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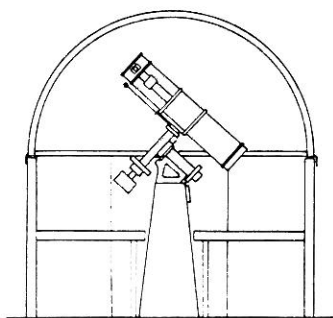


SPECTRUM



elg

J U L Y - A U G U S T



S U M M E R
I S S U E
I S B S

BUFFALO ASTRONOMICAL ASSOCIATION, Inc.

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SUMMER STAR PARTIES

Once again the 1986 Summer Season is upon us, and holding to that long held tradition various members of the B. A.A. have offered to hold Star Parties at their homes and observing sites around western New York.

Before I get into the details of this years events, I thought that since our membership roll has grown in the last year that it would be a good idea to pass along some tips on how to obtain the maximum enjoyment at a star party.

Star parties are informal get togethers; in which all members are welcome to attend and get acquainted with other members. Most parties start at dusk but may start before that (see individual descriptions). You are encouraged to bring your telescope and/or binoculars if you have them. Don't feel that you have to know what's up when and where to be able to participate. Every one has their own areas of expertise (mine for example is satellites and communications) and they will be happy to share them with you. It is recommended that if the weather looks poor that

you give the host for that evening a call; to see if there is a change in plans.

Now with out further delay here is the schedule for the summer of 1986:

June 27th - RAIN or SHINE This first get together of the season belongs to our President, Ken Biggie. Ken promises that this will be the social event of June as food, drink and interssting conversation will flow (Ken loves to talk) Ken lives at 37 Villa Maria Dr., West Seneca. 675-8932.

July 4th will be a weekend just to enjoy.....

July 11th if clear, otherwise the 12th RAIN or SHINE, we are once again welcome to Brian Fallon's, 1198 Center Rd. in West Seneca. 674-3009

July 18th RAIN or SHINE a full moon will be in the sky as Jack & Jayne Mack will be welcoming us to their home at 1 Hunters Lane, Williamsville. This will also be one of the best times to view Mars as it comes near its closest oppositions in almost ten years. Things will start off at around eight P. M. 632-6210

July 25th if clear, otherwise come on the 26th for something completely different. Yours truly, Jack Empson, will be holding my first ever star party at one of the local parks near my home. With the permission of the Town of Wheatfield, we will be able to use Fairmont Park on Nash Rd. (about 2 miles from Niagara Falls Blvd) for the evening. Refrshments will be provided. The park is almost a totally open area with a hill near the center of it and a fairly dark sky. It is recommended that you park on the Steig Rd side of the park near the baseball diamonds. I'll be there around dusk. If lost, call 694-3814

August 1st is the weekend of Stellafane held in the mountains of Vermont. For those who can't make there, the B.A.A.'s Observatory at Beaver Meadow will be open for use on this moonless night. You are encouraged to bring your own equipment.

August 9th RAIN or SHINE the first quarter moon will be with us as our ace photographer Dan Marcus will be hosting what may be the wettest of our summertime events, a combination pool, observation and photo session. Dan lives at 23 Riverdale Dr., Grand Island. Things start at 3:00 P.M. with swimming followed by a buffet style dinner. After it gets dark, Dan will be glad to help anyone interested in learning his many tricks for taking great astro photos. It is recommended that in order to have the maximum amount of fun allowed by the Surgeon General for humans that you bring swimwear and a towel. Dan also recommended that you bring your own camera. 773-5015

August 15th if clear, if not come the next night to our final star party to be hosted by Triston Dilapo at COCO's; located at 41 Virginia Place in the Allentown area of

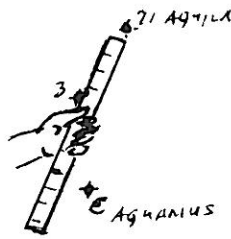
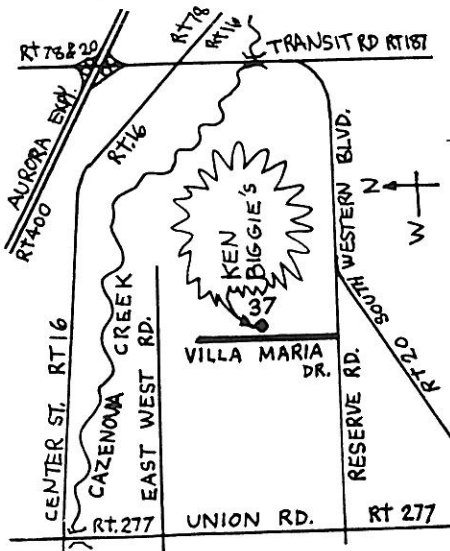
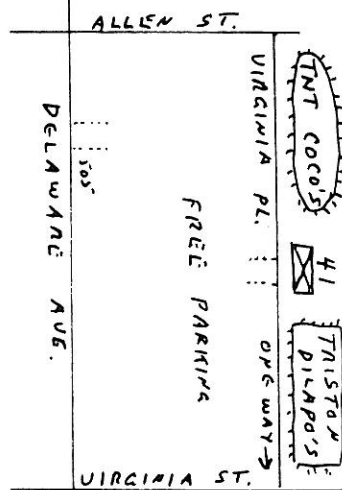
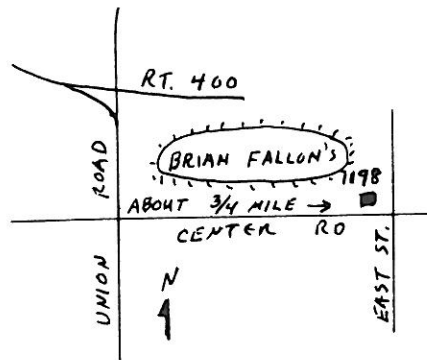
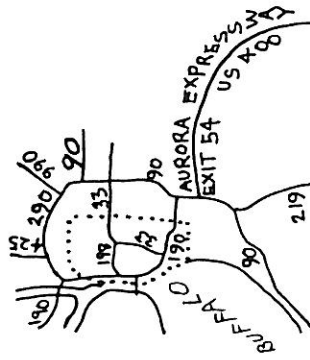
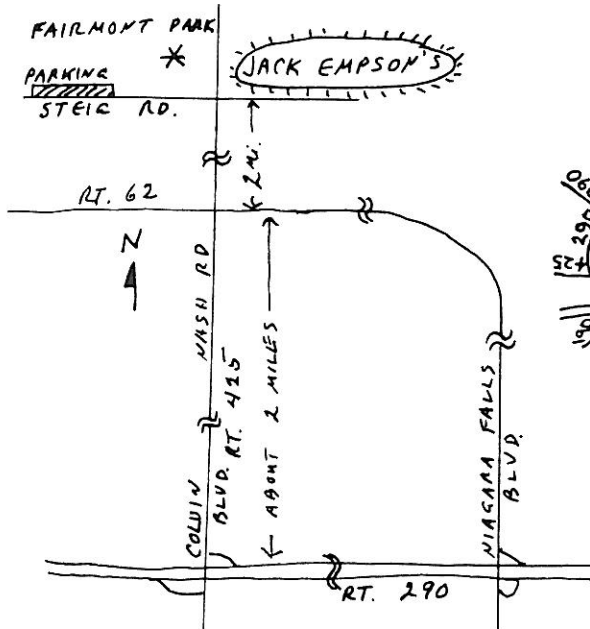
Buffalo. Planned events for the evening include a BBQ Style cook-out and observing. The festivities begin about eight PM. If you have any questions or need directions, call Triston at COCO's - 886-4513.

In closing we would like to thank, in advance, all of our hosts for this summers events. And---remember in the words of that famous astronomer, "Astronomers do it under the Stars."

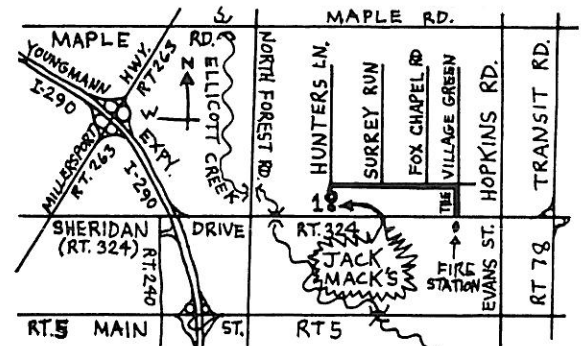
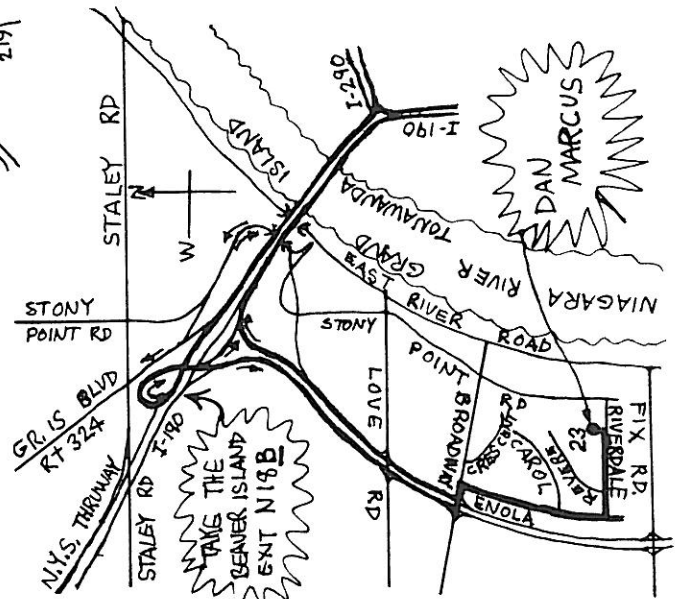
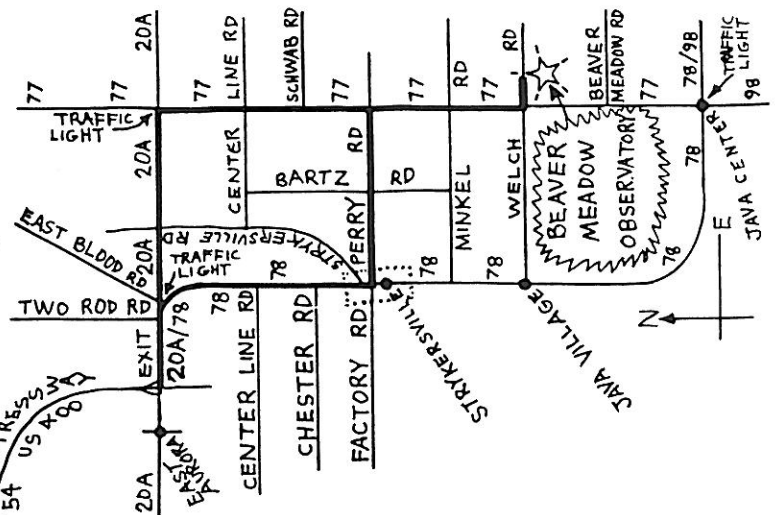
We'll be looking forward to seeing everyone in the dark

MAY FOLLOW !!

Jack Empson
Doris Koestler



Norma Nilotica
See page 3



NEW MEMBERS

Let us welcome the following new members:-

Halina T. Szymanczyk
Joseph & Diane Butch
Derek G. Bill
James P. Robbins
Dennis & Rita Alviti
Andrew J. Krajewski

Our elected officers for the next two years are:-

Ken Biggie, President
Doris Koestler, Vice President
Dave Sepulveda, Secretary
Jack Empson, Treasurer.

Congratulations!!

'SPECTRUM' DEADLINE

for the September-October issue is AUGUST 15th.....

ANCIENT CONSTELLATION

NORMA NILOTICA, a Ruler or Measuring Stick of the River Nile, is an ancient constellation as described in Burritt's Atlas as being that instrument which was held in the hand of Aquarius. This means, therefore, that Aquarius must be wading in the River Nile, taking measurements of the water in depth.

Norma Nilotica, or as it is called today, "The Nilometer" is an instrument used for the purpose of measuring the depths of large bodies of waters such as our lakes and reservoirs.

The Nilometer, as described in hydrolics, was used to measure the rise and fall of the River Nile during its periodic flooding. The instrument was stood in a well which communicated with the River Nile, and the markings being measures in "Cubits". One cubit measuring about 18 inches in length, that distance from the elbow to the wrist of one's forearm.

In the time of Pliny, 12 cubits meant famine, 13 cubits was scarcity and 15 cubits, safety. There was plenty at 16 cubits and at 18 cubits, even today, canals were cut for distribution to the surrounding farmer's fields. When it reached 19 cubits, it was still tolerable. at 20 to 22 cubits, the water rose to the almost flood level and precautions were being made for flooding. At the level of 24 cubits and more, ruination was created by the severe flood waters.

Norma Nilotica is no longer found on any of the charts or maps and has since, been forgotten by the astronomers of today.

Darwin Christy

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O PROFILE O

Daniel R. Marcus

We have great respect for this energetic, persevering, talented, fine young man whose ability as an astrophotographer is exceptional. Dan was born in Bellefonte, Pennsylvania. At that time his father was going to college at Penn State, studying to become a ceramic engineer. After graduation his work necessitated moving the family to wherever contracts took him, so as a result, Dan received his elementary education in the schools in Binghamton; Syracuse; Littleton, Massachusetts; and Wurlitzer Elementary School in Tonawanda, which he attended from fourth through sixth grade.

He went on to Herbert Hoover Junior High, and graduated from Kenmore East. He was a wrestler during his three years in high school and though he was a fourth string bench warmer, he had a good time. He received his varsity letter when he was a senior. He continued his studies at UB and graduated with a B.S. in electrical engineering.

Dan, Bill Smith and their friend, John Lazarus, built their first telescope while in ninth and tenth grade. John had invited Dan to a graduation party at his house, so Dan reciprocated by inviting John to his home. Dan had a developing kit, so the three decided to meet at John's house to try their hand at taking pictures. John had a microscope, and they fitted a folding camera to it and took pictures using Kleenex as a substitute for ground glass on which to focus. This was a slick trick and it worked beautifully. In the darkroom they had a #120 film which required the peeling of the film from the paper before using. The film fell to the floor, and in the dark they found they had loaded the paper onto the developer spool. When the error was corrected, they went on to take some of the sharpest pictures they have ever taken.

The group then decided to take pictures through a 50mm Tasco type telescope. They photographed the moon, and felt the need for a bigger scope, so managed to purchase a 3" reflector at an optical sale. Then Dan's father offered to sponsor them if they would build a telescope. They built a 6" f.8 scope. Bill Smith thought that was easy, so he built an 8" and ground a mirror for a 4" guide scope. Dan continued to use the 6" with the 3" for guiding. As Bill

thought the 8" was too wimpy, he built a 12 $\frac{1}{2}$ ". Bill went to college and Dan's garage became a home for homeless telescopes in astrophotography. Dan continues to use the 12 $\frac{1}{2}$ " for his astrophotography, and has won many prizes at the MERAL (Mid Eastern Region of the Astronomical League) Conventions.

On July 26, 1974, Dan and Melissa Price were married, and as Dan says, "now she is priceless." Melissa graduated from Trocaire College and Buff State College and taught at a nursery school and then became a kindergarten teacher at All Saints Parochial School in the Riverside section of Buffalo. She went to UB to get her Masters and is now a part time clerk in the Grand Island library. Dan has worked at Bethlehem Steel as electrical foreman for ten years.

About five years ago, Bill built a 10" Dobsonian. He also took the 12 $\frac{1}{2}$ " and made a 4x8x $\frac{1}{2}$ " aluminum plate mount for it. In the beginning he cut the aluminum with a saber saw. After two hours, and cutting only one inch into the plate, he had to work out an easier and faster method.

Dan and Bill make a fine team. Dan is a very serious astrophotographer and Bill is a very serious builder of telescopes. Dan has a darkroom where he processes all of his black and white film. He then does his printing at Campos Photography Center on Niagara Falls Blvd. in the Town of Tonawanda. He also does a great deal of hypersensitizing of film and has built all of his hypering equipment.

With Halley's Comet attracting great attention, and realizing that Dan is a fine astrophotographer, Ernst Both suggested that Dan contact him in the spring to talk about the comet. At that time it was decided that Dan and Bill would go to Australia to take pictures of the comet under the sponsorship of the museum.

Dan made and purchased equipment suitable for the job at hand: hypering equipment, two telescope mounts, 4x5 view camera lenses, a Comet Catcher, and duplicate parts for many items. He found out about the Alice Springs Astronomy Association, an amateur group in Alice Springs, located in central Australia. He was able to correspond with them and make arrangements for their arrival, and shipped a 500 pound crate of equipment to the site.

As Hawaii was on the route to Australia, Dan and Melissa had the pleasure of enjoying a week on the islands before Dan went on to Australia, and Melissa visited her brother in California before heading back home. Dan met Bill in Hawaii. The other member of the party, Mike Par-cheta, who was spending four days in Japan, would meet them in Alice Springs.

Dan and Bill arrived with three footlockers, two suitcases and a huge tripod bag. Mike had three suitcases. Besides themselves, all their equipment was to fit in a 4-door hatchback compact Toyota. Their small hotel room was for two people so a cot had to be brought in to accommodate the third person. The room looked like an obstacle course with luggage and equipment strewn all over the place. One good thing about the accommodations was a refrigerator where some of the hypered film could be kept. The rest of the film was in Dan's ice chest. He had expected to go out and find the site for their planned rendezvous with the comet, but Bill and Mike were so exhausted that Dan found them deep in the arms of Morpheus, unable to be wakened.

The trio got up around 2 A.M. and went to view the comet from along the Todd River, a stones throw from the hotel. Now the Todd River, which flows through the center of town, is not your typical river. It is a sand river in which boat races are held using bottomless boats. The three fellows tried their skills at finding constellations in the unfamiliar sky; finally locating Scorpius.

The next morning, Dan et al. went out to set up their equipment. They set up the mounts at 3 o'clock in the afternoon in a sizzling 104°. Drained from the heat, they headed back to their air-conditioned room, but even that and a cold shower wasn't cooling enough, so soaking in the pool finally restored their temperatures to normal.

At night they went back to the site and found that it was the wrong place, so they had to move all their equipment and set it up again. Then there were some other problems. The airline had dropped the crate and knocked the mirror out of the 6" guide scope, and broke one of the frequency controllers which Dan repaired using a twist tie to fix an electrical connection. The combination of heat, humidity and latex paint fused some of the moving adjustments for one of the mounts and it had to be chiseled apart. The repairing of the mounts was all done in the darkness of night.

On the second and third nights at their site, everything was finally in working order though they had lost the motor declination which had to be replaced. Reporters from the Canberra Times appeared to interview the astronomers, and made a delightful sketch which was printed in the local paper.

Their rental car really took a beating. The new car had 200 km. on it. It was a 70 km. drive to the site, with a 10 to 15 km. drive down a dirt road. To run the telescope it required idling the car for 8 hours each night. The trio put on 2600 km. in 11 days, and scraped the interior of the trunk in several places getting equipment in and out. Dan doesn't think they will ever get the dust out of the upholstery. So far they haven't heard any complaints from the car rental company.

On the fifth day of viewing (April 9th), there was a partial eclipse of the sun. Clouds appeared, but Dan managed to get pictures of the eclipse between the clouds. The next four days brought sprinkles and clouds to the area for the first time since Christmas, so that was not conducive to photography.

Mike went off sightseeing on the twelfth day, and on the thirteenth and fourteenth day Dan and Bill worked all night and all day, with two hours sleep. On the last day they worked until 3 A.M., then taking the telescope apart and packing all the equipment in the dark for their trip home, they barely finished in time to catch their plane. Mike picked them up at Sidney and sent them off the next day on their 26 hour trip back to the USA.

Though the comet itself was less than spectacular, several fine photos were taken, along with those of the eclipse, constellations and objects in the southern skies. The trip was worthwhile, exciting, and very enjoyable. Dan's astrophotos of eclipses and the comet have appeared in the Buffalo News on several occasions throughout the year. He has also had some of his photos published in Sky & Telescope from time to time. Dan is not only a fine astrophotographer, but is a fine nature photographer as well.

Dan and Bill are having a show, The Buffalo Museum of Science Trip to Photograph Halley's Comet from Alice Springs, Australia, to be held at Campos Photography Center from June 16 to July 14. Their opening night will be Friday, June 20. Starting at 8:00 there will be hors d'oeuvres and a slide show of the trip. At this time Dan and Bill will be available to tell about how the pictures were taken, along with tales of their Australian adventures. The show is free and open to the general public.

At the May dinner meeting of the BAA, the College of Fellows paid a special tribute to Dan by presenting him with its first Annual Award; a plaque for achievement in astrophotography. He is to be congratulated for being the recipient of this distinctive honor in recognition of his outstanding ability.

Besides astronomy, Dan is interested in spelunking and specializes in wild caves rather than commercial ones. He has explored about thirty of these caves, which have provided some harrowing experiences with mazes of uncertain directions; climbs over chert (that very fine grained, tough, needlelike rock composed mainly of silica), and getting lost in the chasms of the earth for several hours.

Dan and Melissa enjoy traveling and have journeyed to the west a number of times to see the many wonders of that part of the country. They have also spent many hours traveling through Shenandoah National Park.

Dan's dynamism enables him to carry on a full day's work and still find the vitality to devote many night hours to his consuming interest in astrophotography, which demands patience and accuracy. His ebullient personality, with its touch of wit, and a quality of modesty, makes it easy for him to make many and sustained friendships. Acknowledged as an excellent astrophotographer, we know he has a bright future recording the wonders of the heavens.

Edith L. Geiger

ASTROPHOTONERS FROM THE PAST

"OENOPIDES" or "Oinopides of Chios", a Greek Astronomer and Mathematician flourished about 450 to 425 B.C. He is said to have known of the obliquity of the elliptic, and to have invented a cycle of 59 years in order to make the Lunar Year accord with the Solar Year. He also made several contributions to the study of geometry.

"NUREDDIN AL-BETRUJI" was an Arabian Astronomer. Born in Morocco in the 12th century, he was known also by the name of "Alphetradius", and in his day was considered an outstanding authority in Astronomy. The theory of the epicycle, known as the Ptolemaic System (q.v.), was disproved by him.

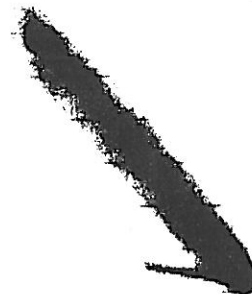
Darwin Christy

++ OBSERVATIONS ++

April 12-13 While observing the variable star RR Hydrae, a slow moving satellite was seen passing through the field. The satellite was apparently tumbling for it varied in brightness at 10 second intervals. Varying between magnitude 9.7 and 14.0 the satellite required two minutes to cross a $\frac{1}{4}^{\circ}$ diameter eyepiece field.

April 18-19 Despite a waxing gibbous moon I obtained some fine views of Halley's Comet. Still it is visible to the naked eye appearing equal in brightness to a magnitude 2.5 star. After having been 7° in tail length and of magnitude 2.1, $2\frac{1}{2}$ weeks ago, Comet Halley is now definitely past its peak for this night its tail is but 4° long. As previous, this tail though rather extensive is quite faint and tenuous. One curious feature noted tonight was a sub-tail or jet issuing at an angle from the main tail. This sub-tail projects eastward and is 1° in apparent length. In the telescope, at 211x, the nucleus remains quite bright and compact but not quite stellar. The comet's motion is quite swift being very apparent in just 5 minutes time. (best view 11:42 PM EST.)

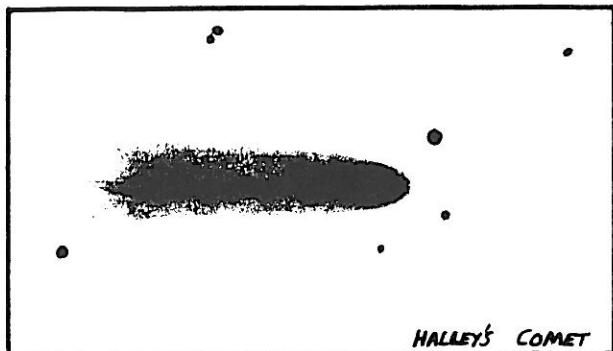
(COMET HALLEY)



10x50mm -
BINOCULARS

May 2-3 A fine night for observing Halley's Comet. Certainly it is fading but it is still readily visible to the naked eye. Current estimated magnitude is 4.5. The tail remains at 3° in length but is beginning to narrow once again. At present the tail slowly diverges outward to a width of $\frac{1}{2}^{\circ}$, the head being $20'$ arc in diameter. The gas tail remains quite prominent, it is the dust tail that has

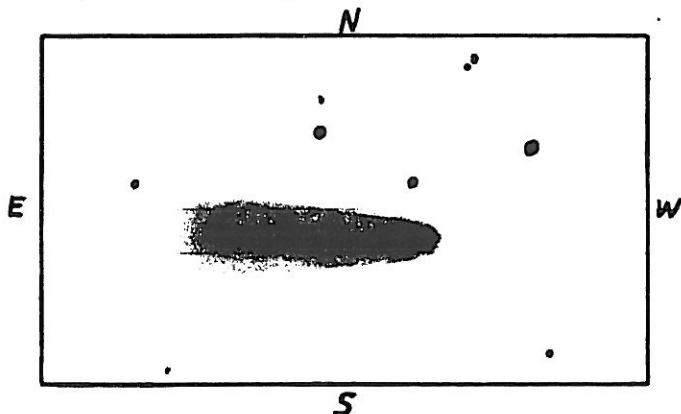
shown the greater degeneration. The apparent nucleus shines at magnitude 10.2 and is almost star-like in appearance. Visual striations seen upon the tail are beginning to disappear. The tail projects nearly due east and presents a fine view in the 12.5" f:4 reflector working at low magnification.



10:00 PM, EDT

Also visible tonight was an intermittent and moderately bright aurora. Best seen at 12:15 AM EDT when an amorphous curtain was seen lying 10° above the northern horizon. Pale green in color, it extended from azimuth 290° through to azimuth 50° . Upward from this 'curtain' issued many dozens of slowly shifting rays or spikes extending to 40° of altitude. Occasional detached patches also were present at times, mostly to the west. By 1:00 AM the aurora display had faded to obscurity.

May 9-10 Halley's Comet continues to be visible to the naked eye but over the past week it has faded considerably. At 10:00 PM EDT this night it looks to shine at magnitude 5.2. The dust tail is subsiding but remains visible, the gas tail remains prominent. In total the tail now is 1.5° in length. The coma is $\frac{1}{4}^\circ$ in diameter, from this the tail broadens to $20'$ arc in width. The nucleus is still visible but the inner coma is now less compressed than previous. Currently a fine telescopic comet!



Just as a side note, this night proved very transparent. The naked eye was penetrating to magnitude 6.8. My 12.5" f:4 reflector was even reaching magnitude 16.5 stars via the 254x eyepiece. One night previous the 6" reflector was reaching to magnitude 14.8 when working at 152x.

Michael Idem

First light with the 26 inch Dobsonian telescope was on April 27th, from the dark skies of Boston, N. Y. The first object to be seen with it was Halley's Comet, and the most beautiful thing about it was the brilliant starlike nucleus.

On May 10th the Whirlpool Galaxy (M-51) was seen in its glory, both detailed and bright. Its spiral arms were as plain as day, the leading edge was diffuse, but its trailing arm edge was sharp from dust. A few kinks in the arms were obvious along with a dozen bright knots and three short spurs. The Hub of M-51 is overwhelming, but it lacks a starlike nucleus like its satellite companion, which is connected to M-51's arm. The forward edge of the companion

galaxy was sharp and rather straight, which gave it a half-moon look.

The Veil Supernova remnant in Cygnus was seen on June 2nd, which resembled a cirrus cloud. The whole nebula is filled with bright patches tangled filaments and shallow arches.

Carl Milazzo

LET'S STAY & TELL YOU

Congratulations to Orrin Christy who has been promoted from Senior Research Physicist to Associate Research Physicist at Moore Business Forms.

Miro Catipovic has greatly expanded the building housing his home and business, Tonawanda Limb & Brace, Inc., and has also expanded the dock at his cottage on Grand Island. Though Miro is working on a 16" telescope, he has ordered a C14.

Peter Michael Goetz, son of Irv and Esther, is now a part of the Hollywood scene with several movies in progress. Coming up soon you'll see him in Jumping Jack, Flash and Kong Lives. He is also working on a TV pilot.

Tristen and Debbie DiLapo are moving into their new home on Cole Rd. in North Boston sometime in June.

Jack and Jayne Mack and family will be in England visiting Jayne's sister from July 31st to August 21st. Alice Mack is looking forward to riding horseback which she enjoyed so much on the family's last visit to England.

Ken Kimble will be going to Georgian Bay in August for a five day camping and kayak trip. The Kimbles are planning some family fun trips this summer including one to Old Forge in the Adirondacks, and a two family jaunt to Dansville. Adrienne and Ken are very busy parents. Adrienne is activities chairman for both the Brownies and Cub Scouts, and Ken is Cub Master.

Shaun Hardy and Carl Milazzo went to a professional astronomers' conference at the University of Rochester on April 25th to hear some research reports. It was mainly a New York state conference, with a few astronomers attending from neighboring states.

Larry Hazel who has rejoined the BAA after several years of absence, is busy with astrophotography, and is enjoying his seven month old son.

Bill Kirst, who is a member of the Buffalo Museum of Science Camera Club, received four honorable mentions for three slides and one print in the Slide of the Year and Print of the Year Competition.

Anita and Dave Williams are expecting their second child in early October.

Carroll Geiger and a former teacher were honored by the Fosdick Masten Park Alumni Association at a Sports/Honor Luncheon Sunday, May 4, for being outstanding teachers at Masten in the years before it closed, and for their valuable influence in molding the lives of the students of the school. There was a large attendance, with many former faculty members and students. After Masten closed, Carroll was transferred to the head of the instrumental music department at Kensington High School for four years, and was then appointed by the Buffalo Board of Education as Director of Music for the Buffalo Public Schools, working out of the Education Offices in the City Hall. He held this administrative position for $18\frac{1}{2}$ years until he retired in 1976.

Edith L. Geiger

ASTRONOMICAL HAPPENINGS

SOLAR:- Our Sun is slowly creeping south and the days are becoming shorter. We are also farthest (aphelion) from the Sun on July 5th.

LUNAR:- The Moon's phases are:-

New Moon - July 6th and August 5th.

First Quarter Moon - July 14th and August 19th

Full Moon - July 21st and August 19th

Last Quarter Moon - July 28th and August 27th
July's Full Moon is called the "Buck" moon.
August's Full Moon is called the "Corn" moon.

LUNAR CONJUNCTIONS:-

Mercury - July 8th & August 4th
Venus - July 10th & August 9th
Mars - July 20th & August 16th
Jupiter - July 17th & August 21st
Saturn - July 17th & August 13th
Uranus - July 18th & August 14th
Neptune - July 19th & August 15th

LUNAR OCCULTATIONS:-

Antares will be occulted by the moon on July 18th and will be seen from parts of North America. On August 14th it will again be occulted by the moon, only to be seen in Eastern Europe, Asia and the Philippines.
Mars will be occulted on July 20th but seen only throughout Eastern Asia. It will be occulted again on August 16th to be seen in N.E. and Central Africa and Southern Asia.

Darwin Christy

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NORTH-SOUTH-EAST-WEST

During a quarter of a century observing the skies with 6" and 8" motor driven, equatorial Reflectors, I observed over 700 Double and Multiple Stars, recording the results on card records. The cards listed my estimate of arc, seconds of separation, the Position Angle and the colors of each star. Later I compared my estimates with published data. Nothing scientific about the procedure, but I just enjoyed observing them and noting the beautiful color combinations.

Often the Position Angle proved most important in locating dim Comets when very close to the brighter principal. It emphasises the importance of knowing exactly where to look, keeping in mind that Reflectors reverse the directions.

Few people beyond the half century mark escape ailments that require visits to their Doctors. This usually results in their receiving a prescription for a drug the Physician hopes will help. My wife and I have accumulated dozens, each bearing a notation of how many pills are to be taken each day. Since Octogenarian memory often ceases to be reliable, we tried writing each down on pieces of paper to keep track of the number taken. Too frequently the papers or the pencils disappeared before the next scheduled time. Then we could not recall which pill was taken last and what other one should be taken next.

P. A. of P. B.
(Position Angle of Pill Boxes)

From our astronomical experience we developed a plan that requires neither paper or pencil. It uses four positions - North - South - East - West. With the pill bottles lined up each morning, with their tops upwars, the plan works this way:- For example, one bottle stipulates that the contents is to be taken four times each day. After taking the first pill we place the bottle on its side with the top pointing North. Later, when the second one is taken, we turn the top to point South. The third pill taken turns the bottle toward the East and the fourth toward the West. At a glance we can tell how many of each has been taken. If, in the evening the top of a bottle points South, we have taken two of that kind.

If the number to be taken per day exceeds four, treat the forenoon and afternoon as separate units. This will accomodate eight per day.

This simple plan has saved us much vexation and worry. We varied the direction sequence from the rotation used in Position Angle to make it easier for non-Astronomers.

It works well providing children or other family members do not move the bottles. Warn them not to touch them, since it might cause a serious result with some drugs.

Donald M. Magor.
York, Pa.

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THE 'OORT CLOUD'

A little more on comets...this time, though, where do they come from? To my best knowledge, it seems that a gentleman by the name of Jan Oort, a Dutch Astronomer, has the true answer. For in his theories, there is a cloud of space debris well outside of our solar system but not beyond the point where they are lost to the sun's gravitational pull. This cloud is now known as the 'Oort Cloud'. It is sometimes coined the Öpik-Oort Cloud or --- reduced to being called just the Öoo Cloud, using the O's in the two names afore mentioned. Öpik, an Estonian Astronomer, who was running the Armagh Observatory in Northern Ireland, had for most of his life taken the role of studying stray material and was a cosmic "garabe-sorter". Thus-- he concerned himself with this material of the solar system.

In 1932, Öpik had calculated that an invisible cloud of material which could produce comets and meteoric dusts and pieces, surrounded the sun at an enormous distance. Also that this material could survive throughout the long life span of the solar system.

In 1950, Jan Oort of Leiden, the Doyer of Dutch Astronomers, reworked Öpik's idea, emphasizing a different aspect about it. He felt that the passing stars could cause a few of the objects to fall out of this system or cloud and into the heart of the solar system-- thus, a new comet. This brought about the fabulous 'Öpik-Oort' --or-- 'Öoo' cloud.

In this short article we will refer to it as the 'Oort' cloud...this cloud could be imaginary or---it could be real. If real, it would be as invisible as the sands of the seas at a distance of a million miles, with no telescope large enough or strong enough to discern even one grain of that sand. At the same time if scientists were to stick strictly to what they can see, then there is no way they can tell about the interior of the sun or even the family of dinosaurs!! This leaves no alternative but to assume that the cloud is real and does exist.

The Oort Cloud as we may understand it, is probably between 50,000 and 150,000 astronomical units (A.U.) from the sun. Being so far from the sun, they move very slowly, on the order of 0.1 km/second, which is very-very slow according to cosmic standards. Even though there is not much mass to the Oort Cloud, the vastness is astronomical. We think of our solar system as being large out to Pluto, although not as that of the universe, but the Oort Cloud really stretches out beyond the imagination. The inner most bounds being theorized as being about 50,000 A.U. from the sun, extending out to, perhaps, 150,000 A.U. This makes our solar system extend out over 2.376 light years from the sun. This makes the particles in the Oort Cloud subject to perturbations by nearer stars, thus causing them to occasionally be sent into the inner solar system where they can be discovered by some terrestrial observer. Also, this cloud is probably not lying in the same plain as that of the planets because like Halley's Comet, their orbits are found to be in a retrograde motion, as well as not following the path of the ecliptic or even the equatorial belt by any means.

This brings us to be ever inquisitive as to the numbers which might be in the cloud. There is probability that five new comets are discovered every year and they return no sooner than perhaps for 100,000 years or more. From this we can roughly estimate that there are probably at least 500,000 comets available within the cloud. Some estimates have been made which allow it to contain as many as 100 billion in the Oort Cloud. Oort explains that their mass, too, is something on the order of between 1/10th and 1/100th as that of the earth. Many of these comets do not even come close enough to observe their comas, let alone their tails. Many are believed to come no closer than the orbit of Jupiter. Also the orbits, as mentioned previously, are not even on the same plain as the planets in the solar system, thus making it more difficult to observe some of them and in some cases being able to observe them much easier, even throughout the whole night through the circumpolar area of the skies.

What about those long term comets? YES--- they could be altered by Jupiter's gravitational pull. The comets could be so effected by Jupiter that their aphelia distance could be greatly increased or reduced, perhaps to about 10,000 astronomical units. And---in some cases, they could have t their aphelion distance reduced to a point of becoming a short-period comet such as Encke's or Pons-winnecke's. In the long run, most will stay as distant as the outer reaches of the solar system never to be discovered, let alone be seen.

Darwin Christy

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OBSERVATORY REPORT

On June 1st, I resigned from the position of Observatory Director which I served for 15 months, and from the Board after 5 years. After a brief search, I discovered three members who are willing and able to work as a team Observatory Directorship. They are Mark Schmidt, Dave Williams and John Yerger.

The decision I made, giving club members priority over the club observatory at Beaver Meadow, over the public, has brought back members activity and involvement. For most club members, Saturday nights are the only date of the week that they can stay up late out at the observatory. Making the observatory available to members on Saturdays, had a marked increase in many ways for the club. Partly because of there seldom being a conflict between public and member activities like star parties, mall and museum displays, NFCAAA meetings and the Audubons nature festival. Some doubting Thomases said that the public would never come out on a Sunday evening, yet for June we are getting 40 on Sunday and some Sundays 150 public. Fifteen months ago only 3 members were volunteering to do public nights, now 14 are volunteering. Club members are back active again on member nights both visually and photographically, some nights 4 cameras are on the 'scope simultaneously. The observatory is being used every clear moonless night by BAA club members and the latest to be shown how to operate it are Dina Adimey, Derek Bill and Hugh Pettit, which brings it to a total of 30 members.

Publicity has been the most the club has ever had and the number of members has increased dramatically from its usual 75 members to its present 130, and the quality of the new members has been better than usual. Some doubting Thomases said that the news media won't bother with us, but Ch 2 and Ch 4 did more than once and so did radio stations WEBR, WECK & WCJW. Newspapers took interest such as The Buffalo News Gusto each week, Terence Dickinson's Astronomy Column about a half dozen times and the Arcade Herald. Also at all 56 public libraries in Erie County, and all 12 in Wyoming County Libraries, posters were put up and at UB's and Buf-State's Observatories. Also at the Buf-State Planetarium, Science Museum and the Discovery Shoppe.

Now John Yerger is in charge of the 8 inch loaner telescope, which has CONSTANTLY been popular to this day. Contact him about taking the equatorial home for a month.

Carl Milazzo

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Starting the first week in July, Public Nights will be on Saturday instead of Sunday due to late hours for members who volunteer and have to get up for work the next morning. The Observatory will also close for Public Nights the last week of October for the winter, and reopen in April. I would like to thank Dave Williams and Mark Schmidt for their assistance as co-directors. With their help, the Observatory will get a face lift this summer. The building will get a new coat of paint; a new display will be installed in the warm-up room. The telescope also will be painted. A chain drive will be installed for opening the roof, this should end the cable problems which we have had for the past year.

John Yerger, Obs. Dir.

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INSTRUMENT REPORT

At our May Instrument meeting we were treated to an ingenious and unusual telescope design. John Malona, who disclaims mastery of the telescope making art has created a very original telescope. It is a ten inch Newtonian on an alt-azimuth mounting. Its parts are easily assembled or taken down because of the use of cabinet latches. These open readily but hold securely when closed.

John, who works in vocational placement service, has wood-working as an avocation. Instead of working in cylinders, rods and circles as a machinist would, he uses squares and linear elements. The square tube is framed by aluminum angles at the corners. The tube is open except for the mirror cell at one end and the eyepiece assembly at the other end.

In between the two end enclosures is a box which acts as the support for the tube section. The angles forming the corners of the tube slide along on the central box for balancing the tube assembly. The tube is then securely clamped and is in balance for any added eyepieces, camera or other attachments. This is the first such instant balance feature that I have ever seen. This innovation is an example of the anticipation, recognition and SOLUTION of a common problem. Many builders are only too well aware of balancing trouble but are unwilling or unable to solve, or even face the problem.

Another feature is that the eyepiece assembly can be moved along the tube to find the best position for good collimation. It is then secured in place. John seems to have an intuitive grasp of problems and the ability to visualize solutions.

Brian Fallon brought in a large pair of binoculars which kept going out of collimation. Bob Mayer located a loose screw which retained one of the prisms and the repair was then simple.

There were only five present at the meeting but there were many ideas for discussion. To locate the next meeting call me and also advise what gadgety you can bring for group discussion.

Ed Lindberg - 633-6725

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NFCAAA MEETING

The spring meeting of the Niagara Frontier Council of Amateur Astronomical Associations was held in the McLaughlin Planetarium in Toronto on May 24th. Attendance was about 35 with only 6 from the U.S.A. Most of the attendees were from the Toronto club.

The program opened with a planetarium show. The motion of each of the planets was shown as they will occur during the coming season.

The business meeting started off with reports from member societies detailing their activities and accomplishments during the past season. The Toronto club reported that they have a membership of 1100 and that they are carrying on an active educational program. They put on library talks for the public and held a public Halley evening during January. The club has a fine optical workshop with a large grinding machine and a separate polishing room. Other clubs mentioned public programs and the construction of club observatories. The Hamilton club will name theirs the "Ken Chilton Memorial Observatory" in honor of their most active member.

There were several slide talks during the afternoon, covering various phases of observing and astrophotography. There was even a Galapagos Island report covering observing both of the stars and of friendly inhabitants.

The banquet featured a turkey dinner at the Park Plaza Hotel. After the dinner we heard a fine talk by Warren Morrison, an award winning amateur observer. He showed us curves he had plotted of two variable stars with very small brightness variations. He offered these results as examples of the valuable work that amateur observers can contribute to astronomical knowledge.

No decision was reached as to where to meet next spring as two possible clubs - Hamilton and Corning - were not represented.

Ed Lindberg

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PRESIDENT'S CORNER

Well another year of regular monthly meetings is past, and we can now all look forward to up and coming summer Star Parties, and other activities of the warm season. Remember, in September when monthly meetings start again we will be back at the Buffalo State College Campus on Elmwood Ave. through December.

I want to thank all my fellow officers, all the members of the Board of Directors, and all of our regular members for their contributions of time and effort and all around participation in the B.A.A.

Special thanks got to Darwin Christ, our "Spectrum" Editor, and Carl Milazzo, our Observatory Director, for their time, patience and dedication to task. Also, special thanks to those who made Darwin's and Carl's work easier by submitting articles for the "Spectrum" or helping out with public nights at Beaver Meadow.

I would also like to thank Ernst Both for his assistance at the Museum of Science, and likewise Dr. Fred Price for his assistance at Buffalo State College. They have both been helpfull with B.A.A. meetings and other events at these locations.

The B.A.A. has been asked to make an evening presentation and demonstration to a group of about 300 to 400 Girl Scouts and parents on July 15 (Tuesday) or 16 (Wednesday) just outside Medina, N. Y. Anyone interested in helping with this event should contact me as soon as possible. I would like to have at least 3 or 5 people get involved so please let me know if you are interested.

As most of you probably know by now, we have a new Observatory Director. Carl decided to step down, and in his place John Yerger, with the able assistance of Mark Schmidt & Dave Williams, will take over. Note that public nights will most likely be shifted back to Saturdays.

I want to thank Carl Milazzo for his tour of duty out at the Observatory especially with the recent increased activity out there from Halley's Comet watchers. Please remember to offer your future assistance to the new crew at the Observatory.

Have a good summer and we'll see you at the Star Parties.....

Ken Biggie, President

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! ? WANTED ? !

One 10" Reflecting Telescope on Dobsonian Mount, similar to - or - an Odyssey. Contact Jim Robbins between 11 A.M. and 3 P.M. during the week or any time on weekends...
ph- 655-4008

ACKNOWLEDGEMENTS

Thank you!!! Edith Geiger
Jack Empson
Doris Koestler
Claudia Bielinski
Darwin Christy
Michael Idem
Carl Milazzo
Donald Magor
John Yerger
Ed Lindberg
Ken Biggie

The next issue of the "SPECTRUM" will include, "POLAR ALIGNMENT of PORTABLE TELESCOPES" - "The SUN CHARIOT" - "The Constellation MICROSCOPIUM" - and something new, an individual listing of 'Meteor showers'.

Again thank you all for your many articles and reoprts.

DPC

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* THE SPECTRUM *

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