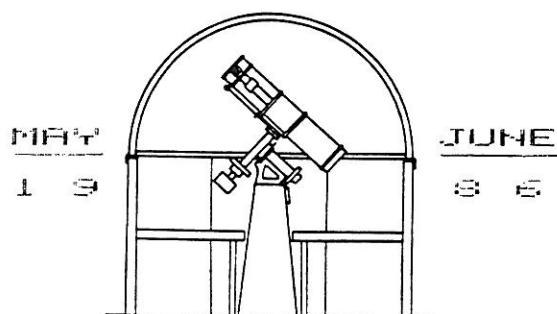




# THE SPECTRUM



BUFFALO ASTRONOMICAL ASSOCIATION, INC.

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## ASTRONOMER FROM THE PAST

JOSEPH WINLOCK, an American Astronomer, was born in Shelbyville, Kentucky February 6, 1826; he died in Cambridge, Massachusetts on June 11, 1875; being only 49 years of age. He graduated from Shelby College in 1845 and in the same year was appointed professor of astronomy as well as mathematics there. Between 1852 and 1856 he was engaged as one of the computers in the office for the "American Ephemeris and Nautical Almanac". In 1856 he was appointed professor of mathematics for the United States Navy.

Shortly afterwards he returned to the office of the "Nautical Almanac" a second superintendant. In 1859-1861 he was at the Naval Academy at Annapolis, Maryland, where he was in charge of the mathematical department. At the outbreak of the "War Between the States" (Civil War), he resumed direction of the Almanac.

In 1866 he was appointed to the chair of astronomy at Harvard and at the same time becoming director of the observatory at Cambridge where he continued until his death.

He was elected to the National Academy of Sciences in 1863 by Congress, as was he placed in charge of an expedition to Kentucky to observe the solar eclipse of August 1869 and of that to Spain in December 1870. His many observations and research were of great scientific value.

Darwin Christy

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## !! MEETING NOTICES !!

**MAY MEETING:-** Our meeting for May 9th will be the second annual B.A.A. Dinner Meeting to be held at 'Moot Hall' on the Elmwood Ave. campus of the State University College a Buffalo. We expect to start at 6:30 P.M. with cocktails, followed by a fine, complete, hot, buffet style dinner. There will be door prizes, raffles, and a special award presentation by the College of Fellows in addition to our guest speaker, Dr. Mark Shure.

Tickets are available by contacting John Raymonda at 668-1043 or Claudia Bielinski at 668-2860. You are encouraged to make your reservation as soon as possible. Tickets will be available at the door, but try to let us know if you will be attending. The price per ticket for the dinner will be \$ 8.00 and please feel free to bring guests.

If you are unable to make the dinner feel free to come in around 8:30 P.M. for our speaker's presentation.

Remember to mark Friday, May 9th on your calendar and we'll see you there.

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**JUNE MEETING:-** June 13th at 7:00 P.M. at the Museum of Science will be our Annual Business Meeting marking the end of our current program year. The election of officers will be held at this meeting, and our nominating chairman, Al Kolodziejczak, can be contacted if you are interested in running for any office or in nominating another member. (634-5472) He can also provide you with the requirements established in our by-laws for holding office and any other information you may need.

To insure that we have a good attendance at this meeting the night is not all devoted to business. We are planning on having several short presentations by various club members who have recently been galavanting around the globe in search of the elusive Comet Halley. This meeting, therefore should prove to be very interesting in spite of its general business nature.

Also, remember that although June marks the end of our regular program year, it is also the start of our summer **STAR PARTY** season. On a weekly basis until September this means picnics, parties, and plenty of night sky observing through a wide variety of astronomical instruments--something we can all look forward to.

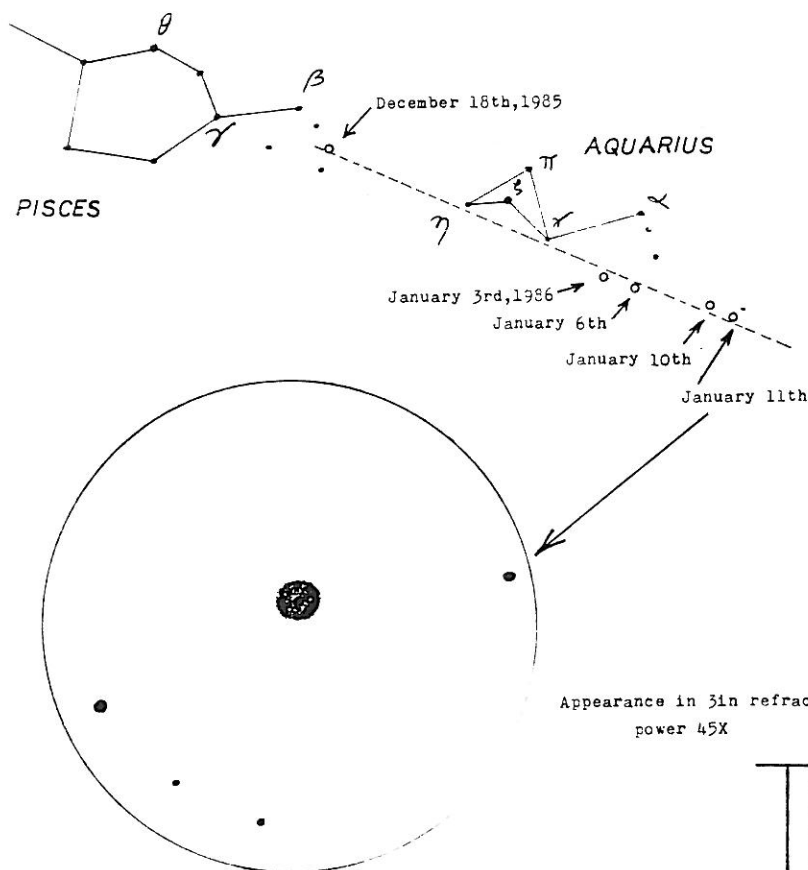
Ken Biggie, President

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# SIGHTINGS OF HALLEY'S COMET.

1985/6

F.W.PRICE.



## THE COMET AND OUR SUN

The recent perihelion passage of Halley's Comet has turned our thoughts to the great extent of the Sun's gravitational field. Our sun has kept Halley's under complete control for over 2000 years, keeping it coming back to check in every three quarters of a century. This is a once in a lifetime show - indeed, many fine people have lived normal life spans and missed it at both ends. Of course, the control the sun has over all the planets and moons all the way out to Pluto is wonderful also, but the comet seems to be much more spectacular.

Halley's has excited us because of its immutable schedule. But interest in our big furnace in the sky has been heightened also because of our increasing knowledge. Some of the facts and figures have been known for many years. Among these are the size ratio - 100 times the diameter or a million times the size of our earth. The surface temperature is 6000 degrees C. Tungsten, the metal having the highest melting point, VAPORIZES at 5500 degrees C. The tremendous energy output has been calculated. It amounts to 4 times  $10^{33}$  ergs per second or 4 times  $10^{26}$  joules per second (watts). Thus its total power output is some 400 mega mega mega mega watts - a power level beyond our powers of visualization, equally beyond us is the tremendous weight loss. The sun loses a million tons of hydrogen per second. This would seem to make it waste away rather soon. But- during the 15 BILLION years that are estimated to remain of its life the sun will lose only one hundredth of one percent of its present mass.

With all the study and observation of the sun during the centuries, one outstanding feature missed the attention of scientists until 1896. In that year a Norwegian scientists

On December 18th, 1985 I finally became a member of the happy band of people who have seen Halley's Comet. Previously, I had been disappointed by the unusual appalling seeing conditions during the November 1985 observing 'window' when the comet could have been seen without interference from moonlight. I was scanning the sky with 7x50 binoculars in the area to the west of the circlet of Pisces at about 6pm EST on December 18th and with averted vision was just able to see a fuzzy patch of light. There was a first quarter moon a little to the east. Examination with a low power on my recently acquired Celestron-5 telescope confirmed that the object was indeed Halley. It appeared in the telescope as a faint disc of light with a brighter center. No tail was visible.

During my Christmas visit to England I saw it from the back garden of my home at around 6pm GMT on January 3rd, 6th, 10th and 11th, 1986. Each time I saw it first with 8x30 binoculars and then confirmed it with low power (x45) on my 3-inch refractor. Still no tail visible. My last view on January 11th was the best. The sky seemed darker than usual and the comet appeared brighter as a result. There were four stars in the field of the 3-inch so this gives a fairly accurate 'fix' on the position of the comet except that I haven't yet been able to identify the stars with certainty (see the adjoining chart and drawing.) In the 45x field of the 3-inch the coma appeared about the same size as the full moon as seen with the naked eye so that I estimated that the apparent angular size of the coma was about 0.01 degree of arc.

By a rare stroke of good luck my next door neighbor had recently cut down a dead tree that was obscuring the very part of the sky where Halley was situated during the January sightings!

By the way - 'Halley' rhymes with 'valley'.

named Olaf Birkeland advanced the theory that the sun is emitting "corpuscular particles" which strike our atmosphere. The resulting ionization shows up as aurora. It was after years of study and calculation that Dr. Sydney Chapman, working at the Climax Observatory, concluded that the solar corona extends, in a very tenuous form, out as far as the planet Saturn. This corona sends out a stream of hydrogen ions known as the solar wind. This causes ionization of the upper atmosphere and during times of high sun spot activity creates magnetic storms in the earth's field which disrupt wire and radio communications.

Our study of the sun has also taught us more about comets. For centuries the behavior of the tail of a comet was a mystery. Why did the tail always point away from the sun? It was light pressure, theorized the scientists. This theory held forth until a British scientist calculated that light pressure was not enough to deflect the heavy aqueous vapors. When a comet approaches to within about 3 A.U. of the sun the heat becomes sufficient to vaporize the ice in the comet's head forming a cloud called a coma, with a diameter of several thousand miles. Now the solar wind composed of hydrogen ions, traveling at speeds up to two million miles per hour, have enough energy to push the outer layers of vapor back, forming the tail.

So our body of information builds up. And so does our body of unanswered questions. Maybe when Halley returns in 2061 they will know where comets come from. There are 500 periodic comets known now. Maybe they are all periodic. Be patient. Kohoutek is predicted to return in about 50,000 years.

Ed Lindberg

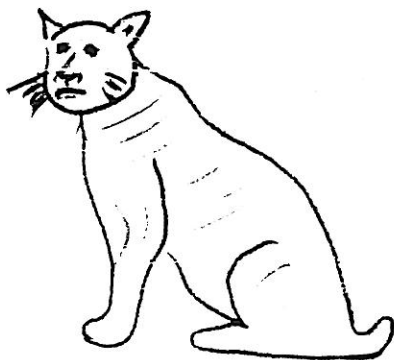
## JUNE CONSTELLATION

.....Another form  
That men of other days have called the beast.

LUPUS, The Wolf, an idea for this constellation is probably from the astrologer's translation of 'Al Fahd', the Arabic name for the Leopard or Panther.

Lupus is located between Libra on the north; Circinus on the south; Centaurus on the east; and Norma & Scorpius on the west. This constellation, of course, is for those who live in the southern areas of observing, but we must have a few printed in the "Spectrum" as someone may at some time like to travel south and do some observing.

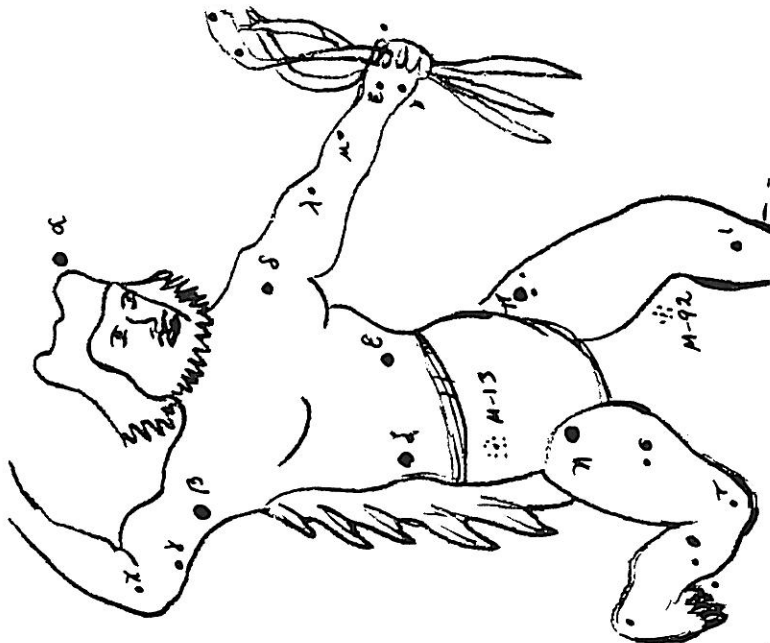
Interesting objects in Lupus include galaxies, open & globular clusters, planetary nebulae, double & variable stars. The galaxies are - NGC's 5530, 5643 & I, 4444. Open clusters - NGC's 5593, 5749 & 5822. Globular clusters - NGC's 5824, 5927 & 5986. Planetary nebulae are - NGC's 5873, 5882, 6026 & I, 4406. Variable stars - GG, GH & GO. Double stars are - Epsilon, Eta, Gamma, GO, Kappa 1&2, Lambda, Nu 1, Tau 2, Upsilon & Xi 1&2.



## MAY CONSTELLATION

HERCULES, The Kneeler, is one of the oldest figures in the skies. It dates farther back than 2000 B.C. Much mystery surrounds its origin although it was worshipped by the Phoenicians as it represented their god Melkarth. Even the Greeks knew it as the Phantom or Man Upon His Knees. It is within the bounds of Draco on the north; Ophiuchus on the south; Serpens Caput, Bootes & Corona Borealis on the east; and on the west by Sagitta, Vulpecula, Aquila & Lyra.

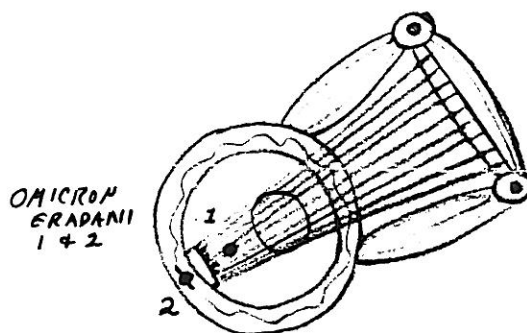
Interesting objects in this constellation include galaxies - NGC's 6052, 6106, 6181, 6207, 6239, 6482 & 6574. Globular clusters - NGC's 6205 (M-13), 6229 & 6341 (M-92). Planetary Nebulae are - NGC's 6058, 6210 & I, 4593. Diffuse Nebula in the area of the variable DQ. Variable stars are - 30, 68, AC, DQ (N-1934), GN, IQ, LQ, NQ, Omicron, OP, RR, RS, RU, RX, ST, SX, SY, T, TX, U, UU, UV, UW, UZ, V360 (N-1892), V441, V446 (N-1960), V451, V533 (N-1963), V535, V620, V642, V644, V654, W, & X. Double stars include - Alpha, Delta, Kappa, Mu, Rho, Tau, Omega, 32, 40, 46, 52, 54, 60, 68, 90, 95, 100, 102, & 110. There are four Novae - N-1892, N-1934, N-1960 & N-1963.



## ANCIENT CONSTELLATION

PSALTERIUM GEORGII or Georgianium which is sometimes referred to as Harpa Georgii, was formed by Abbe Maximilian Hell in 1781, in honor of King George II of England. On the Stieler 'Planisphere' it is Georg's Harfe, from Bode's Georgs Harffe.

The Psalterium or Harfe is a like Lyre or Harp as depicted on those maps and charts where it was given a place among the stars.



It lies between the front feet of Taurus and the River Eridanus. Its stars which are all inconspicuous, were borrowed from the river Eridanus of which two such stars could have been Omicron 1&2 (Omicron 1 is a 4th magnitude star & is Omicron 2 which also has the distinction of being a double), now returned to that river.

Psalterium is no longer recognized by astronomers, thus has been eliminated from all maps and charts.

Darwin Christy

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## PROFILE

Paul R. Noye

One of our members who joined the BAA recently, is a multitasking gentleman. Paul was born in Akron, Ohio, and after his freshman year in school, the family moved to Sharon, Pennsylvania, where he graduated from Sharon High School. He went on to Grove City College, Pennsylvania, where he received his degree in chemical engineering. While in college, he became interested in electronics, and has continued that interest to this day.

After graduation, World War II broke out. Paul became a chemical engineer at Union Carbide in Tonawanda and ended up working on the Manhattan Project, being technical advisor in the uranium reduction plant. He was responsible for the technical operation of the plant during his shift. He managed to get his job down to a simple, precise operation, and thus was able to devote some time to process development. As a result of his activities he was transferred to the research lab in the role of a physicist.

Six months before the first Bikini atomic bomb tests in 1946 on the atoll in the Marshall Islands, Paul went to work at Cornell Aeronautical Lab as an electronics engineer where he participated in the development of instrumentation for the bomb tests. He remained for five or six years, and then set up his own business, Noye Laboratories, where the work was mostly in medical electronics. Five employees did service and repair, and designed research apparatus, with Paul doing most of the design work. His lab was utilized by the major hospitals in the area, with extensive work being done for Roswell Park Memorial Institute.

The company gradually shifted over into industrial electronics as it was more profitable. It continued, however, to do some medical electronics. Paul was a consultant to the Columbus McKinnon Corporation and was retained on an annual basis. About fourteen years ago they made him an offer to join the company on a full time basis to start a research and development operation there.

When the economic crunch came along, Paul accepted an

offer to take an early retirement three years ago. Noye Laboratories is still intact, but now Paul uses it as a hobby lab, and does some work for old clients on occasions. The lab houses the electronic lab, a machine shop, a chemical lab, and dark room, equipment for electroplating, welding, and a paint spray room.

Paul had a 3" achromatic objective from war surplus of the 40s lying around. Part of the work he did in medical electronics was with instruments involving some optical construction, so he had some optical components. He didn't know if the 3" objective had any value. He had built a 2.5" refractor with crude optics while in high school, so he decided to resurrect the 3" objective. Paul started making his refractor with a piece of 4" aluminum tubing, and machined a mount for the objective, and put it together with optical units. He used a camera tripod for an altazimuth mounting and after doing some observing, decided that the objective was of good quality. He tried to improve on the optical part, building everything from scrap. He designed and built an equatorial mount with a clock drive, and purchased eyepieces from Edmund Scientific and, after several observing sessions, was reasonably satisfied. He does a lot of trailer camping so he had designed the scope for portability. It fits nicely into a small suitcase.

Paul then became interested in astrophotography, and discovered that the mount was not rugged enough, and contemplated building a bigger scope. In the late fall of '85, he purchased an 8" Meade Cassegrain, and after becoming familiar with it, discovered some sloppy design and made modifications which made the scope work better. He also built a motorized declination slow motion control.

For twenty years, Paul has spent a couple of weeks each year in the vicinity north of Bancroft, in central Ontario, pursuing his hobby as an amateur mineralogist. He has always felt ineffable joy in the unpolluted sky in that area. In fact, it was the fantastic clarity of the stars that motivated him to start building his 3" refractor.

Paul enjoys going out in the country with his trailer to observe and photograph the heavens from the campground near Beaver Meadow and from an ideal spot about 800 feet from the Dilapo home on Cole Road in North Boston. His main interest in astronomy is cosmology and astrophotography.

He is also a ham radio operator and is a member of the Buffalo Amateur Radio Repeater Association (BARRA) which owns five amateur repeaters in the area. The astronomy net works through Grand Island, using the repeater on Channel 29, and also uses the equipment and tower on Cole Road. Paul has been an officer in two different clubs, and editor and writer for the club newsletter.

Another hobby to which he is devoted is music, which he has always enjoyed. He plays "by ear," having a natural musical talent. He has learned to play violin, mandolin, guitar and accordion without any lessons. Paul has also played organ for twenty-five years, again being self-taught. He can read music to a certain extent, but plays organ mostly "by ear." He built a spinet model organ and acquired a Wurlitzer which he used and rebuilt. He is interested in sound reproduction and the research and development of new sounds for organ, and is experimenting with modular voicing, and making a design for an electronic circuit to simulate a Leslie type speaker.

Along with Paul's other talents, he is an accomplished skate dancer (roller skates). He is taking instruction and working on the Gold Class dances. He doesn't enter competitions though he is an outstanding skater. Sunday evenings he goes to Skate Haven Roller Rink in Lackawanna. His skating partner's mother is in a nursing home in West Seneca. The home has a Wurlitzer organ, so Paul goes over and spreads cheer by playing songs loved by the patients.

Paul and his wife, Jean, have been married for around thirty-eight years. They have a daughter who has inherited her father's musical ability, and has received her Masters in fine arts and music from UB. She is a violinist and spent two years in Japan studying with the renowned authority, Shinichi Suzuki, creator of a teaching method to train

young children to play stringed instruments at a very early age. She also went to England to work, but a work permit problem has prevented her from being employed there.

Paul is a very ingenious and resourceful individual with an unusual breadth of creativity. He manifests a wide gamut of expression as he explores many horizons with fervor and vitality. His warm personality assures him of many friends, and we are very fortunate in having him as one of our new members.

Edith L. Geiger

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## ALBERT EINSTEIN

Albert Einstein, a German-American Physicist, was born on March 14, 1878 and died in the year of 1955. His curiosity of the universe that inspired all his work, seems to have come to him at the age of four or five when he was amazed at a 'magical' magnetic compass needle. Even when Einstein was 70, he remembered that incident. He taught himself calculus and science. At the age of 17, he entered the Polytechnic Institute of Zurich.

Albert Einstein's Theory of Relativity was concerned basically with time and space. After the Ptolemaic idea that the earth was the fixed center of the universe was turned from, a question came about asking whether anything was fixed--. Or, if the idea of absolute rest has any meaning. From his laws of motion, Newton found that it has none. His laws make what is now called the principle of relativity, which insists that there is not an absolute rest, all uniform motion being relative.

The coming of the wave theory of light in the 19th century said the existence of a medium, the luminiferous ether giving of light waves, serves as an all around standard of absolute rest. This ether could oppose the principle of relativity. So, serious problems came with the idea of an ether. The astronomical phenomenon of wandering away suggests the earth moves without dragging the ether with it. And since light waves should move with fixed speed relative to earth should depend on how the earth moves through the ether, on the earth's 'absolute' motion. Experiments made of the terrestrial speeds of light in different directions found no motion of the earth through the ether.

Poincaré and Einstein realized since all reaches to find the earth's absolute motion didn't work out, the principle of relativity must be valid, despite the ether.

Photons, the quanta or particles, made up the electromagnetic spectrum. Visible light must sometimes be made up of particles, or quanta. This was introduced by Planck in 1900 and Einstein in 1905. Light has a given wavelength that identifies it. It can be measured almost precisely by spectrometry, also. In spectrometry, light shows its wave nature. The same light, if shown on a certain metal surface, might throw out electrons (the photoelectric effect), in a way that means the surface is being filled with lots of energy, the photons.

In 1921, Albert Einstein won the Nobel Prize in Physics for his discovery of photoelectric-effect law and work in theoretical physics.

Dina Adimey

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## SUNSPOT ACTIVITY

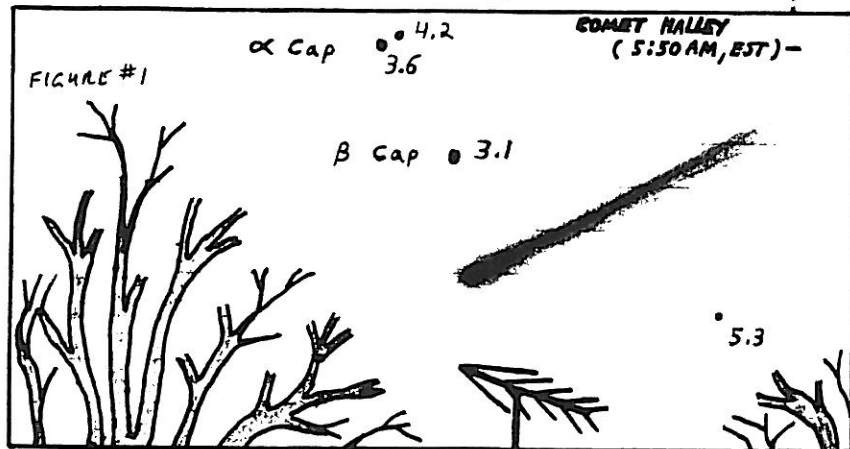
A recurrent sunspot group which appeared first in October 1985, virtually disappeared from view in April 1986. The group which should have reappeared on the sun's eastern limb April 1st failed to appear. In February, this group was responsible for two 'X'-class solar flares which occurred on February 8th and caused radio communication blackouts. In March the group appeared to weaken from the 7th until it went behind the sun's disc on the 14th. With the disappearance of this sunspot group, the sun will likely be free of sunspots for the rest of 1986. The sun is approaching a solar minimum which should occur in early 1987.

Bob Hughes

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## \*\* OBSERVATIONS \*\*

1) on the morning of March 1st, I obtained a fine view of Halley's Comet. The comet was first spotted at 5:40 A.M. just above the south-eastern horizon. The best view was obtained at 5:50 A.M. with the early dawn already coming on. While the comet's head was visible with the naked eye, 10 x 50MM binoculars gave me a much finer view. With such an optical aide, a 6° long tail was beautifully evident. The tail was quite narrow and bright at its root but, afterwards, rapidly fades as the tail gradually broadens to a ½° width at its visual terminous. Visible as well was the comet's (magnitude 4.5) nucleus shining with an almost metallic lustre. The surrounding coma or head was quite bright indeed, at magnitude 2.5. The coma is pretty much of a tear-drop shape, its major axis being ½° in apparent extent. The tail soon faded into the brightening dawn but the head was still visible at 6:02 A.M. EST. (See figure #1)

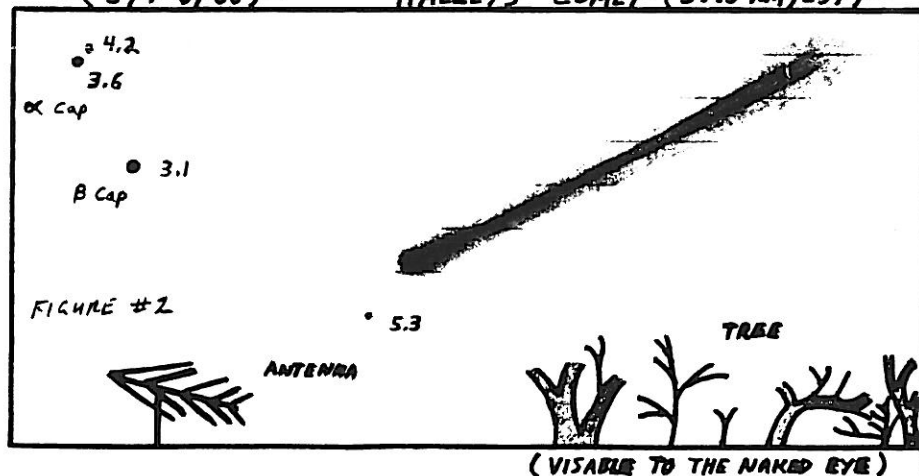


2) On March 2-3 the past month has been quite a busy one for the observation of deep-sky objects. Most of the 'new' objects observed were galaxies or quasars but a number of dark nebulae were also scrutinized. A 17.2" telescope apera-  
ture appears quite potent as per deep-sky observations. In total, 2702 such objects have been observed as of this date.

In a more variable star 'vein' the recent supernova in the galaxy NGC 3367 was observed on the night of February 21-22. At the time of observation the supernova looked to be of magnitude 14.3.

-(3/7-8/86)-

HALLEY'S COMET (5:45 AM, EST)-



3) On March 7-8 I observed a rare outburst of the cataclysmic variable star "SW" Ursae Majoris. Apparently caught undergoing a supermaximum type of eruption as th star looks to be of magnitude 9.9 at this hour. In contrast, at minimum light this star is quite a test object for a 24" telescope...later, just before dawn, I observed Halley's Comet once again. The comet's apparent visual magnitude remains at 2.5 but the tail has grown slightly in length, now appearing 6½° in extent. The narrow gas tail is quite bright while the dust tail is much broader but also much fainter and diffuse in character.

(See figure #2)

Michael Idem

Halley's Comet was seen at 4:30 AM on March 22nd, 9 degrees above the S.E. horizon. To the naked eye, only the coma was visible, and looked like the Andromeda galaxy in both total magnitude and surface brightness. A fairly hazy sky dimmed the comet one magnitude making the ta l invisible. But the tail was seen faintly in binoculars and with a 5 inch f4:2 refractor, it was traced out to 7 degrees in length, and was fairly narrow. With a camera exposure of 30 seconds at f:1.8 with Fuji 1600 film, it showed as much detail as the refractor showed from Boston, N. Y. That photograph appeared later that day on ABC's channel 7 TV news at 11:00 PM, which also mentioned our club's display at the McKinley Mall.

An Orange meteor of magnitude minus 5 was seen from the Beaver Meadow Observatory on April 13th at 8:14PM. It traveled 20 degrees towards the south east across Canis Major, just above Sirius and lasting 2½ seconds.

Carl Milazzo

On the evening of April 13th near 8:15 PM., I observed a meteor of orange hew, magnitude -1 crossing Canis Major about 2 degrees above Sirius. Its south-eastern path lasted near 3 seconds of time. In all probability, it was the same meteor which Carl Milazzo saw from his vantage point at Beaver Meadow Observatory though his time was set at 8:14, mine was only an approximate time, but close enough...

Darwin Christy

## \*\*\*\*\* OBSERVATORY REPORT

Some club member between March 30th and April 2nd who didn't sign the log book at our club observatory broke the cable that moves the roof back and didn't even call to report the damage. A temporary repair was made at first and a permanent one was made later by Mark Schmidt and Carl Milazzo. Members sometimes also dump cigarette butts on the grass of the Buffalo Audubon Society's nature sanctuary. Some do not turn off the path lights and parking lights when they have finished using the club's Beaver Meadow Observatory. The swit h for those lights is on the outside western wall of the observatory.

Public nights at the observatory have been appearing in the Buffalo News "GUSTO" under the family section. In another newspaper known as the 'Arcade Herald' has had a two page article mentioning the club's observatory. On March 9th, a 15 minute radio show mentioned the observatory an the McKinley Mall show which was 'WECK' from Cheektowaga. ABC's channel 7 TV news at 6 PM March 11th and again at noon on the 12th, it appeared, as well as again on March 22nd on the 11 PM news.

As always there is a need for members to volunteer to do public nights at the Beaver Meadow Observatory on clear Sunday evenings from 9 to 11 PM; and there is still openings for the month of June. Buffalo has finally, in March, snapped out of a four month stretch of cloudy weather, the worst in history. Turnout during public nights has been averaging 25 lately and members are using it about 5 times a month both visually and photographically.

The popular loaner telescope, the 8-inch equatorial reflector, can be taken home for a month by any club member. Just let me know and I will put you on the short waiting list.

Carl Milazzo,  
Observatory Director

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## "SPECTRUM" DEADLINE

SPECTRUM DEADLINE FOR THE JULY/AUGUST (SUMMER) ISSUE WILL BE JUNE 13TH. THE DAY OF OUR ANNUAL MEETING. THIS IS BECAUSE THIS ISSUE WILL BE CONTAINING THE SUMMER STAR PARTIES.

**SOLAR:-** The sun will start its way south on June 21st, at 11:30 A.M. EST. This, of course, is the Summer Solstice or beginning of summer, if one ever sees that big ball of fire.

**LUNAR:-** The lunar phases for May & June are:-

New Moon - May 8th & June 7th

First Quarter Moon - May 16th & June 15th

Full Moon - May 23rd & June 21st

Last Quarter Moon - May 30th & June 28th.

The May Full Moon is the "Flower" and the June Full Moon is the "Strawberry".

**LUNAR & PLANETARY CONJUNCTIONS:-**

Jupiter - May 3rd & 31st and June 27th

Mercury - May 7th & June 9th

Venus - May 11th & June 10th

Saturn - May 23rd & June 20th

Uranus - May 24th & June 21st

Neptune - June 22nd

Mars - May 26th & June 23rd

The June Mars conjunction will be a near Occultation.

**LUNAR & STELLAR CONJUNCTIONS:-**

Antares - June 20th which will be a near Occultation.

**METEOR SHOWERS:-**

May 1st - Phi Bootids

May 3rd - Omicron Scorpiids

May 4th - Eta Aquarids \*\*\*

May 15th - O Cetiids (daytime)

May 17th - Zeta Herculis

May 30th - Eta Pegasids

June 3rd - Tau Herculis

June 5th - Chi Scorpiids

June 8th - Librads

June 8th - Arietids (daytime)

June 9th - Zeta Perseids (daytime)

June 9th - Alpha Scorpiids

June 11th - Sagittariids

June 13th - Theta Ophiuchids

June 15th - Lyrids

June 20th - Ophiuchids \*\*

June 26th - Corvids

June 28th - Bootids

June 29th - Draconids \*\*\*\*\*

June 30th - Beta Taurids (daytime)

Darwin Christy

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## LETTER TO THE EDITOR

### DODGE ELEMENTARY SCHOOL

February 25, 1986

Dear Members of the Buffalo Astronomical Association,

We can't begin to thank you enough for all you did to make our Friday eveing visit to the Science Museum Observatory such a worthwhile experience. It was so kind of all of you to take your time to be with us and share your information and to answer so many of our questions. We have had so much positive feedback about the evening that we will surely plan to do it again in two years.

Again many thanks for our wonderful "clear evening under the stars,"

Primary multi-age team,

\* \* \* \* \*

### FOR SALE

For sale:- 12.5" Cave on Dobsonian Mount with Konig 24mm University Eyepiece and Finder Scope.....\$ 550.00

I am looking for a 10.1" Dobsonian Scope Odyssey Compact. I will buy or trade a 13.1" Odyssey I.

For information---call John Yerger at 833-8498

\$ \$ \$ \$ \$

How big is a million? A billion? How about a trillion? In Astronomy these numbers are routine, run of the mill distances, ages, and sizes. These numbers almost outstretch the most vivid imaginations but it's close to impossible to grasp a mental image of them.

Let's start with a million. A million pages of the news letter you are holding would not only please our editor and break our treasury- it would also form a pile as tall as a twenty story building. A billion pages, besides giving our editor a hernia, would stack up seven times higher than Mt Everest.

How about a trillion pages? (Our editor just died and went to heaven) A trillion or a thousand billion or a million million would make a pile soaring over one-sixth of the way to the moon.

Try thinking about it in terms of time. A million seconds is twelve days. A billion seconds is more than thirty-one years. And a trillion seconds is over thirty-thousand years.

Let's try to scale down some cosmic dimensions and place them in astronomical perspective. We'll start here at home with the Sun a one inch sphere - about the size of a walnut. The Earth is now a speck of dust about eight feet away, Jupiter is a small pea close to forty feet away from the walnut Sun and Pluto - a speck is three hundred feet away.

The nearest star Alpha Centauri, part of a triple star system, is now one of two walnuts and a marble over four hundred and ten miles away. If this model of our universe were to utilize a volume of space the size of our Earth, our globe would encompass only two hundred other walnuts, cherries, marbles, oranges, and various other exotic stars.

With the universe reduced to this microscopic size we would still find that travelling to the stars would be quite a hike. So let's reduce the scale even further. Betelgeuse is eight hundred times larger than our Sun so we'll make that walnut sized. That reduces most other stars to microscopic specks and the distance between them is reduced to an average of about one mile. Now our entire Milky Way Galaxy is about as wide as the actual size of the Earth and our nearest galactic neighbor, the Andromeda Galaxy, would still be over one-half the actual distance of the Moon from the Earth. Now star travel is relatively easy but walking between galaxies would take years.

Now let's make one final reduction. Let's reduce the Milky Way Galaxy so that it is small enough to hold in the palm of your hand - the stars within are reduced to subatomic size. The Andromeda Galaxy is only slightly larger and about seven feet away.

All about us now are galaxies ranging from giant basketball ellipitcals to dwarf galaxies the size of the head of a pin. Yet even now, with the distances between galaxies reduced to just a few feet, the enormity of our universe makes the mind boggle.

The next time you're at the Aud watching a hockey game, look about you. Even at this scale the universe fills a volume of space ten thousand times larger than the building you're sitting in!

Now let's talk about multiple universes - on second thought----let's not!!!

unknown!!!

\* \* \* \* \*

## NEW MEMBERS

Let us welcome the following new members:

Kim & Audrey Mankiewicz

Bill Rogers

David Bloom

Dr. Robert E. Ogle

Jim & Billy Holody

Ray M. Buehl

Joel Stucky

'tis nice to have you aboard a star with us!

On March 9th, Carl Milazzo gave a fifteen minute talk on Halley's Comet on WECK.

Jim Russell took some fine photos of the comet on his trip to Texas. On March 12th, Carl showed Jim's pictures on Channel 7. On March 22nd, Carl took pictures of the comet in the very clear sky before dawn and once again appeared on Channel 7 showing his comet photo during the 11:00 o'clock news report.

For those who believe that a comet is an evil omen, there is now proof. On the morning of March 21st, Ernst Both was gazing at the comet and stepped into an icy rut; falling and cutting his knee and leg badly. Suffering from pain and great discomfort, he was seen hobbling around the museum attending to his many duties.

On page 400 of the April Sky & Telescope, Fred Price has an excellent article entitled "T.W. Webb and His Celestial Handbook."

Fred went to his home in England to visit his mother during the spring break at Buff State.

In response to Darwin's plea for items for the Spectrum, Reon Wadsworth sent in the following: "Reon Wadsworth was set up on Mar's Hill where the Apostle Paul gave the Gospel to the Athenians as in Acts: Chapter 17, Verse 22. From there he took pictures of the eclipsed moon rise on the Temple of Nike at the Acropolis in Athens, Greece."

Darwin looked up this location in the Bible and also in the Encyclopedia Americana and found that Mar's Hill is now Mt. Lycabettus, which is almost in the center of the city. Darwin also noted that there was an eclipse of the moon in that area on May 4, 1985.

Irene Rupp, regent, was one of two elected delegates from the Abigail Fillmore Chapter, National Society Daughters of the American Revolution, to attend the DAR 95th Continental Congress in Washington, D.C., April 14-19.

John Yerger, well-known area artist, has a studio behind his house in Hamburg, where he teaches beginners and advanced students, using oils, acrylics and watercolors. He has eight students in each class.

Charles Brunner, an art collector and interior decorator, is John's agent. John has exhibited at the Associated Art Organizations Gallery and has won awards in competitions there.

On March 20th, a picture of Dina Adimey appeared in the Tonawanda News showing her C8 telescope and the device she designed for illuminating condensation on the telescope eyepiece. She entered this device in the Duracell U.S.A.'s annual \$30,000 scholarship competition and was one of the 100 national finalists. A more detailed article in the Buffalo News on March 21st showed Dina and her science teacher. Dina is a 9th grade student at Tonawanda High School and is to be congratulated on her achievement.

Lillian Von Gerichten spent some time in the hospital for a hip operation. We are happy that she could be at our April meeting.

During the winter months, Frank Zajack and his wife, Eleanor, enjoy downhill skiing at Holimont in Ellicottville, and cross-country skiing at Beaver Meadow and Elma Meadows. Frank makes wooden bird houses, and in the spring and summer, bird watching takes Frank and Eleanor to Tift Farm, Beaver Meadow, and the Alabama Swamp. This summer Frank will be busy doing work around the house, painting, and catching up on unfinished projects.

David and Cathy Sepulveda are delighted with their son, Adam, who was one year old on April 16th. Dave is interested in shortwave listening, scanner monitoring VHF and UHF radio, and computers, both as a hobby and vocation. He services computers for Radio Shack on Young Street in Tonawanda. His field service is from Batavia west. Along with his other interests, he finds time to pursue his hobbies of photography and occasional backpacking. This summer he will be reroofing a house, and he, Cathy and Adam will be visiting Cathy's mother in Sandwich, Massachusetts.

Edith L. Geiger

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The spring meeting of the Niagara Frontier Council of Amateur Astronomy Associations (NFCAAA) will be held at the McLaughlin Planetarium (second largest in North America) Toronto on Saturday, May 24th at 11:00AM. The program will begin with a planetarium presentation portraying the planets in their motions against the starry background during the coming summer. Remember to be on time as for a planetarium show no late comers can be admitted. After the show we will cross the street to a restaurant for lunch.

After lunch there will be an afternoon presentation of papers, preceded by reports from representatives of clubs present on activities of their respective clubs.

The evening banquet will be at the Park Plaza Hotel, a 5 minute walk from the planetarium. The banquet speaker will be Warren Morrison, a well known variable star observer. The cost will be that for the dinner only. This will be \$ 25.00 Canadian.

If you plan to attend please let me or Darwin know by the May meeting of the BAA as the Toronto club must know May 10th. They will furnish maps and a list of hotels by our May meeting...

Ed Lindberg - 633 6725

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#### STUDY GROUP

As most members who have been attending meetings regularly know, there is an apparent rekindling of interest in the Study Group. At the March meeting we passed around a sign sheet which came back with 19 names on it. The new interest is probably because of the large number of new members. It is very encouraging to see this kind of turnout because the last version of the study group died from lack of interest.

Since it is pretty late in the season to start full bore on a program now, we will meet to decide exactly how people would like to see the group operate. The last time the study group was meeting actively we would choose a topic, variable stars for example, and members would each study up on the subject and we would have a group discussion on the topic at the meeting. Of course this was not a strict requirement, some people liked to attend just to hear the discussion. There were other times when one member would be asked to speak on his own field of expertise, an example I can think of right off was Stephan Kramer telling us more about his Antikythera than a regular business meeting would allow.

It has also been suggested that we go through an informal course in introductory astronomy similar to that which a group of us gave at the Science Museum several years ago. It will be up to the people interested in reforming the Study Group as to how they would like to operate. I myself think it is a worthwhile endeavor as long as participation remains at a reasonable level. It is discouraging to invest time in a meeting and then have nobody show up, a position Dr. Price found himself in last year.

A group of us got together after the last meeting and decided that we would meet at the Science Museum on Thursday, May 15 at 7:30 pm. That will be the Thursday following the May dinner meeting. Any information additional to this notice will be passed along at the May meeting.

KEN KIMBLE  
692-5068

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THE SPEAKER FOR OUR 2ND ANNUAL DINNER MEETING ON MAY 9TH WILL BE DR. MARK SHURE. DR. SHURE COMPLETED HIS DOCTORATE AT CORNELL UNIVERSITY AND IS PRESENTLY TEACHING AT THE UNIVERSITY OF ROCHESTER. HIS TOPIC WILL BE "INFRARED IMAGING OF HALLEY'S COMET."

## THE NOMINATING COMMITTEE'S REPORT

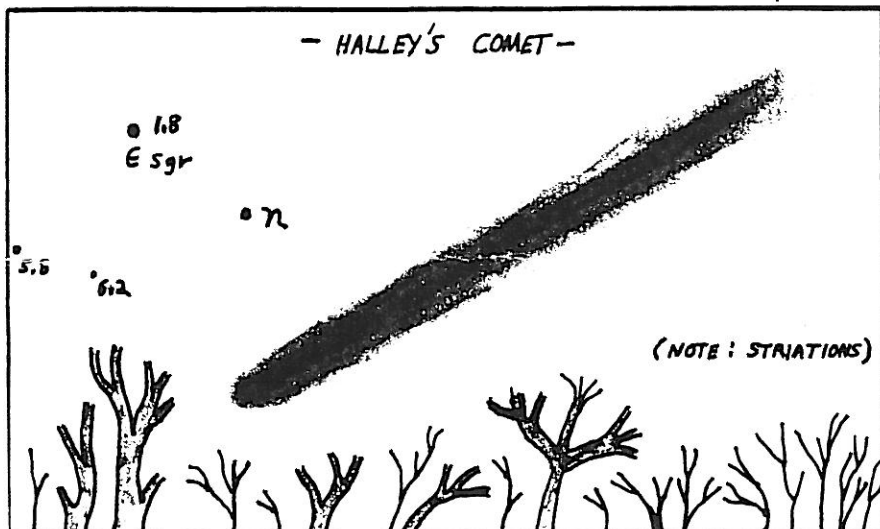
THE NOMINATING COMMITTEE IS PROUD TO OFFER THE FOLLOWING CANDIDATES AS OFFICERS FROM SEPTEMBER 1986 TO SEPTEMBER 1988:

PRESIDENT : KENNETH BIGGIE  
DR. FRED PRICE

VICE-PRESIDENT : DORIS KOESTLER  
ROWLAND RUPP

SECRETARY : DAVID SEPULVEDA

TREASURER : JOHN RAYMONDA  
JACK EMPSON



"A LATE OBSERVATION" March 30-31 Halley's Comet is now very nearly at its maximum brightness, I estimate a current magnitude of 2.1. The comet's head remains  $\frac{1}{2}^{\circ}$  in diameter while the tail seems to have topped out at  $7^{\circ}$  in length. Some tail striations are evident, even with binoculars, upon the general background surface of the dust tail. The gas tail is located almost centrally upon the dust tail and is the brighter and more prominent of the two. Although fairly extensive, the tail on the whole is extremely faint. (4:30 - 4:45 AM EST).

Michael Idem

\* \* \* \* \*

The next issue of "The SPECTRUM" will include an article on 'The Oort Cloud', Observations of Halley's Comet, Star Parties and 'maps', and many more of the usual. In order to fill the "SPECTRUM", articles are needed from you the members.....

Darwin Christy, Editor

\* \* \* \* \*

## \* THE SPECTRUM \*

BUFFALO ASTRONOMICAL ASSOCIATION, INC.

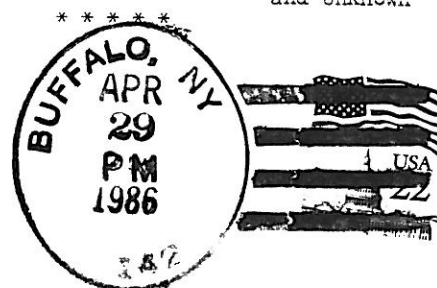
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Ken Biggie  
Darwin Christy  
Edith Geiger  
Bob Hughes  
Michael Idem  
Ken Kimble  
Al Kolodzceijczak  
Ed Lindberg  
Carl Milazzo  
Fred W. Price  
and Unknown



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