants where the goddess Minerva seized the Dragon and hurled it into the northern sky, entangling it in the axis of the heavens.

Interesting deep sky objects include Galaxies, NGC's: 3147, 3329, 3348, 3403, 3735, 4125, 4128, 4133, 4236, 4256, 4291, 4319, 4386, 4589, 4750, 5678, 5866, 5879, 5905, 5907, 5908, 5949, 5982, 5985, 6015, 6340, 6412, 6503 & 6643. Also a Planetary Nebula NGC 6543.

Double stars include 14 (Eta), 20, 21 (Mu), 24 (Nu<sup>1</sup>), 25 (Nu<sup>2</sup>), 31 (Psi<sup>2</sup>), 39, 40-41, 43 (Psi<sup>1</sup>), 47 (Omicron), & 63 (Epsilon). Variable Stars are AC, AF, AZ, BH, R, RY, T, TW, TX, UW, UX, VW, VY & WW.

In these objects of interest is 'Tuttle's Variable Nebula, NGC 6643; Omicron's beautiful pair of Orange and Emerald; and Mu has a third 13th magnitude companion making it really a triple star.

## JUNE CONSTELLATION

Below Bootes thou seest the Virgin  
An ear of corn held sparkling in her hand.

VIRGO, The Virgin is one of our Zodiacal constellations which also lies across the celestial equator. It is one of the larger constellations with many deep-sky objects. Virgo is bordered by Bootes and Camelopardalis on the north; Libra and Serpens Caput on the east; Hydra, Crater and Corvus on the south; and Leo on the west.



Mythology defines Virgo as one of the most ancient of the stellar groups. She represents Astraea, the daughter of Jupiter and Themis, the goddess of Justice. It is said that during the Golden Age, the gods lived upon the earth and were held in high respect by all mankind while Astraea ruled the world.

Times changed with the succeeding Brazen and Iron Age. The wickedness of mankind offended the goddess and she left the world to its fate. Her place she took in the Zodiac with the Scales of Justice, Libra, beside her.

The Egyptians associated Virgo with the goddess Isis. She was pursued by the monster Typhon, and while escaping dropped the sheaf of corn she had in her hand. The corn scattered becoming the faint glistening stars which form the Milky Way.

The star Spica was known as the 'Star of Prosperity', and the Egyptians worshipped it. They built temples to honor Spica. The name means an 'ear of wheat' and is depicted as being held in the left hand of the Virgin.

There are many deep-sky objects in Virgo. Variable Stars include AN, AO, BG, BZ, CH, CS, CU, CW, DK, DL, DN, EP, E ET, EV, OMEGA, PSI, R, RS, RW, RX, S, SS, SU, SW, T, TY, UY, V & X. Double Stars are 14, 29 (Gamma), 44, 46, 51 (Theta), 72 (Iota<sup>1</sup>), 81, 86, 105 (Psi), & CU.

Globular Cluster - NGC 5634. AND Galaxies include many NGC's 3818, 3952, 3976, 4045, 4116, 4123, 4124, 4168, 417 4179, 4206, 4212, 4215, 4216, 4224, 4234, 4235, 4237, 426 4266, 4267, 4270, 4273, 4281, 4294, 4299, 4304 (M-61), 4305, 4307, 4313, 4324, 4339, 4342, 4348, 4371, 4374 (M-8 4378, 4380, 4385, 4388, 4402, 4406 (M-86), 4413, 4417, 4420, 4424, 4425, 4428, 4433, 4435, 4438, 4442, 4452, 445 4457, 4461, 4469, 4472 (M-49), 4473, 4476, 4478, 4483, 44 (M-87), 4487, 4496, 4503, 4504, 4517, 4519, 4522, 4523, 4526, 4532, 4535, 4536, 4548, 4550, 4552 (M-89), 4564, 45 4569 (M-90), 4570, 4578, 4579 (M-58), 4580, 4586, 4592, 4593, 4594 (M-104 - Sombrero), 4596, 4597, 4602, 4608, 46 4621 (M-59), 4623, 4630, 4632, 4638, 4643, 4647, 4649 (M- 4654, 4658, 4660, 4664, 4665, 4666, 4668, 4682, 4684, 468 4691, 4694, 4697, 4698, 4699, 4700, 4701, 4713, 4731, 474 4753, 4754, 4760, 4762, 4765, 4771, 4772, 4781, 4786, 479 4795, 4808, 4818, 4825, 4845, 4856, 4866, 4880, 4891, 489 4900, 4902, 4904, 4915, 4928, 4933, 4939, 4941, 4951, 495 4981, 4984, 4995, 4999, 5017, 5018, 5037, 5044, 5054, 506 5077, 5084, 5087, 5088, 5134, 5147, 5170, 5230, 5247, 530 5324, 5363, 5364, 5426, 5427, 5468, 5493, 5496, 5534, 556 5574, 5576, 5584, 5638, 5645, 5668, 5690, 5691, 5701, 571 5740, 5746, 5750, 5775, 5806, also other galaxies than NG 3C273, R 80, AN 3 & AN 4.

The equator, ecliptic and equinoctial colure all intersect at a point near the star Eta Virginis. This point is called the Autumnal Equinox. The star Epsilon has the name 'Vindemiatrix' or 'grape gatherer'. Also the star Spica is at a distance of 181 light years from us.

Darwin Christy

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Doris and Bill Koestler are going on a great one week vacation at the end of May. They will be in Cancun, Mexico, and will travel to the site of the Mayan ruins.

More excitement is in store for Doris and Bill at the end of August when they become "grandma" and "grandpa."

Former member, Phil Cizdziel, who lives in Santa Barbara, is also a student at Santa Barbara Community College taking a course in electronics and optics. He will be in Buffalo from August 8th to the 24th and will be married on August 22nd to Chieu Thi Nguyen at Queen of Heaven R C Church in West Seneca. Congratulations and best wishes.

Dina Adimey took some fine piggyback astrophotos of the Pleiades and Hyades. She used Fuji 1600 film.

The family left on April 10th for a two weeks vacation in Fort Lauderdale and Hollywood, Florida.

Carl Milazzo has purchased a secondhand 18" Dobsonian, a secondhand 13mm Nagler eyepiece, and a secondhand UHC filter.

Brian Fallon purchased a secondhand 13" Dobsonian and has attached a Telrad finder with a 2° field of view.

Peter Olchvary, a student at Amherst High School, has a 13" Dobsonian and a 6" homemade reflector with an equatorial mount and an Erfle eyepiece.

Bob and Verna Mayer have recovered beautifully from their separate sojourns in the hospital and are out enjoying life and feeling great.

Jerry and Adrienne Morris and daughter, Lisa, went on a trip to St. Petersburg, Florida, for a week at the end of March. There was only one clear night, but they managed to visit a planetarium. When flying back to Buffalo, they had a chance to chat with Jim and Sally Orgren who were also returning from a trip to Florida.

Hugh Pettit, assistant director of our Beaver Meadow Observatory, is busy working at the observatory getting it in shape for public viewing. There is much work to be done and Dave Williams, director of the observatory, and Hugh would greatly appreciate cooperation from the BAA members. Call Dave, Hugh, or Ed Czaplá if you can help.

James Burke, well-known member of the BBC staff is a scholarly and articulate gentleman, who is an author of note and a popular lecturer on various historical and scientific subjects. He appeared at Daemen College on February 23rd before a large gathering and delivered a speech with an intriguing title "Why Do Lemons Whistle?" BAA members who were in attendance were: Carl Milazzo, Gene Witkowski, Al Kolodziejczak, and the Geigers. Carl, Gene, and Al went to the reception after the lecture and Gene had the speaker autograph his book. James Burke appeared in a PBS winter series based on his book The Day the Universe Changed, and he also gave a lecture in Toronto which Gene attended.

Edith L. Geiger

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## \*\*\* OBSERVATIONS \*\*\*

The closest spiral galaxy beyond our local group, was seen on February 25th with binoculars, and with my jointly owned 26 inch Donsonian telescope. That near face-on galaxy is 7 million light years distant, in the constellation of Camelopardalis, and is catalogued as NGC-2403. It is 11 x 16 arc minutes in size and has a total magnitude of 8.4- but is dimmed 1½ magnitudes by the dust in our Milky Way galaxy just a shot way south of it. Foreground stars are fairly rich and bright because of the adjacent misty looking Milky Way. The central hub of the galaxy was slightly brighter in the middle and of a medium surface brightness, also connected are two spiral arms that were short and wide. A little ways beyond it is an emission nebula that is oval and is part of the galaxy but not visibly attached to it. That nebula is one of the largest known in the Universe. The emission region is 800 L.Y. in extent while M-42, the

Orion Nebula is only 50 L.Y. in size.

Also that night, an HII emission nebula next to Orion's club, which is the spot where amateurs first started to see Halley's Comet (1982i) in September 1985. NGC-2174 is 25 arc minutes in size and of very low surface brightness, and was slightly detectable, and with a UHC nebula filter it improved only slightly. The nebula is pentagon shaped and sharp on two sides; one of which has a chain of 10th magnitude stars, also in the nebula's center is a blue 7th magnitude star. Half of the nebula is engulfed with the sparse open cluster NGC-2175 which is made up of mainly 11th magnitude stars totaling about 25.

On March 23rd a barred spiral galaxy in Draco's tail at a distance of 85 million L.Y., named NGC-4319 was observed. It is of medium surface brightness, 12.2 magnitude and 2 x 3 arc minutes in size. The spiral arms were too faint to detect but it's bar was along with the hub that gradually increased in surface brightness towards the center. ON it's very edge is a quasar named Markarian-205, at a distance of 900 million L.Y., making it one of the nearest quasars known. This 14.5 magnitude quasar would have been fairly difficult to locate among the sea of stars but the galaxy acted like an arrow, pointing it out.

A galaxy 8 million L.Y. named I.C.-342 is in Camelopardalis. It has a total magnitude of 9.1 which may fool you. The surface brightness is very low like M-33 in Triangulum. It is nearly lost being overlapped by the Milky Way, which dims it by 2½ magnitudes by the dust. It's 12 magnitude medium surface brightness has 2 arc minutes in size and is surrounded by a V-shaped group of 11th magnitude stars. This face-on spiral galaxy is 20 arc minutes in size. They are HII emission nebulae and OB associations and the foreground is loaded with stars which look odd when viewing a galaxy.

And finally in Ursa Major a 10.5 magnitude face-on spiral galaxy, NGC-3184, that is 6 arc minutes in size. It, too is similar to M-33 except that it has an 11th magnitude star superimposed on it, trying to look like a supernova. The galaxy has a star-like nucleus and very faint spiral arms that look patchy, and the hub was fairly small, yet bright.

I have been observing for 18 years and have found this half of winter (January through March) has had clearer skies most often, about 50%, even better than the average normal summer skies. (ED's note: I used to keep track of the skies annually but have dropped it, although I can attest to Carl's observation of these clearer skies. dpc)

Carl Milazzo

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Much has been written about the advantages of using a large aperture telescope. Their superior light grasp and resolution make them highly attractive for the deep-sky observer. I have used a wide variety of telescopes ranging up to 20" in diameter. However, I've noted that for 'bright' objects the detail visible in my 8" f/7 Newtonian on ideal nights is not much inferior to what can be seen with a telescope with twice the diameter. To illustrate my point, I've listed a number of selected observations (on average nights) made during the past two months.

February 24th the Orion Nebula (M-42) was observed using a wide range of magnifications (51x to 355x) with particular attention being paid to the Trapezium region. This inner-most part of the nebula had the appearance of 'curdled milk' with numerous curved streamers and filaments extending radially away from the core region, some extending over 1° in length. Both E and F stars of the Trapezium Cluster were easily visible at moderate magnification (158x) even though they are both only 11th magnitude.

March 17th Hubble's Variable Nebula (NGC-2261) is located on the southern end of the Cone Nebula (Christmas tree cluster complex). At 51x it appears as a small nebulous wedge. At higher magnifications (158x) it appears as a small, comet-like nebulosity with a bright 'nucleus' located at the apex.



The same evening NGC-2903 is a large, bright galaxy located about 1.5° south of Lambda Leonis. At 158x the brilliant core was easily seen as a mottling of light and dark regions spanning much of the nebulousity. At 237x the nebulousity spans the field and several faint stars (14 & 15 magnitude) are visible near and within the galaxy's boundaries.

March 22nd M-106 is another large bright galaxy with a fair amount of detail visible at moderate magnifications. At 158x the galaxy spanned most of the field with a bright somewhat elongated nucleus being the most prominent feature. Mottling of the surface was easily visible although not as distinct as NGC 2903.

March 23rd NGC 3432 is a large 11th magnitude, edge-on, spiral located in Leo Minor. At 158x it had the appearance of a 'dusty' silvery streak about 6' long. It is rather thick and coarse for an edge-on galaxy with no apparent central condensation.

M-108 has always reminded me of M-82 in general appearance and texture. At 158x several dark patches are visible within the cigar shaped galaxy along with a very bright, star-like nucleus. The Owl Nebula (M-97) is a large planetary nebula located almost in the same field as M-108. On this particular night, not only the two 'eyes' of the owl were visible at 158x, but also the 14.2 magnitude central star. Several other faint field stars were visible nearby.

Perhaps one of the most famous galaxies visible during the spring is M-51, the Whirlpool Galaxy. On average nights with an 8" reflector, an indistinct "swirlings" is visible but only at low magnification. However, on the best of nights, such as tonight, the spiral arms and the darker lanes between the arms were clearly visible with adverted vision at 158x. The nucleus was particularly star-like and several 13 & 14 magnitude stars were also visible embedded within the nebulousity.

Richard W. Jakiel

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On the night of March 5th, Tristan and Debbie Dilapo, Bob Hughes, Carl Milazzo and I went on an expedition to observe a grazing lunar occultation of the 6.8 magnitude star Z.C. 550 (SAO 76193), a member of the Pleiades. We observed from a site 3 miles northwest of Springville, NY, which we estimated to be on the graze path. Five telescopes were set up to observe the event, but only three were able to be used, due to collimation problems, insufficient aperture, ect. The telescopes used were 13" & 10" Dobsonians, and a 6" Newtonian reflector. Three tape recorders were used to record WWV time signals and our voices as we shouted "ON" & "OFF", to indicate when the star was visible and when it was not. The star did indeed graze the moon's limb, disappearing behind the mountains and reappearing in the valleys three times. One of the disappearances was almost immediately followed by a reappearance (a "BLINK").

The results were as follows:-

| date   | time (UT)     | event           | P.E. *  | ACCURACY   |
|--------|---------------|-----------------|---------|------------|
| 3-6-87 | 04h 19m 41.0s | Began Observing | -       | +/- 1 sec  |
|        | 04h 22m 27.8s | OFF (disappear) | .25 sec | +/- .2 sec |
|        | 04h 22m 45.4s | ON              | .50 sec | +/- .2 sec |
|        | 04h 22m 47.3s | BLINK           | .25 sec | +/- .2 sec |
|        | 04h 22m 53.6s | OFF             | .25 sec | +/- .2 sec |
|        | 04h 23m 45.1s | ON              | .25 sec | +/- .2 sec |
|        | 04h 26m 38.0s | End Observing   | -       | 1 sec      |

\* P.E. = Personal equation - the amount of time subtracted from the recorded time, to allow for the delay between observing and recording each event (similar to reaction time).

In order for our observations to be scientifically useful, we also needed to determine as accurately as possible our exact location on the earth. To do this, we measured the perpendicular distance to the nearest road, and also the distance to the nearest intersection. We then used detailed U.S. Geological Survey maps to find our exact latitude, longitude and altitude. We observed from latitude 42° 32' 32" N and longitude 78° 49' 15" W (accurate to within 1 arc second) and at an altitude of 430 meters (accurate within 10 meters).

We were lucky because the weather was with us (clear skies, naked eye stars visible to 5th magnitude). This was however, a difficult graze to observe due to the faintness of the star (6.8 magnitude) near the bright (37% sunlit) moon. Also, the moon was low - only 14° from the horizon. Moonlight reflected off the snow plus the usual skyglow near the horizon made the background sky bright, further increasing the difficulty of observation.

In all, this was an interesting expedition with scientifically valuable results. A report of our observations was sent to the I.O.T.A (International Occultation Timing Association). Other B.A.A. members are encouraged to try their hand at observing similar event in the future; but be sure to plan ahead and have more than enough equipment to use as a backup - because you never know what can go wrong. For instance, one member of our expedition was thankful to have help when he pulled over onto what looked like solid ground only to find his car stuck in a snow-filled ditch! (Carl's maxim of "safety in numbers" proved true once again.)

Adrienne Morris

PS- Lisa Morris, (age 7 months) says she would have liked to have observed if she wasn't so busy sleeping in the car.

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## O PROFILE O

James P. Dow

Jim is one of our exceptional members and a man of outstanding ability. He was born in Buffalo and went to Public School #64 through the second grade and to the Elmwood School (now Elmwood Franklin) through fourth grade. From there he went to the Park School from which he graduated. During his senior year he was editor of the school newspaper, as well as a member of the Varsity Soccer Team.

He was first introduced to astronomy by his fifth grade teacher, Mrs. Mary Cummins Durant. Encouraged by his mother (BAA life member, Mrs. Jane P. Dow) his interest in the subject grew and he started his first telescope while a freshman in high school after finding Amateur Telescope Making by Arthur Ingalls in the Park School library. He purchased a mirror kit and worked for a year on his 6" reflector. He had difficulty figuring the mirror, so he sought out the Amateur Telescope Makers and Observers of Buffalo, which according to Amateur Telescope Making, met at the Buffalo Museum of Science. As the group had disbanded because of the war, the museum referred him to the most recent president of the group, James McCartney, and with his help was able to finish his telescope in his sophomore year.

Still in high school, Jim took all the astronomy courses offered by the museum and was befriended by George Davis, the curator of astronomy, who had him checked out at the Kellogg Observatory and graciously gave him permission to use the observatory and the 8" Lundine refractor whenever he wished.

Mr. McCartney and Jim talked at length about getting the club back together again. At that time the front page of the Buffalo Evening News listed meetings of organizations, so Jim called the News and put in a notice that the Amateur Telescope Makers and Observers would meet once a month at the museum. This brought in some people who became very active. Among them were Ray Missert, Dick Nigro, Rudy Buecking and Bill Oberom. James McCartney was elected president and Jim, secretary.

Bill Oberom had purchased a 10" reflector, the mirror of which had been made by Carl Wanek, who had been active before the war, which he loaned to Jim for use in the observatory at the family home in East Aurora, which Jim had started to build in the summer of 1946. The dome is identical to that of the Valley View Observatory in Pittsburgh built by Leo J. Scanlon, author of the chapter on observatories (and pictured in Amateur Telescope Making, Book I and from whom Jim had obtained the plans. With the generous assistance of Ray Missert and Quirin Steck, an extension mason employed by the family, the observatory was completed the following year.

As a requirement for graduation from Park, each senior had to write a long paper or thesis on a topic of his own choosing. Jim chose "Life on Mars," much of it based on the work of Percival Lowell. Attending the first Astronomical League Annual Convention held at the Fels Planetarium in Philadelphia in June of 1947, Jim's thesis was one of the papers accepted to be read at the convention. The Master of Ceremonies was none other than world renowned astronomer and discoverer of the shape of the Milky Way Galaxy, Harlow Shapley, then the Director of the Harvard College Observatory.

The following year Jim enrolled in Harvard College where he found himself in the company of some of the world's finest astronomers. His freshman advisor was Bart J. Bok. Then there was Armand Deutsch (a good friend of Dr. William Wehlau who was the speaker at the 1986 NFCAA meeting held at the Skylon Tower) with whom he studied celestial mechanics. Jim knew Fred L. Whipple, Donald H. Menzel, and Cecilia Payne-Gaposchkin; a star studded staff. Harland J. Schmidt, his grad student advisor, then a necessary requirement to obtain a degree, is now Director of the McDonald Observatory at Fort Davis, Texas.

During the summer of his freshman year at Harvard, the observatory in East Aurora having been completed, Jim wanted to share his developing interest with others. With the assistance of one of his high school classmates, Jim announced a series of summer talks to be given on astronomy. Soon people were coming to enjoy the lectures. The Climax Solar Observatory in Colorado furnished films of solar prominences, then only recently available. Summer Star Parties were also a part of the Dow hospitality in East Aurora.

In the summer following his junior year, on a tour of the western United States with his parents, Jim wanted to see the Lowell Observatory. E.C. Slipher was then its director and, of course, had known Percival Lowell, so Jim wrote and asked if he could visit. He was graciously invited to come and had the opportunity of spending three inspiring days at the location of the discovery of Pluto, and at the observatory founded by the man who early in this century had dazzled the public with his speculations on the origin of Martian "canals."

Jim received his A.B. degree in astronomy from Harvard in 1951. The Korean war was then in progress and Jim applied to the United States Navy Officer Candidate School in Newport, Rhode Island. Four months later he found himself on the way to San Diego to join the USS Jenkins, a destroyer based in Pearl Harbor, Hawaii. In December 1953 after two years on sea duty in the Pacific and serving as Communications Officer on his ship, and visiting Japan, Formosa, the Philippines, Hong Kong, and service off Korea with Task Force 77, Jim was transferred to Japan for shore duty. Here, when not processing orders for ships supplying the army in South Korea, he assisted a local high school English Club practice its English conversation.

Upon discharge from the Navy, he returned to Buffalo and went to work in the family business, Dow & Company, Inc., a construction and industrial equipment distributorship at 1820 Elmwood Avenue. He first served as office manager, and then Controller. After his father's death in 1958, Jim succeeded him as president of the company for several years. Later he left Dow & Company to try his hand at another career. After teaching physics and math at South Park High School, Seneca Vocational High School, as well as in California, and chemistry at Riverside High School in Buffalo, during which time he was also employed by Penn Central Railroad, Jim returned to Dow & Company from the summer of '73 until July of '84 when he formed his own company, James P. Dow & Associates, Inc. at 1807 Elmwood Avenue, from where he can keep an eye on the family business. Jim's firm also sells construction equipment, but mostly to public utilities and not in competition with the family business. One of his highly valued customers is Con Edison in New York City.

In 1984, Jim had an opportunity to again visit Japan

for Dow as a guest of Mitsubishi. He had a chance to visit some of his former friends and brush up on his Japanese.

Jim has two daughters, Kimberly and Karen, and a son, David. In December of '85, Jim, Kim and Karen spent ten days in Hawaii and visited UKERT Observatory, and saw the 150" telescope on the summit of Mauna Kea. Kim graduates from Marlboro College with a B.S. in physics in May '87, and will be going to Houston, Texas, to work for NASA for the summer, on a project cataloguing space junk. While working at the Science Museum in Richmond, she organized a telescope making class and built an 8" Newtonian reflector for herself. On a visit with Kim in Vermont during New Years '87, together they had a spectacular view of the Great Nebula in Orion under the dark Vermont winter skies. With excusable parental pride Jim testified to the excellent performance of her mirror (reputed to be 1/40 wave).

Among other interests, Jim is involved with computers. With the assistance of fellow member and BAA secretary, Dave Sepulveda, he has upgraded his business' Radio Shack Computer, to a 16-6000 multi-user Xenix System.

Jim has been active in his church. Prior to his current service as First Reader and chairman of the Finance Committee of First Church of Christ Scientist, 220 North Street, he served as a Sunday School teacher and pianist. He also served as a Christian Science representative while in the Navy as well as an officer and a reader in his college Christian Science Organization.

Music has been a part of Jim's life, having served the Christian Science Organization at Harvard as pianist as well as accompanying other groups when asked. Playing Mozart piano duets with one of his musical friends is one of his favorite non-astronomical recreations. Believe it or not, he was once able to combine two of his major interests by playing the cello in the Harvard College Observatory Orchestra.

A man of refinement and many accomplishments, Jim has enjoyed a number of rewarding experiences. He has an overwhelming vitality and a versatility of skills that allows him to pursue his diverse talents. He is an astrophysicist, a fine musician, a teacher, a church worker, and a successful business man. We are indebted to Jim for it was he who brought the Amateur Telescope Makers back from disbandment many years ago, which eventually turned that organization into the Buffalo Astronomical Association. With his artistic sensitivity and fascination with the universe, Jim has reached for the stars and has heard the music of the spheres.

Edith L. Geiger

## BOOK REPORT

### "BACKYARD ASTRONOMY"

ALL AMATEURS BECOME TEACHERS FROM TIME TO TIME. AS SOON AS COLLEAGUES FRIENDS OR RELATIVES LEARN OF OUR INTEREST IN ASTRONOMY, THEY START ASKING QUESTIONS. THE MOST COMMON QUESTION IS, "WHAT IS A GOOD BOOK TO GET STARTED IN .....". WELL, IF THE QUESTION IS ABOUT OBSERVING, YOU NOW HAVE ANOTHER SOURCE TO RECOMMEND. SKY & TELESCOPE HAS JUST PUBLISHED A SMALL (30 PAGE) BOOKLET OF ARTICLES FROM A SERIES STARTED BACK IN AUGUST, 1983. THE SERIES IS CALLED "BACKYARD ASTRONOMY". IF YOU ARE NEW TO ASTRONOMY OR SKY & TEL, AND INTEND TO OBSERVE (OR HAVE A FRIEND WHO'S JUST STARTING OUT) THIS BOOKLET MIGHT BE OF INTEREST TO YOU.

THE BOOKLET IS COMPOSED OF 11 REPRINTS FROM THE CONTINUING SERIES. THE ARTICLES ARE WRITTEN AT THE INTRODUCTORY LEVEL AND SHOULD PRESENT NO PROBLEM TO A COMPLETE NOVICE. MY BIGGEST COMPLAINT IS THE EXCLUSION OF TWO ARTICLES, "OBSERVING WITH BINOCULARS" (10/83) AND "HOW TO CHOOSE A TELESCOPE" (12/83). YOU MAY ORDER THEM SEPARATELY HOWEVER.

THE PRICING OF THIS BOOKLET IS RATHER STRANGE. ONE COPY COSTS \$ 3.95. HOWEVER, IF YOU ORDER BETWEEN 12 - 280 COPIES THEY WILL COST YOU \$ .40 EACH. SO, YOUR CHOICE - 1 FOR \$ 3.95 OR 12 FOR \$ 4.80. YOU MAY ALSO ORDER THE BINOCULAR AND TELESCOPE ARTICLES FOR AN ADDITIONAL \$ 1.00, WHEN ORDERED WITH THE BOOKLETS.

LISTED BELOW ARE THE DATES THE SERIES APPEARED IN SKY & TEL. CHECK A FEW OUT BEFORE YOU TAKE THE PLUNGE. 8/83, 10/83, 12/83, 2/84, 4/84, 7/84, 9/84, 11/84, 2/85, 5/85, 7/85, 9/85, 1/86, 7/86, 12/86, 2/87, 4/87.

WHEN I AM ASKED BY A BEGINNER ABOUT GETTING STARTED IN OBSERVING I ENTHUSIASTICALLY RECOMMEND EDMUND SCIENTIFIC'S MAG 5 STAR ATLAS. THEIR NEW MAG 6 HAS EVEN BETTER ARTICLES AND BEGINNER'S TIPS. I DON'T INTEND TO CHANGE THAT RECOMMENDATION, BUT I WOULD PROPOSE THAT THE BAA BUY THE BOOKLET IN BULK (500 \* \$ .30 = \$ 150) AND DISTRIBUTE TO NEW MEMBERS AS PART OF A MEMBERSHIP PACKET. WE CAN AFFORD THEM.

Al Kolodziejczak

\*\*\*\*\*

### NOMINATIONS

### ELECTIONS

Nominations and elections will be in order for the 1987-1989 Board of Directors. Thus far, Doris Koestler, nominating chairperson, has for nomination the following: Edith Geiger, Rowland Rupp, Gene Witkowski & Bob Hughes. Nominations will be in order at the May & June meetings, with elections following at the June meeting.

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### "SPECTRUM" DEADLINE

For the SUMMER "SPECTRUM" is JUNE 12th

### \* THE SPECTRUM \*

BUFFALO ASTRONOMICAL ASSOCIATION, INC.

DARWIN CHRISTY, EDITOR  
216 KOHLER ST.  
TONAWANDA, N. Y. 14150

FIRST CLASS  
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### \* SOLAR ACTIVITY \*

New sunspot groups which appeared on the eastern limb of the sun on April 6th have increased the solar flux to 101, the highest it has been in over two years. The largest group in the sun's southern hemisphere consists of over 10 discrete sunspots. This grouping had appeared in the previous solar rotation in March but has grown dramatically in size and number since that time. There are also two other sunspot pairs in the sun's northern hemisphere. This activity appears to be the first significant solar outburst of the new 11 year cycle which solar observers label as cycle 22.

Bob Hughes

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### ANSWERS TO QUIZ

Answer to the pictorial quiz of the last 'SPECTRUM'.

- 1- CARINA NEBULA
- 2- LUNAR CRATER GOCLENIUS
- 3- LUNAR CRATER ORIENTALE
- 4- MARS' MOON PHOBOS
- 5- MARS' NORTH POLAR CAP
- 6- COMET WEST
- 7- NORTH AMERICA NEBULA IN CYGNUS
- 8- HORSEHEAD NEBULA IN ORION
- 9- CRAB NEBULA IN TAURUS
- 10- M-87 with its famous JET

\*\*\*\*\*

### ACKNOWLEDGEMENTS

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Dave Williams  
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Al Kolodziejczak  
Bob Hughes

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ROWLAND & IRENE RUPP  
132 BURROUGHS DRIVE  
SNYDER, NEW YORK 14226