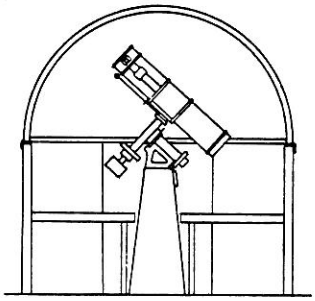
THE SPECTRUM

elg

MAY JUNE



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MEETING NOTICES

FRIDAY, MAY 12, 1989 -- DINNER MEETING at the BIG APPLE SUPPER CLUB, Cheektowaga, NY.

This month is our annual dinner meeting at the Big Apple Supper Club, Cheektowaga, NY. A cash bar from 6:00 PM - 7:00 PM, followed by a buffet dinner. Our guest speaker, a long time member of the BAA with a vast knowledge of telescopes, eyepieces, filters and a very experienced observer, LARRY CARLINO, will entertain us with his talk entitled, "Stalking the Wild Planetary Nebula." An English teacher at Williamsville South High School, Larry also enjoys teaching astronomy as a side line. Enjoy a social evening with fellow members and friends with a delicious dinner and an excellent speaker. Maps to the Big Apple are available.

FRIDAY, JUNE 9, 1989 at 7:30 PM in the New Science Building Auditorium, State University College.

June is the business meeting with a summary of reports of the past year. There will also be an election of three board members for a two year term. A "Photographic Showcase" will be the theme for this meeting. Anyone who would like to display their own astro=photographs, slides or a combination of both will be accepted. If you are a beginner don't be shy about bringing your photographs, as this is a first for this type of meeting. REFRESHMENTS follow.....

Doris Koestler, President

PRESIDENT'S CORNER

There is still time to purchase tickets for the dinner meeting. A large sum of money had to be paid out of the treasury last year because of low attendance. Lets not let that happen again this year. Your support is needed to make this event a success. Only five tickets will be available at the door for a cost of $14.00. Purchase your tickets for $10.00 before May 1, 1989 from Jack Empson. Maps to the Big Apple are available.

There will be a Board meeting on Tuesday, May 9, 1989 at 7:30 PM at my home.

Three Board members will be selected at the June meeting. Currently these positions are held by Edith Geiger, Bob Hughes and Gene Witkowski. This is a two year term. Meetings are held every other month, usually at my home. Elected Board members in June would attend their first meeting in September. If you are interested in running for the Board, or you would like to nominate another member, please contact Bill Halbert before June 2.

Several months ago a VCR tape was purchased entitled, "A Guide to Backyard Astronomy." Our beginners in astronomy would enjoy the information on charts, observing and telescopes. The tape may be rented for a fee of $1.00.

Thanks to Bob Hughes for coordinating the Astronomy Celebration display along with Buffalo State College. Also thanks to everyone who participated by displaying equipment or giving time to help with the celebration.

Summertime means Star Party time. Dan Marcus has volunteered to set up the star party schedule for this summer. If you would like to host a star party, contact Dan as soon as possible to reserve the date you want.

Doris Koestler, Pres,

It is with profound sorrow that we report the sudden death, on February 26th, of Heidi Lavtar, daughter of Ernst and Billie Both, wife of David Lavtar and mother of David Jr.

Her passing will be deeply felt by all who knew her. We hope that the family will find comfort in the good wishes and sincere sympathy of their many, many friends, among them the members of the Buffalo Astronomical Association. May time, the great healer, soon soften the pain, and bring solace in loving memories.

elg

BAA ANNALS

5 YEARS AGO - At the May 1984 meeting, we had a panel of six experts answer questions on any topic related to astronomy. The panel was composed of Ernst Both, Michael Idem, Jack Mack, Carl Milazzo, Fred Price and John Riggs. In June our own Jeff Pignatora, then a member of the Lockport Astronomy Association, spoke on Galaxy Clusters. We elected officers in June. They were:

President	Ken Biggie
Vice-President	Doris Koestler
Secretary	Ken Kimble
Treasurer	John Raymondo

The lead SPECTRUM article was a reprint from the February 1969 issue - "The Trouble With MASCONS" by Kurt Erland! It's a well researched article on lunar mass concentrations that deserves rereading. A detailed observation report in the May/June 1984 issue is "Observing Mars 1984" by Larry Carlino. Edith Geiger's biographical sketch featured Tristan and Debbie DiLapo.

10 YEARS AGO - In May 1979 Dave Atkins from the Finger Lakes Astronomical Society spoke on the Arecibo radio telescope in Puerto Rico which he had visited. We held our annual business meeting in June. Fred Price was elected President, Ken Biggie Vice-President, Rowland Rupp Secretary, and Joe Provato Treasurer. There was no speaker, just business.

Carl Milazzo wrote a SPECTRUM article about "Celebrity Amateur Astronomers". Among their ranks were Johnny Carson, John Denver, Hugh Downs and the late Robert Frost. Edith's biography was on Rowland Rupp.

15 YEARS AGO - Dr. Martin Green spoke on "Astrophysics and the Amateur Astronomer" in May 1974. Fred Price wrote an article on amateur lunar observing for the SPECTRUM. In June we elected the following slate of officers:

President	Darwin Christy
Vice-President	Tom Dessert
Secretary	Marybeth Gauthier
Treasurer	Warren Steinberg

20 YEARS AGO - George Keene, author of the book "Star Gazing with Telescope and Camera", then an active member of the Rochester Astronomical Society, spoke on astrophotography in May 1964. There were no super-high speed films, gas hypering and, as far as I know, no cold cameras in those days. Our June meeting comprised a trip to Rochester's Strasenburgh Planetarium to see "Man and the Universe".

The SPECTRUM had an article containing suggestions for improving Newstead Observatory. It recommended aluminizing the mirror and making repairs to the shutter and to the door lock.

25 YEARS AGO - The May 1964 meeting was held at the Museum of Science, and featured a lecture in the Millman Series entitled "Galaxies of Stars". Ernst Both, Ron Clippinger and Paul Redding gave annual reports on the Observing Section, the Advanced Study Section and the Elementary Study Section. (We've just revived the Study Section, though it's neither "Advanced" nor "Elementary".)

Rowland Rupp

* ASTRONOMICAL HAPPENINGS *

SOLAR: The Sun will pass out of Aries into Taurus on May tenth, then from Taurus into Gemini on June nineteenth. On the twenty-first of June, the Sun will have reached its highest or most northern point in the sky, starting the summer season. From now on, the days will begin shortening and the nights become longer, HOORAY! Astrologically, the Sun will go from Taurus into Gemini in May and from there into Cancer in June.

SOLAR ACTIVITY REPORT by Bob Hughes: Solar activity was the subject of news headlines during March. During the 2nd and 3rd week of March, a major naked eye sunspot group was visible in the solar northern hemisphere. This grouping was shooting out major solar flares on a daily basis during this period. These flares were responsible for geomagnetic disturbances, including the major aurora activity that occured on March 12 & 13. On these dates, auroraa were visible as far south as Texas and Florida. An occurance of aurora activity visible that far south occurs only once in ten years. As of April 8th this grouping was again visible but was much smaller and not as active, Also visible were numerous groups in the solar northern hemisphere. Solar flux for March was between 195 and 265 and currently in April was averaging 185.

LUNAR: The phases of the Moon in May are New Moon on the 5th; First Quarter Moon on the 12th; Full (FLOWER) Moon on the 20th; and Last Quarter Moon on the 27th. For June, New Moon is on the 3rd; First Quarter Moon on the 11th; Full (STRAWBERRY) Moon on the 19th; and Last Quarter Moon on the 26th.

LUNAR CONJUNCTIONS: For May, Mercury on the 6th; Jupiter on the 7th; Mars on the 8th; Uranus, Neptune & Saturn on the 23rd. For June, Venus on the 4th; Mars on the 6th; Uranus on the 19th; and Neptune & Saturn on the 20th.

PLANETARY CONJUNCTIONS: For May, Mercury & Venus on the 16th; Venus & Jupiter on the 22nd. In June, Jupiter & Sun on the 9th; and Saturn & Neptune on the 24th.

PLANETARY OPPOSITIONS: Pluto on May 4th and Uranus on June 24th.

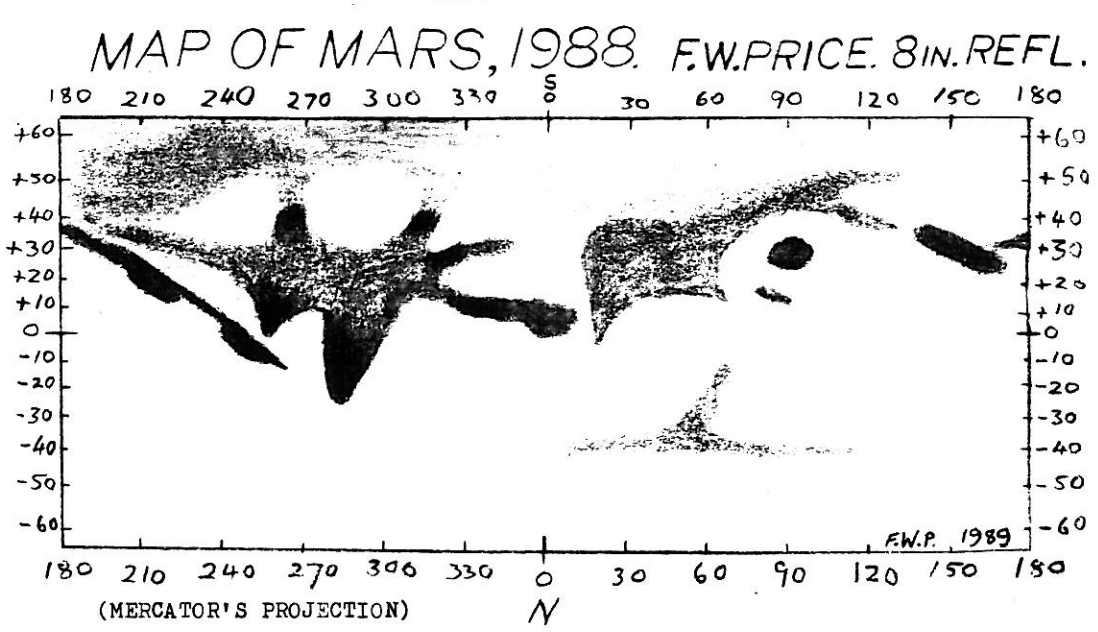
Other PLANETARY EVENTS: Mercury stationary on May 12th and June 4th; Mercury at nferior conjunction on May 23rd; Mercury at greatest elongation on June 18th at 23° west.

METEOR SHOWERS: The ETA AQUARIDS on May 4th radiate out of 22h 24m Right Ascension and at 0° declination. They last for 6 days, are very long, swift streaks of 3rd magnitude with a yellowish hue. This is one of the annual and more noted meteor shower and have been considered to be another left-over from Halley's Comet, 1910 II. Other showers in May are: Phi Bootes on the 1st; Omega Scorpiids on the 3rd; O Cetids on the 15th; Zeta Herculids on the 17th; Eta Pegasids on the 30th.

The LIBRIDS of June 8th are a lesser known shower radiating from 15h 9m Right Ascension and at -20° Declination. Only two days of duration, but as many as 20 can be seen in one hour. They are whitish with a magnitude of 4. This is one of the showers which requires much data, which could be used by the "AMS". Other showers in June are: Tau Herculids on the 3rd; Chi Scorpiids on the 5th; Arietids on the 8th; Zeta Perseids on the 9th; Alpha Scorpiids on the 9th; Sagittariids on the 11th; Theta Ophiuchids on the 13th; June Lyrids on the 16th; Ophiuchids on the 20th; Corvids on the 26th; Bootids on the 28th; Draconids on the 28th; and Beta Taurids on the 30th.

Darwin Christy

A MAP OF THE PLANET MARS



This map of Mars is based in fourteen disc drawings of the planet made with the aid of my 8-inch F/7 Newtonain reflector between September 13th and October 30th, 1988 during a very favorable opposition of the planet. The drawings cover a little more than one complete axial rotation of Mars. An apodising screen and Vernonscope filter no. 23A (orange) were used for all the observations. These enhance the dark markings on the disc of Mars, reduce atmospheric turbulence and subdue glare.

Power used: 224X.

The 1986 apparition was unusually favorable for observers in northern latitiudes. At opposition, Mars was much higher in the sky than it was in the 1986 opposition and its declination was never further south of the ecliptic than -5 degrees. This, with the large size of the disc at opposition of 23.8 seconds of arc and the almost complete absence of dust storms on the planet, gave us a rare view of the surface features.

The apparent angular size of Mars varied from 23.5 seconds of arc on September 13th to a maximum of 23.8 on October 30th; Mars was then well past opposition and appeared distintly gobbous. The south polar cap had shrunk noticeably during this time.

Observers using larger telescopes in better seeing conditions would no doubt have recorded more detail than I have. My map, which does not pretend to be a masterpiece of precision, shows only what I saw with certainty with my telescope, which cannot be said of some of the published maps which occasionally show features of doubtful reality! The map correlates very well with one compiled by the Astronomy Club of Akron Inc., Ohio, based on fifty-one observations between September 1st and October 8th, 1988 contributed by seven of their members.

Since this was an unusually good apparition of Mars (there will probably not be such a good one until the year 2020) and since many BAA members own or have access to telescopes much larger than mine, I appealed for observations of Mars at the October and November meetings. I offered to act as co-ordinator for any observational drawings or photographs contributed and to combine them into a map which would thus be a joint BAA project. Members contributing observations would be acknowledged in the 'SPECTRUM' when the map was published. Such a co-operative project would have been a good way of recording and remembering this almost once in a lifetime apparition of Mars and something for the BAA to be proud of. Apart from two fine color photographs donated by Gene Witkowski (14-inch Newtonian reflector) there was no response to my two appeals for observations. My personal disappointment aside, it astonishes me that the BAA has let a spectacular apparition of Mars go by with apparently no other attempts to observe and make drawings or photographs of the planet; or if others have beem making observations, to fail to contribute to what I thought would have been a worthwhile co-operative project.

Fred W. Price

NEW MEMBERS

Gary Pashong; Patrick Ferrick; Wade & Lynn Sigurdson; and Speed Powrie.....WELCOME!!

AURORAL OBSERVATIONS - MARCH 12-13, 1989

On the night of March 12, the local TV weather announcer told of the auroral display. We were fortunate to be able to observe the display for a while from our home in North Tonawanda. It filled the northern horizon with the familiar changing bluish-green curtains and sporadic rays were seen trying to approach the zenith during the 20 minutes I observed the display.

On the night of March 13, the local weather was cloudy after sunset, but a lucky stroke of fate allowed me to observe the auroral display again. At 7:00 PM, I left Buffalo Airport on board a USAir flight to Hartford, CT. Fortunately, there were only about 15 passengers on board allowing me complete mobility. Initially, I was seated in a window seat on the starboard side of the aircraft. After climbing through the clouds and having made the left turn to head to Hartford, I noticed the familiar bluish green crown of the aurora across the horizon -- but I was looking to the South !! Faint changing red curtains were seen above this. Ghostlike shadows of other jet contrails were frequently superimposed in front of the display as we climbed to our cruise altitude. When I subsequently moved to the left side of the airplane, the northern sky was literally ablaze with a very complex display. Most noteworthy was the bluish-green river of light beginning in the northwest sky about 30 degrees in elevation which followed a winding path across the sky terminating in the haze on the northeast horizon. Our cruising altitude for the trip was 27,000 feet. The display continually filled the entire sky with brilliant changing events until we descended thorugh the cloud layer on our approach to Hartford.

Some interesting observations of the people on board were made. Two flight attendants questioned me as to why I had a pillow and a jacket over my head while jammed in tight to the window to form a light shield. One was quite apathetic over the display and my obvious enthusiasm for it. The other did not know anything about the aurora or northern lights. Upon landing, I asked the pilot his impressions about the display. He thought it was one of the more spectacular displays he'd ever seen. He did not announce to the cabin about the display because in his words, "most people don't care about it anyway."

Orrin D. Christy

INSTRUMENT NOTES

At our last meeting Dan Marcus demonstrated a good way to mount a solar filter on a reflecting telescope. The filter consists of a thin sheet of Mylar film with a vacuum deposited aluminum coating. Two circles of the Mylar are cut to the full size of the telescope tube and mounted between two rings of styrofoam. The aluminum surfaces are mounted face to face so that they are not exposed to possible abrasion or scratching. The use of two films is insurance against pinholes or scratches as there is little probability that these will coincide in the two coatings. The styrofoam rings fit snugly over the open end of the telescope tube.

There are other methods for cutting the brightness of the sun's image to a safe level. The oldest, perhaps, is the Herschel wedge dating back 200 years to the Herschel

family. If a plane parallel glass plate is mounted in the place of the usual diagonal the front surface will reflect the image forming rays into the eyepiece and about 96% of the light will go on through the plate. There will be an internal reflection from the back of the plate and this will also enter the eyepiece forming an objectionable double image. But if the back surface is ground to form a slight angle with the front plane the secondary reflection will miss the eyepiece and strike the inner wall of the tube. The result is a greatly reduced brightness level. The method has the disadvantage that the diagonal has to be changed for normal observing. Then if the two diagonals are not perfectly indexed there will be misalignment.

Another method is to mount a piece of welder's glass filter on the diagonal so that it blocks most of the rays from reaching the diagonal. Great care has to be taken that the glass does not get hot enough to crack. Normally the glass will be far enough away from the focal point of the mirror. But be vigilant. A small fan could be used for cooling the filter. The intensity of the emerging beam should be checked with a piece of ground glass.

If the telescope is to be used only for solar observing, an unaluminized mirror can be used. Perhaps the safest way of all is to use a long focal length mirror and project the image onto a card. A small hood is mounted over the card to keep out excess light. The method that Dan demonstrated to us is the culmination of years of study of the problem. The method was made possible by the development of Mylar and evaporated metal films. The Mylar is strong and safe and it is so thin that even if it is not perfectly flat the image is not noticeably distorted.

To get a feel for the risks of solar observing consider the structure of the human eye. Images are formed by the lens on the retina, located at the rear interior of the eye. The retina has a small area of tiny elements called cones. These are surrounded by the main area consisting of coarser elements called rods. The rods are more sensitive than the cones but are much lower in resolving power. As we gaze at a scene we are using the rods but we are unconsciously and constantly scanning the area with the cone section.

The cone area, which is the area of highest resolution, is unbelieveably small. To test it, look at some 9-point type as in the body text of your daily newspaper. Hold the paper at the normal viewing distance of about ten inches. Pick out a semicolon and focus on the period at the top. Then, restraining yourself from scanning, look at the comma at the bottom. Most eyes cannot see the comma with maximum sharpness while focusing on the period at the top part of the semicolon. If you realize that the image of the semicolon on the retina is much smaller than the semicolon that you see in print, you can visualize how tiny is the cone area.

If a telescopically focused image of the sun strikes the retina for a second or so, a permanent burn will occur. If a point in the region of the rods is hit there will always be a black spot in the field of vision. If you happen to be looking in the exact direction of the incoming rays the cone area will be hit and you will lose the power of sharply focusing on a desired point of interest - permanently!!!

The telescope that Dan used for his demonstration was a ten-inch Newtonian with a solid tube. The method can, of course, be used for other sizes. If the telescope is larger than the available sheet of Mylar the opening can be reduced. There will still be plenty of good resolution. But it is almost mandatory that a solid tube be used. If the mounting is of the open lattice-work type it will be necessary to check that htere is a long enough piece of tubing surrounding the primary to prevent the possibility of a beam of sunlight striking the mirror from the side while the telescope is being positioned.

Another hazard associated with solar observing is the finder as well as any guide scopes. Their objectives must be securely covered with the aluminized Mylar to prevent any accident from careless viewing.

If you plan to do any solar observing don't be casual and careless about the mounting and use of your equipment. If there is any doubt that anything is loose or insecure, give it your attention. So far there have not been any retinal transplants. Blindness is forever!!!!

Ed Lindberg

STUDY SECTION

On February 28 ten members met to form a new Study Section. We agreed that the purpose of the organization is to study astronomy at a variety of levels from beginner to advanced. Topics will be selected by the group beforehand so everyone has ample time to read about the subject before the meeting, thus promoting the idea of "study". The format of the meeting will vary according to the topic: either a discussion with an informal moderator, or a presentation.

The group will meet at 7:00 PM in the meeting room at Buffalo State's Science Building on the Tuesday following the BAA's general meeting. Bill Rogers was selected to lead the new section. All members of the BAA are invited to attend these meetings and we urge your participation. Topics for the coming months are:

DATE	TOPIC	FORMAT	LEADER
March 14	Neptune	Discus	Fred Price
April 18	Planet Position	Presen	Rowland Rupp
May 16	Lunar Features	Presen	Fred Price
June 13	Ice Distribution	Presen	Bill Rogers

Rowland Rupp

OBSERVATORY REPORT

After MUCH discussion, Public Nights have started again. They will be held on the first and third SAT RDAYS of the month. I am still looking for volunteers to give and to assist on Public Nights.

PHOTO SESSIONS have been mostly cloudy, so we took advantage of the bad weather to construct a solar filter. On March 18, the skies were partly cloudy, but we were able to improve to improve the polar alignment by 50%!

The solar filter is a Tuthill aluminized mylar filter, and gives a bluish image. This filter will be premanently at our observatory starting on April 22, 1898. On May 20, 1989 during Public Night/photo session, the Observatory combination, will be changed. If you wish the new combination, you must see ME. The reason being I wish to go over the use of the solar filter, and the HAZARDS of public solar viewing! It is not the astronomers I am worried about but their guests!!! The solar filter is 100% safe for viewing the sun. But keep in mind that to damage your eye by improper viewing of the sun, may only take 1/000th of a second to do permanent damage to the retina. The problem being, one's reaction time is around 1/10th of a second. The best part is you will not feel the pain, or notice the damage until later when the retina swells.

I would like to thank Jack Empson for bringing his high resolution computer to the April 1 Public Night. The images it gave were really impressive! The quality was close to that of very high speed color film! Sure is a vast improvement over TV. He also has a program that plots satellite orbits, for those who wish to observe them visually or by radio. For the rest of you computer buffs, our photo sessions are always imterested in any astronomical activities. So Public Nights, and photo sessions are great times to get together and enjoy astronomy! The next PHOTO SESSION, will be May 20 & June 24.

SOLAR ECLIPSE, JULY 11, 1991-- Anyone whp is interested in going as a group to Hawaii, or Baha, can contact me. I will coordinate the efforts. Please note: S&T claims that

the good hotels in the Baha are already full?!

SUMMER STAR PARTIES: I will be coordinating the summer star parties. Sign up early to get the best night! So far all the nights except Public Nights are open!!!

Dan Marcus

BOARD of DIRECTORS

A summary of the BAA Board of Directors meeting of March 7, 1989:- The BAA Board of Directors met in March at Doris Koestler's home with all members present. The Board decided to donate $15 to the North Collins Emergency Squad in memory of Heidie Both, Ernst's daughter who died this past week at age 31.

Darwin Christy requested and received permission to allow other astronomical associations to copy any SPECTRUM material for their own publications.

Participation in the Museum's upcoming Phon-A-Thon for membership was discussed but not much interest was expressed for this particular event.

The May dinner meeting was discussed and Rowland Rupp agreed to call for a College of Fellows meeting on March 21 to discuss any awards to be presented in May.

The Study Group Sessions were discussed with events through June already scheduled.

Rowland Rupp motioned to accept the recent audit results and the Board approved.

Bill Halbert will be chairing the upcoming June nominations for three Board seats.

Bob Hughes gave a rundown of the upcoming April 15 Astronomy Day celebration at Buffalo State College.

Doris Koestler discussed a recent letter she received from Dave Junkin at Beaver Meadow concerning regularity of Public Nights out there.

Dan Marcus, the Observatory Director, said 1st & 3rd Saturdays from April to October will be reestablished as Public Nights.

Doris talked about the June meeting Astrophotography theme, and the Board discussed whether or not to set up awards for a competiton. The final decision by the Board was not to offer awards or certificates, and to keep it all for fun.

Meeting adjourned about 9:30 PM...

Ken Biggie, Secy.

KELLOGG OBSERVATORY REPORT

ASTRO-CORPS volunteers are needed to assist with the following programs at the Buffalo Museum of Science.

RETURN-to-the-MOON... 20th Anniversary of the Apollo 11 Lunar Landing.
DATE: Thursday, July 20th
TIME: 11:00 am - 4:00 pm
We would like a table-display set up of BAA materials, photographs, telescopes and some BAA members to "talk astronomy" with the general public. If you can't be there July 20th, we could show off your astro-photos, slides or equipment. Contact Marilou at 896-5200 - ext. 214 by June 1st to sign up if you can help.

ICE AGE STATION "REASONS for SEASONS"
DATE: September 14 - December 31
TIMES: weekdays and weekeds from 10:00 am to 2:00 pm
13 robot-animated creatures deom Dinamation are returning to the Museum, and we except to welcome over 250,000 visitors! The "Reasons for Seasons" Ice Station will use the Kellogg and Solar Observatories to explain and illustrate astronomical causes for changes in earth's climate. You will see sunspots, flares and prominences as the sun approaches solar maximum. We will train you for the demonstrations during late August and early September. A great chance to promote the BAA and observe the sun! Inerested? Contact Marilou at 896-5200 - ext. 214 by August 1st.

SUMMER SUN shows will take place at the Museum weekdays from July 5th through August 25th from 11:00 am to 1:00 pm. We hope to resume Friday night observing in September.

OBSERVATIONS

Several solar flares were observed through the H-alpha filter on the 8-inch refractor on March 14th and March 16th The flare event on March 14th was first observed at 11:00 am and its effects continued for 2 hours. Flares seen on March 16th were shorter in duration and included a spectacular surge flare which produced a large spike and "slinky-like" loops. One could easily watch as these flares changed appearance from moment to moment. The sunspot group associated with these flares was viewed through the Museum's heliostat and was quite complex. In the seven years I've observed the sun, I've never seen anything like this. It was quite exciting!!!

Marilou Bebak

Spy and Tell

Fred Price's book, The Moon Observer's Handbook, was the main selection for the Astronomy Book Club for March. Congratulations!

On March 14th, Ernst Both was seen on Channel 4 speaking from the Kellogg Observatory with comments on the spectacular aurora.

Marilou Bebak was heard over WEBR radio, also talking about the flare and aurora.

Two fine photos of sunspots taken by Dan Marcus appeared in the March 9th Buffalo News.

On Monday night, March 13th, Jack Empson was watching the aurora. Dan Marcus called and said it was cloudy on Grand Island but the aurora was bright and red between the clouds and that Jack should go out and take a look, which Jack did, and was very impressed. He called Bob Hughes and Dave Sepulveda. Jack again went out to watch the aurora and Bob called back and asked Jack if he had thought about checking TV. (Television goes out straight in a line of sight and also straight up in the air and into space; auroras go straight out and bounce off the layer in the sky where the aurora is taking place.) Bob asked Jack to take a look at Channel 3. As you know, there is no station on Channel 3, but that night there was interference, and Jack saw five stations fading in and out. One was a PBS station soliciting pledges. Jack couldn't hear any sound, but could see a picture and the 800 phone number for pledging. He decided to call the 800 number. A gentleman with a southern accent answered and Jack asked, "Where are you?" to which the man answered something about five minutes from the intersection etc. And when Jack inquired, "What city?" he was appalled to find he had reached a station just outside Oklahoma City. After Jack told him that he was from Niagara Falls and explained how his call came about, the amazed station operator said he knew someone who would love to talk to him. He got one of the engineers, and he and Jack talked for fifteen minutes. Later that night Jack made a tape of Channel 3 and managed to identify another station; KSMW in Wichita, Kansas. Still on Channel 3, he picked up a station somewhere in the area of St. Louis, but St. Louis doesn't have a Channel 3, and a station in Columbus, Texas, which was reporting on a minor accident. It was an exciting night for Jack, Bob, and Dave, as they kept calling one another throughout the wee hours exchanging aurora information.

Ed Lindberg received a letter from Leon Kolesnikov from the Ukraine, who is an electronic electrician and a ham radio operator. He had seen Ed's name in a magazine and wished to communicate with him using Esperanto (international language). Ed is an expert in the language.

He has many friends throughout the world, and recently received a letter from a gentleman in Kenya.

Kevin and Christopher Biggie are in the spotlight again. Chris was in the Orchard Park High School production of Music Man.

There is a possibility that Kevin will go to Russia in

August to study science and math on an Education Exchange Program.

Kevin has also been awarded an ROTC Navy and Marine full scholarship up to $50,000 if he decides to accept it. If he does, he will serve as an officer in the Marines for four years after graduation.

Al and Mary Kolodziejczak spent two wonderful weeks, during Spring Break, in Amsterdam and Paris.

Darwin Christy, while at home one day, heard a strange metallic sound which seemed to come from his back yard. Later, on returning from an errand, he noticed that the license plate on his car was missing.

Darwin is a member of the Salem United Church of Christ, in Tonawanda. The church elected the trustees for a three year term, and named Darwin among them. He will also serve on the church council. William Halbert has been the choir director at the church for about a year, and his wife, Carolyn, sings in the choir. They are both accomplished musicians and vocalists.

On March 4th, a sizable article about Cliff Stoll appeared in the Buffalo News. He is remembered by some of us as we used to see him around the museum assisting Ernst in the observatory while a student at Hutch Tech. The article credited him with "breaking up a major computer spy ring in West Germany." He has become well-known as a computer expert. After graduating from high school he went on to graduate in astronomy from U.B. He received his doctorate in astronomy from the University of Arizona; worked at Purple Mountain Observatory in Nanjing, China, for awhile; built image processing software for the space telescope at Johns Hopkins University, and helped with the design for the optical system for "what will someday be the world's largest observatory. He is, at present, involved in research at the Harvard-Smithsonian Center for Astrophysics.

Edith L. Geiger

* LIBRA *

"Libra weighs in equal scales the year."
from "Seasons" by James Thomson

Longfellow wrote of it in his "Occultation of Orion".
"the scale of night
Silently with the stars ascended."
also, from his Poet's calendar, "I bear the scales, when hang in equipoise
The night and day.

Evem Manilius wrote, "Then Day and Night are weigh'd in LIBRA's Scales
Equal a while,-----.

In 'Imperium Pelagi', Edward Young apostrophized his king with---
The Balance George! from thine
Which weighs the nations, learns to weigh
More accurate the night and day,---

LIBRA, the Scales is not only a modern constellation of the Zodiac but can be considered an ancient one as well. It is the only constellation among the zodiac to represent in inanimate object. It dates back to around 2300 B.C. with others concocted by the ancients. The ancient Hebrews regarded Libra as representing a celestial balance. This could be explained as such when the Romans, in the days of Julius Caesar, regarded it as the balance being held in the right hand of AEstraea, the Goddess of Justice. They believed that it held in high regard by husbandmen that it indicated the time for sowing their winter grains.

This seventh sign of the zodiac, being refered to as a set of scales, was so called because at its first point, the ecliptic crosses the equator to the southern hemishpere, consequently, the autumnal eqiunox, when day and night are equally balanced.

Today "LIBRA" is used as a measure of weight by several countries. The weights are all called 'libra' by Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Hondurus, Mexico, Paraguay, Peru, Portugal and Spain. The weight is rather uniform, ranging from 1.012 to 1.015 United States pounds, with Colombia being slightly heavier at 1.102 U.S. pounds. The ancient Roman pound weight as well as the Spanish and Italian, translated into the modern grains troy.

The Greeks had combined this constellation with the Scorpion and that Libra represented the claws of the animal. They later believed Libra represented Mochus, who had been known as the inventor of weights and measures.

Libra, an almost inconspuous constellation, although its four main stars form a sort of diamond shape, is surrounded by Serpens Caput on the north; Centaurus and Hydra on the south; Ophiuchus and Scorpius on the east; and by Virgo on the west.

* SCORPIUS *

There is a place above where Scorpio bent
In tail and arms surround a vast extent.

-----Ovid

From Dante's "Purgatorio"
.....that cold animal
Which with its tail doth smite amain the nations.

and in his "Purgatorio" as translated by Longfellow,
On the frigid Scorpion I ride.....

and from Spencer's "Faerie Queen-----
and now in Ocean deepe
Orion flying fast from hissing snake,
His flaming head did hasten for to sleepe.....

Abraham, as asserted by Sir William Drummond, knew it as an eagle, but some located it as the 'biblical chambers of the south.' Scorpio being directly opposite the Pleiades on the sphere and both thought to be mentioned in the same passage from the Book of Job, chapter 9, verse 9, which reads, "Which maketh ARCTURUS, ORION, and the PLEIADES, and the chambers of the south."

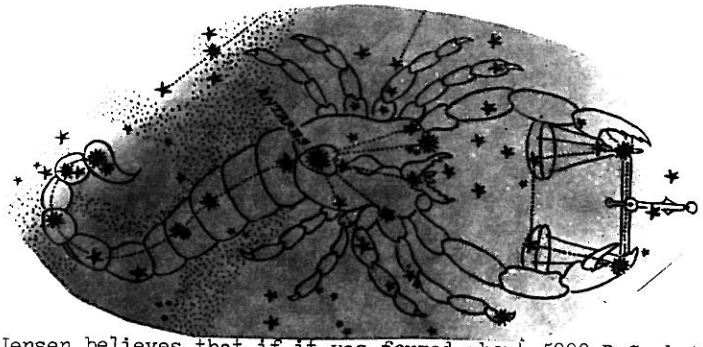
SCORPIUS, the Scorpion, is a very distinct constellation among the zodiac. Many myths are connected with the scorpion, one such is with that of the Great Hunter, Orion by the Greeks. The story goes that on the command of Juno, who was incensed at Orion's conciet, the scorpion sprung out of the earth, and was ordered to attack him. At that, the scorpion stung Orion at the base of his foot causing his death. It had been said that the arrow of Diana was the instrument of death but later given that the sting of the scorpion was the real cause. Even with this altercation, they were both honored by being placed in the heavens. But to keep them apart from each other, they were subsequently placed so that they never appear in the skies at the same time. And so----Orion sets as Scorpius rises.

In 1565, Sackville wrote in his Induction to the "Mirror of Magistrates", of Orion, still in fear of the Scorpion, sinks below it evem though the latter itself is in danger.....
Whiles Scorpio, dreading Sagittarius' dart
Whose bow prest bent in flight the string had slipped,
Down slid into the ocean flood apart.

The Egyptians and Arabs as well as their predessors show the image of the scorpion in their early pivtures. It shows the sharp curve of the tail which really enhances the curve of a scorpion. And it does more easily resemble a scorpion similar to that of Leo the Lion previously written up in a past "Spectrum."

More figures entered into the picture from Greek mythology. Scorpius, also is associated with Ophiuchus, which is directly above and treading on the scorpion as if to crush it. And another giant above Ophiuchus which is stamping out the dragon, Draco, is Hercules the Greek hero. In this configuration, it places Hercules upside-down in a topsy-turvy manner.

The constellation has been mentioned by all the early writers on astronomy. Always prominent in astronomy,



Jensen believes that if it was formed about 5000 B.C. but pictured much as it is now. Thus it is an ancient constellation as well as modern. The Egyptians thought it to be a bad omen because when the sun entered the constellation, they believed that sickness and famine were prevalent. It is of a "watery triplicity" attended by tempests and by autumnal disease. Even the Astrologers dubbed it the "accursed constellation" and the "false sign" ominous of war, discord and woe.

That first magnitude star, Antares, was given its name which neans, "rival of Mars". The Persians in about the year 3000 B.C. called it one of their "Royal Stars". The Chinese, because of its red appearance, called it the "Firs Star". In the year 295 B.C. an occultation by the moon was recorded and that record still remains.

Scorpius id surrounded by Ophiuchus on the north; on the south by Ara and Norma; Ophiuchus, Sagittarius and Serpens Cauda on the east; and by Libra and Lupus on the west. Long ago, Scorpius extended westward into Libra, using its two brighter stars as its claws. The northern claw (Zubenelschamali) and the southern claw (Zuben el Genubi), Beta Librae and Alpha Librae respectively.

Darwin Christy

NOCTILUCENT CLOUDS (NLC)

As coordinator of the observing network NLC CAN AM, I am pleased to invite the participation of your members in the observation of noctilucent clouds.

The name of this phenomenon suggests that it is a component not of space, but the earth's own atmosphere. Although this is true, it may be of interest to amateur astronomers for three reasons. First, noctilucent clouds (NLC), never seen in daylight, are exclusively visible in the twilight sky, sepcifically when the sun, which provides the illumination, is 6 to 16 degrees below the horizon. Hence, they can be seen during periods when astronomers are out conducting observing activities. Secondly, one of the theories considering the nucleation of the clouds, which occur high in the atmosphere at the 82km high metopause, is that rising water vapor condenses upon meteoric particles filtering down from space, thus providing the cosmic connection. Another theory gives the water itself an extraterrestrial origin. And last, NLC are, due to the effects of NLC CAN AM, only now being studied in earnest on this continent for the first time in a few years. In fact, there has never been, in the U.S. or Canada, an effort to monitor there slouds for more than a few seasons at a time. Clearly, to understand NLC fully, a concerted and lengthy endeavor is needed. And amateur astronomers can play a major role.

Because of the only sporadic observing attempts in the past, we have not checked on noctilucent clouds closely enouth to be sure of the modalities of their behavior - where and when they occur, and with what frequency, as well as what exactly they are, for nobody is precisely sure even of that. As the two components of them, water vapor and their nuclei, supposedly by their concentration help determine when the clouds are seen, it is possible to study the characteristics of both at that level of the atmosphere by keeping track of NLC displays. Also, NLC provides clues about the temperature of the mesopause throughout the year; their almost total ansence in all but the summer months, for example, may be due to an inhospitable warmth at those times. There is, in any case, certainly no excuse for letting these clouds go by unnoticed.

Observers in the northern United States are valued in NLC CAN AM. For although noctilucent clouds are rarely seen below 45 degrees N, it may be possible for observers this far south to catch one or two displays a year if they know where and when to look. The official network "season" runs from May 15 until August 15, when most NLC storms occur. The best times for you would be roughly between June 15 and July 15, during both the evening and morning time windows when the sun is favorably placed, as mentioned above. Between these dates, the biggest NLC storms tend to develop. The largest display of 1988, on July 8/9, appeared overhead at latitude 53 degrees N. As it is possible to see the clouds some 600 miles downrange from a point where they are at the zenith, it would have been possible for observers as far south as 43 degrees N to see that storm. Note that a prominent change in any of the conditions which permit the evolution of NLC may result in a noticeable increase, or decrease, in their occurrence in regions which allow their visibility from your area. Thus, it is especially important to have observers situated in the southern fringe zone.

No special equipment is necessary to detect noctilucent clouds. All that is needed is one, but preferably at least two sky checks per night during the above one-month period, or longer if the watcher wishes. NLC are best seen with the naked eye, though binoculars come in handy to nab some of the fainter clouds. Photographing the cirrus-like forms can meet with breathtaking results, and may also aid in the discovery of NLC due to the sensitivity of photographic film. It is even possible to videotape NLC.

Presently, NLC CAN AM consists of about 10 amateur astronomers, myself included, and over a dozen Canadian meteorological stations who have expressed interest in watching for NLC during their regular duties.

Readily available references to NLC can be found in Sky & Telescope (November 1986, July 1987, May 1988), and in Astronomy, which published an article on them by David McConnell in July 1987.

If any of your members would be interested in joining NLC CAN AM (there is no membership fee), I would be happy to forward to them the necessary information detailing how to observe NLC, plus any additional info they require, AT the end of each season I relay to all observers copies of summaries I draw up from all the data received. Here is an opportunity for anybody wishing to make a significant contribution to science, in an effort not too straining on time, nor energy. Awaiting is the added bonus of actually witnessing an NLC storm. When done, it is an event long remembered.

Mark Zalcik
#2 14225 82 Street
Edmonton, Alberta
Canada T5E 2V7

The College of Fellows

The College of Fellows was established in 1964, and one of the highlights of the December meeting was the naming of the first Fellows of the Buffalo Astronomical Association. The first four members so honored were:

(From the Spectrum - January 1965)

Rudolph Buecking - because he is a charter member of the B.A.A. and a loyal member ever since, and because of his activities in conducting mirror-making classes at the Buffalo Museum of Science under the auspices of the B.A.A.

Edward Lindberg - because he is a long time member of the B.A.A. as well as a past president who also conducted mirror-making classes at the museum. Always an active member of the B.A.A., he is at present leading the Instrument Section and is responsible for the optical work on our new telescope for the Newstead Observatory.

Walter Semerau, a member of the B.A.A. for a number of years was cited for his excellent work in the field of

solar observation and the development and construction of instruments for this type of work. His willingness to share his findings and show his films at our meetings has been greatly appreciated, and his international reputation in the field of solar observation reflects favorably on the B.A.A.

Ernst Both, who presented the above citations, was himself named a Fellow by President Ron Clippinger. During his many years as a member of the B.A.A. he has given us unstinting and enthusiastic support. We are especially appreciative of the excellence of the many talks he has given at our meetings as well as the assistance he has rendered in the development of our programs in general.

Since that time 13 members have been similarly honored:

Ronald Clippinger	1970	Kenneth Biggie	1985
Walter Whyman	1970	Larry Carlino	1985
Richard Zygmunt	1970	Darwin Christy	1985
Thomas Dessert	1977	Kenneth Kimble	1985
Edith Geiger	1977	Jack Mack	1985
Robert Mayer	1977	Rowland Rupp	1985
Fred Price	1977		

From time to time the College of Fellows nominate those members whom they feel meet the standards to become a Fellow as set by the B.A.A. By-Laws. The names of those members are presented to the Board of Directors for approval, after which those who are approved are presented to the general membership for final approval and are subsequently elected as members of the College of Fellows.

Of those who have been chosen over the years, the following list gives the present state of the membership:

Deceased	Active
Rudolph Buecking	Kenneth Biggie
Robert Mayer	Ernst Both
	Larry Carlino
Inactive	Darwin Christy
Ronald Clippinger	Edith Geiger
Thomas Dessert	Edward Lindberg
Kenneth Kimble	Jack Mack
Walter Semerau	Fred Price
Walter Whyman	Rowland Rupp
Richard Zygmunt	

In 1986 the College of Fellows decided to give an award at the Annual May Dinner Meeting to a B.A.A. member showing a significant achievement in astronomy during the year. The Fellows, who meet once a year, decide on who is to receive the award. If they feel that there is no significant achievement by a B.A.A. member, no award will be given. As the award is given by the College of Fellows, it is its decision, and its decision only, as to who will receive it.

The First Annual Award (1986) was presented to Dan Marcus for his outstanding achievement in astrophotography. He was also cited for his excellent photographs of Halley's Comet taken in Australia under the sponsorship of the Buffalo Museum of Science.

The Second Annual Award (1987) was given to Darwin Christy for his outstanding achievement in the study of micrometeorites and for his being honored in a book, Meteoric Dust by Shigera Morikubo, in which Darwin's research is given a prominent place. At the dinner meeting, Ed Lindberg also praised Darwin for his excellent work as editor of the Spectrum.

The Third Annual Award (1988) was presented posthumously to Robert Mayer for his outstanding contributions to astronomy in Western New York.

There are a number of members who are doing noteworthy work in astronomy, and it is the desire of the College of Fellows to recognize and honor them with its prestigious award.

The College of Fellows

DEADLINE for the next "SPECRTUM" is June 9, 1989

* THE SPECTRUM *

BUFFALO ASTRONOMICAL ASSOCIATION, INC.

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

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