

THE

SPECTRUM



NEWSLETTER OF THE BUFFALO ASTRONOMICAL ASSOCIATION, INC.

MEETINGS NOTICE

FRIDAYS: MAY 10, JUNE 14

May 10th: "Origin of the Universe" - Martz club (Jamestown) member and Chautauqua summer season astronomy lecturer Dan Hatton will lead us through this not so small topic in his easy going and understandable manner.

June 14th: "Elections and more" - Election of officers and annual business will be followed by a slide show of some truly imaginative widefield astrophotos with landscape foregrounds by member Carl Milazzo.

Meetings: 2nd Fridays @ 7:30 pm Sep-June

Location: New Science Building Auditorium at Buffalo State College on Elmwood Ave.

We hope to see you at these meetings.
As usual refreshments will follow.

BAA ELECTIONS FOR OFFICERS

Election for the offices of President, Vice-President, Secretary and Treasurer will be held at the June business meeting. The terms will run from September 1, 1996 to August 31, 1998. A committee, selected by the President, will nominate a set of candidates that will be presented at the May meeting, at which time additional candidates, nominated and seconded from the floor, will also be made. All nominated candidates will appear on the June ballot. Write-in names will be accepted at the June election.

Those interested in being candidates can submit their names for consideration to the nominating committee. Presently I am on this committee, another member remains to be appointed. My telephone number is 839-1842. When making nominations from the floor, make sure you have the permission of the candidate.

Rowland A. Rupp

ASTRONOMY DAY REPORT

Astronomy Day was held on a dreary May 4th to a smaller than usual crowd. Although attendance was down that meant those folks were treated more personally. Talks by Gene Witkowski and August Grillo on Video Astronomy, Bill Smith on Getting Started on Backyard Astronomy, Joe Orzechowski on Objects for a Small Scopes and Binoculars, and Tom Bemus on Comets were held in the Observatory's presentation room. Dan Marcus, Bob Titran and Bob Hughes gave observatory tours, answered questions, gave PC demos and handed out literature.

Outside, Jack Mack gave two walking tours of the solar system which led from the parking lot and along the trail to the beaver dam. While negotiating the "asteroid belt" was no problem, the approach to Saturn proved quite a slippery and muddy task during the setup for the tour so the groups took a "100 million mile" detour around that boggy part of the solar system!

As usual a member's pot-luck bar-b-que followed and evening public night guests were treated to a talk by Rowland Rupp on the solar system as seen by the Voyager probes. Thanks to all!



HYAKUTAKE!

Comet Hyakutake strikes a fine pose in this photo by members Dan Marcus and John Marino. A 35mm camera with 50mm lens was mounted to the 12" scope at Beaver Meadow. The camera was a passenger on the side of the telescope while the telescope's optics were used only for guiding purposes.

Ask Dan to show you the set of images taken over a month's time!

MEETINGS CANCELLATION POLICY

If, for any reason, (most likely snow or ice storms), there might be cause for cancellation of the meetings of the B.A.A., tune your radio to either WBEN (930) or WGR (550). Also if Buffalo State College has been closed due to inclement weather, so will the meeting of the B.A.A. be cancelled.

BEAVER MEADOW TELEPHONE

The telephone at Beaver Meadow, 716-457-3104, is for emergency use only at no cost. Local calls may be placed for a small charge - see the collection box by the phone. This phone cannot make long distance calls.

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TAXACOM computer bulletin board - 716-896-7581
for more information call Jack Empson at 716-745-3138

MEMBERSHIP CORNER

Joe Orzechowski

The annual BAA Membership Directory is finally available for distribution. Members may pick up a copy of the directory during the May and June meetings. If you are unable to attend one of these meetings, the directory will be mailed to you. Please let me know if there are any errors or omissions in your directory entry so that I can make the necessary corrections for next year.

I'm happy to report that the long membership drought is over. Three new members have recently joined the BAA and I ask that we all make them feel welcome. Adding to the growing list of members calling Grand Island home is **Greg Pimento**. He is the second BAA member to own one of those computerized marvels, a 10" Meade LX200. On the other hand, **Harold McQuiston** believes in doing things the old fashion way. His 10" Meade reflector sits on a Dobsonian mount under the relatively dark skies of Batavia. (I know there's probably a six month long debate lurking within the last couple of sentences I've written but I only get a limited amount of space for this column.) Finally, **Paul and Mary Carroll** of Tonawanda rely on binoculars to view the night sky. Of course, you couldn't ask for a better optical aid during this, the year of the comets. And just to prove it, Paul gave us a nice report on his views of Comet Hyakutake during the April meeting. Specifics about these new members can be found in the 1996 Membership Directory.

Last year I included some annual membership statistics in this column and, since I received some nice comments about making those figures available to you, I decided to do it again this year.

YEAR	JOINED	DROPPED
1992	14	13
1993	16	10
1994	22	18
1995	22	15
1996 (to date)	10	---

The YEAR is a membership year running from the previous September to August of that year. JOINED shows the number of members that joined that year, and DROPPED shows the number of members who did not renew beyond that year. The BAA currently has 104 members with family memberships counted as a single member. You'll note that we've increased our membership each of the past four years but, as I mentioned last year, we also lose about a dozen people every year. Let's face it: "Astronomy ain't easy!" If it was, everyone would be doing it. Aside from the obvious inconveniences of observing like the weather, the time of day, travel distances, and insects there are other, less obvious, difficulties to contend with. Even if you're only an armchair astronomer you have to put in a little extra time and effort at the library or bookstore. The science/astronomy section is never as large as the mystery or travel section. And astronomy is not a subject that you can easily work into the conversation at a party. Tell someone about the last time you got up at 3:00am to drive 40 miles to see a fuzzy white blob in the sky and you'll undoubtedly evoke some weird looks from your audience while your date or spouse will get those looks of pity or sympathy. In spite of all this, the BAA manages to attract a handful of new members each year who are interested enough to stay members and to help the BAA grow.

In the last issue of the Spectrum I mentioned that I and some other members were heading to Las Vegas in February. A total of 12 people including Tom Bemus, Dan and Melissa Marcus, Bill and Carol Smith, Bob and Laurie Titran, and Bev and myself made the trip. Our reasons for going included attending conventions and conferences, visiting business clients, seeing a Las Vegas show, gambling in the casinos and, oh yes, winter stargazing. Astronomically speaking, however, the trip was

a bit of a disappointment. Some in our group wanted to take personal blame for the poor weather we had. Dan was certain it was his fault until we pointed out that there was no solar eclipse scheduled for that week. I chalked it up to chance. When in Las Vegas, what else could it possibly be? Bill, Tom and I did take a short trek into the desert on one of the only clear evenings we had but the wind was so strong that the only scope we felt confident in setting up was Tom's Genesis refractor with the tripod legs set as short as they would go and positioned downwind of a too-low wall to break the wind. A second observing run was made later in the week (this time without me) where some moderate success was also had. At the casinos, there were no major wins or losses to report. Bev, probably the luckiest gambler in the group, did manage to win some \$100+ pots at the slot machines. But persistence finally paid off and she managed to break even before we left so that we wouldn't have to carry all that metal home with us. Yours truly dropped \$50 at the Blackjack tables. Finally, if any readers are interested in the problem of light pollution, let one of us tell you about the new Luxor Hotel with its 6.2 gigawatt spotlight pointing straight up into the night sky. I understand that the FAA was involved in the planning and/or final approval of this monstrosity. It certainly made me wonder what casino gambling in Buffalo or Niagara Falls would do to our night skies. Until next time, may you enjoy clear and dark skies!

Joe Orzechowski

BAA ANNALS

Rowland A. Rupp

5 YEARS AGO - In 1991 we really held our May dinner meeting in May, not in March as we do now. It was held at the Lord Amherst, and our speaker was Jack Mack, who talked about the "Hubble Space Telescope". Ken Biggie presented a program based on the BAA's Dow slide collection, at our June meeting.

There were no major SPECTRUM articles from BAA members, but there were a couple of interesting items. According to Edith Geiger's "Spy and Tell", Gene Witkowski had given 8 1/2 gallons of blood to the Red Cross - I assume not all at once. Also Conrad Stolarski had left us for California. Darwin must have dug up the first "Spy and Tell" from the September 1966 SPECTRUM, and reprinted it. There were lots of old names in there. Observation reports from Frank Plennert, Bill Smith and Dave Fliss appeared, as did Instrument Notes and a report by Ed Lindberg on an NFCAAA (Niagara Frontier Council of Amateur Astronomical Associations) meeting in Kingston, Ontario. Has anyone heard about the status, if any, of the NFCAAA?

10 YEARS AGO - Dr. Mark Shure was guest speaker at our second May dinner meeting. This one was held at Buffalo State College, and the topic was infrared astronomy. Several short topics, mostly on Comet Halley, were planned for our June 1986 meeting, but no specifics were given.

Lots was going on in 1986. Ken Kimble's Study Group was still going strong, the NFCAAA planned to meet in Toronto, and Carl Milazzo had given a talk on the comet on station WECK. Ed Lindberg wrote an article on Comet Halley, and Fred Price, Michael Idem and Carl Milazzo wrote observation reports on it. Darwin Christy reported on his observation of a meteor. Edith Geiger wrote a profile on BAA member Paul R. Noye, and Dina Adamy wrote on Albert Einstein (not a BAA member).

15 YEARS AGO - In 1981 we still met at the Museum of Science. Dr. Stewart Sharpless from the University of Rochester spoke on "Digital Analysis of Astronomical Photographs", and Dr. Robert Rein of Roswell Park Memorial Institute spoke on "The Question of the Origin of Life", at the May and June meetings respectively. We were [continued next page](#) hosts for the spring NFCAAA meeting held at

Officers

Bob Hughes - President
Rowland Rupp - Vice President
Lynn Sigurdson - Secretary
Steve Kramer - Treasurer
Dr. Jack Mack - Museum Representative

Board members at large

Gene Witkowski - Joe Orzechowski
- Bill Smith
Rowland Rupp - Fellow Representative
Joe Orzechowski - Membership

Observatory Directors

Dan Marcus & Bob Titran

SPECTRUM STAFF

Bill Smith - Editor / Layout
Bev Orzechowski - Circulation

BAA Annals continued from page 2

Buffalo State. Both speakers were from the college: Dr. James Orgren presented a planetarium show, "Springtime in the Universe", and Dr. Jack Mack spoke after dinner on the discovery of the microwave radiation background in space.

Jim Machowski had a brief article on Mars for the SPECTRUM. Paul Young also wrote an article, "Reading a Sundial", a follow-up on his sundial construction methods in earlier SPECTRUMs. Edith Gieger did a profile on John Raymonda. Ken Biggie wrote on the construction of Beaver Meadow Observatory in 1975, when he and his brother contracted to do most of the carpentry work.

25 YEARS AGO - In May 1971 we weren't too sure just what our program would be. Apparently plans to go to Rochester's Strasenberg Planetarium fell through and we had to improvise for the meeting. We did better in June when BAA member Bill Chambers spoke on "Image Intensifiers in Astronomy". We also ratified the election of Ron Clippinger, Walt Whyman and Richard Zygmunt to the College of Fellows.

An article on light pollution by Kurt Erland appeared in the May SPECTRUM, and Dr. Fred West had a follow-up mathematical analysis of the rolling ball method of measuring the radius of curvature of a mirror, previously submitted by Bob Burdick. It's not for casual reading!

40 YEARS AGO - In May 1956, Tad Czerniejewski, a charter member of our predecessor society, the Buffalo Telescope Makers, spoke on "Variable Star Observing". We didn't meet in June in those days, but we did hold observing nights on the third Wednesday of the month at the Museum's Kellogg Observatory.

Rowland A. Rupp

SPY AND TELL

Edith L. Geiger

BAA members have been playing an active part informing the public about Comet Hyakutake's trip through the night sky. Channel 4's Mike Cejka contacted **Orrin Christy**, asking him if he had any comet material, which Orrin was happy to supply in abundance. In Cejka's evening weather report, March 23rd, he mentioned that the comet information had been furnished by Orrin.

Orrin's 12 year old son, **Michael**, is excited about astronomy. He and his father are building an 8" telescope. Michael thinks Comet Hyakutake is "great."

Ernst Both provided facts and observations in The Buffalo News March 25th article on the "cosmic cotton ball." **Dan Marcus** also reported on viewing the comet from Beaver Meadow, and near city lights, and further opportunities to see Hyakutake. The article was accompanied by a photo of the comet taken by Dan and new member, **John Marino**.

Gerry Rising produced two fine articles in his Nature Watch column in the News: "Comet's passage will provide a visual treat," (March 18th), and "Close encounters with flying objects," (March 25th).

Carl Milazzo stopped in at Channel 2, and asked them to take a look at his comet pictures. Kevin O'Connell was very impressed, so Carl's photos taken March 27th and 29th were shown on Channel 2, on the 6 and 11 o'clock news on April 2nd.

Howard Sterling is a medically trained lawyer and has advertised on TV.

Ernst Both continues to be part of the museum in the capacity of Curator Emeritus of Mycology, working two or three days a week.

Carl Milazzo has been employed for two years at Muck Motors in Getsville. He spends his time on the road delivering parts. Before being

hired by this company, he worked as a welder.

At the 28th Annual Gem-Mineral Fossil Show at the Erie County Fairgrounds in Hamburg, the only BAA member Carl saw in attendance during the time he was there was Ernst Both, though he saw many former members.

The following contribution comes from **Darwin Christy**:

"Beginning with the memories of World War II, I have been in communication with my gunnery officer. He wrote wanting to know if I remembered a photo taken on Ondonga in the south Pacific of the Pilots in front of a P-39 or P-400 Airacobra, built by Bell in Niagara Falls. He related that he had sent it to another who authored a book, "The Thirteenth Airforce." A few years ago my son, Orrin, had given me that book and I had read it but not in detail. Upon rereading it, I observed that photo. I even went a little farther and noticed a photo I had taken during my tour in the south Pacific at Lingayen Gulf, Luzon, which someone had stolen from me. In the background there shows three tents for maintenance on the P-38, Lockheed Lightning fighter planes. One of those tents was the tent I was supposed to have been working in, to repair some GSAP's (Gun Sight Aiming Point cameras) the night we were raided by two Japanese Betty Bombers which had followed a P-63 Night Fighter to avoid being detected by radar. I did not attend my duties that night because I wanted to see a movie which was going to be shown only one night, that night! The next morning when I arrived at the tent, I found it to have been hit with many fragments of shrapnel. Fortunately, I did not go to the line that night! You can draw your own conclusion to that one."

An article in the News on March 31st, "Stargazing can be heavenly," listed the schedule and time of public nights, and astronomical events at the observatory at Beaver Meadow.

Edith L. Geiger



(G)ASTRONOMICAL RECIPE

Cream of Leek (or Garlic) Soup

- 1 - whole garlic Star Cluster: separated, deskinced & crushed
- 2 - large onion Planets: slivered

Saute Star Cluster and Planet pieces in 2 TB's butter or margarine until transparent and tender. On medium heat, add 1/4 cup Stardust (flour) and stir in well. Slowly add 1 pint of Milky Way Cream (Half & Half) until mixture thickens. To remove Agglutinated Meteors (lumps), blend in a blender until creamy smooth.

Stir in 2 cups chicken broth and remove Galactic Debris (chicken parts) by running through a sieve. Add salt and pepper to taste and about 1/4 tsp. cumin. Stir well, add more Milky Way Cream to achieve a thinner thickness (new culinary term).

Serve hot, garnished with a sprig of mint. Accompany with oyster crackers or croutons.

Darwin Christy

SPECTRUM DEADLINE

The deadline for the Summer issue is

June 14th.

Send all submissions to Bev Orzechowski
125 Roycroft Blvd., Buffalo, NY, 14226.

Preferred format is typed or PC readable WordPerfect for DOS 5.1 or earlier, MS Word for DOS or ASCII.

-- scanning available --

Handwritten or other formats are fine too -- we really like submissions!

ASTRONOMICAL HAPPENINGS**TIME WELL SPENT IN ASTRONOMY****Moon**

Last Qtr. May 10	New May 17	1st Qtr. May 25	Full Jun 1	Last Qtr. Jun 8	New Jun 15	1st Qtr. Jun 24	Full Jun 30	Last Qtr. Jul 7
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Excellent or very pretty events are italicized and bold.

NOTE After midnight events are listed for the proper day! Thus 1 am on the 10th means you must be prepared be up late on the evening of the 9th

Date	Time	Elevation	Direction	Evening events left aligned	Event description	Morning events right aligned
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Astronomical Naked-Eye Sky Events In May

all month	8:30 pm	18°	WNW	Watch Venus turn in the sky (use constellations as reference)		
4	1 pm - 10 pm	solar views		ASTRONOMY DAY – Public day & night @ BMO Call 457-3104 for recorded schedule of events Audubon May Celebration - Virgo, Bootes and Ursa Major - Full Moon		
10	7:30 pm			MEETING OF THE BAA		
13	5:20 AM	16°	ESE	Saturn 3° down and bit right; circlet of Pisces 10° up & right of Moon		
20	9:30 pm	16°	W	Thin Moon at feet of Gemini, which extends 20° straight up		
18	dusk-10 pm			Public night @ Beaver Meadow Observatory Venus low - No Moon		

The Milky Way lays along the horizon during May evenings.

Note how high Venus is after sunset all this month - it makes a fast trip to the horizon by month's end.

After mid-month the thin phase of Venus should be evident even in steadily held 7 power bins - give it a try!

Astronomical Naked-Eye Sky Events In June

8-23	5:05 AM	6°	ENE	Watch Mars travel from left to above a low Mercury		
1	dusk-10 pm			Public night @ Beaver Meadow Observatory Virgo, Bootes and Ursa Major - Full Moon		
4	5:00 AM	26°	SSW	Jupiter 5° below the Moon		
9	4:30 AM	27°	ESE	Qtr. Moon between bright Saturn and circlet in Pisces		
13	5:00 AM	9°	ENE	<i>Mercury 6° left and bit below, Mars 7.5° left of thin Moon; Pleiades 5° above Mars</i>		
14	7:30 pm			MEETING OF THE BAA		
15	dusk-10 pm			Public night @ Beaver Meadow Observatory No planets up - No Moon		
19	9:50 pm	12°	W	<i>Star cluster M67 1° below thin Moon; bins req'd</i>		
25-7/11	4:40 AM	7°	ENE	Watch Venus turn in the sky near Adebaren in Taurus		

Not a good month for evening planet viewing — there are none! New Moon on the 15th means good viewing of galaxies at the Beaver Meadow observatory.

Jupiter begins to sneak up in the southeast in the evening at month's end.

Can you spot the Milky Way rising low in the east?

Asteroid Ceres passes 1 deg. south of the Moon on June 1.

BEAVER MEADOW OBSERVATORY 457-3104**Good News - Bad News!**

The Bad news is that the **14"SVGA monitor is missing** from the Observatory! If anyone knows where it might be, please call me and let me know.

I hope someone has stored it in a safe place where we have not looked yet, but the odds are slim. Come on out to the Astronomy Day picnic on May 4 if you would like to discuss the situation, and arrive at a solution to Observatory security. If anyone knows where we can acquire an good cheap replacement for the missing monitor please contact me. **Good News!** - Power has been restored to the Observatory, and I have aligned the 12" mount (still needs a little more aligning) so it tracks reasonably well. Note: there still is still a periodic error in the polar drive assembly Rowland Rupp has completed the CCD Camera circuit to maintain constant temperature to the imaging chip, and the camera is now back at the Observatory. Mark Reville has installed the 1.2 gig hard drive and upgraded the Observatory's computer to a 386DX-33 with a math co-processor, now all we have to do is find the monitor!

CCD Camera: We will be doing classes on Cloudy Public nights, and on public nights **after 10pm, provided I am there.** If you are interested in the CCD camera please call the Observatory to make sure I am there to give classes.

Hale-Bopp: I am looking for help in photographing the upcoming approach! The club has access to my autoguider attachment for the CCD camera. This will allow us to use the CCD camera to autoguide the telescope while we use conventional cameras to photograph. I intend to use my 4X5 view camera to capture the event. The autoguider

electronics will also allow us to use periodic error correction enhancement while taking pictures with the CCD camera.

Public Nights: Bob and I need some relief from Public Nights. While I am Observatory Director, I will continue to schedule them rain or shine. What to do when it rains? Besides the fact that the public shows up anyway, especially if the night is "iffy", the power receptacle for the 12" needs remounting, place needs a wholesale cleaning, computer needs its hard drive set up with all the programs configured properly, attic needs some attention, literature needs updating, mount still needs alignment tweaking, telescope could use painting, eye hooks for roof need replacement..... There is plenty of work to be done. But before starting on any project, please get permission from Bob or Dan!

Star Parties: Missed the Hyakutake March 23 star party?? Boy did you miss out. The comet rose looking very large, and proceeded to improve **dramatically** when the moon went down and the comet was over head!!! It was **awesome!!!!** The BAA hold Star Parties during the summer months when we do not have meetings! These are informal gatherings at people's homes, cottages, and at the observatory, where we have fun doing astronomy as a group. When it is cloudy, we hold them anyway and enjoy each other's company. Most revolve around food and are usually bring a telescope, other astronomical toy, dish of food, or snack to pass around! My usual practice is to schedule them rain or shine, because it makes it easier for the host especially if the weather looks bad, they get to hold 2 star parties! If you are interested in holding one at your home or at the Observatory, please let me know. The only criteria for dates and times is that parties are scheduled so they **DO NOT CONFLICT WITH OBSERVATORY EVENTS.**

Daniel Marcus

TINSEL in the DARKNESS or HAVE YOU SEEN A COMET LATELY?

Of course you've seen the "BIG ONE", Hyakutake that is. Arguably it is one of the best comets in recorded history. By some accounts, various people have rated it the best since Comet West (1975), Bennett's (1969), Ikeya-Seki (1965), Ikeya (1963), Arend-Roland (1957) or (remember this one Roland!) Tebbutt's (1861, as bright as Saturn and a 90-120° tail) -- but it doesn't matter! 'If you haven't seen any of the others, then this one is the best. Even if you have seen others ... it's been a long time! Less than a handful of comets in the average lifetime will put on a show like Hyakutake and display a tail stretching constellations in length. Its position and size directly overhead in dark skies marks it the best in my memory (comet Bennett was my first).

The comet body itself (the nucleus) is a loosely held together 'dusty snowball' of water, carbon dioxide, ammonia, methane and other frozen gases of perhaps several miles in size. When a comet enters our solar system and by the time it reaches Jupiter's orbit, the Sun's heat has begun to vaporize the ices and release some trapped dust forming a 'halo' or coma around the nucleus. The coma has a density gradient with the densest part naturally near the nucleus. The gradient is not linear and many comets have a small concentrated section called the central condensation.

But what have you really seen?

A quick look may give you a general impression of a ghostly cotton ball with a long splash of tail but you'll miss the fine details that your instrument (eyes, binos, or scope) can show when you pause and observe.

Much can be seen of a bright comet like Hyakutake just with eyes alone, usually a coma with a bright center and a hazy tail. Nightly changes can be monitored as to the tail shape, dimensions and mottling within the tail. Try to correlate what you see with knowledge of the comet's orbital position relative to the Sun and Earth. This 'viewing angle' will explain a lot of the perspective you see. A planetarium program helps in diagramming the comet's orbit with where we are in ours. Direct viewing will show less than 'side glances' as direct vision uses the cones of the eye which provide sharper viewing, but cones do not have the low light capability of the eye's rods which are used for your peripheral vision.

Binoculars improve the view of big comets immensely. Even this instrument must be panned to see the extent of a big comet like Hyakutake. Large features in the tail become apparent. Certainly the head (coma) of naked eye comets will not appear round but parabolic in its outside perimeter. Smaller comets down to perhaps 9th magnitude will appear as small, dim and foggy gray cotton balls. Note what fraction of the coma's diameter is occupied by a much brighter central condensation.

Telescopically, bright comets can show some complicated structure. The central condensation varies in size relative to the whole coma as well as in apparent density (which is seen as brightness). At high (200-400+) power and with scrutiny the central condensation may reveal a point in its center. This is NOT the actual solid comet but a more condensed zone of gas and dust known properly as the false nucleus (the very inner coma) but generally, and incorrectly, as the nucleus. The true nucleus is too small and too shrouded in the dusty and gaseous inner coma to be seen. The false nucleus's size can be 3-15 seconds of arc (5-30% the apparent size of Jupiter) when the comet is closest to the Earth.

LOOK and LOOK OFTEN

Telescopically, high power around the central condensation and inner coma shows where most of the action is. Hyakutake's outer coma was almost too large during the March 20-27 week for scopes except at the lowest powers, however its inner coma is similar to other comets and requires magnification to pull out its secrets.

Changes near the inner coma may be seen. A comet can undergo

sudden changes in the heat of the Sun. Jets, kinks, dark areas and even a detachment of part of the tail from the nucleus may occur as Comet Bennett showed. The best way to see them is to keep looking! Constant viewing is NOT necessary but checking every hour for as long as you can is sufficient. Inner coma details to be seen are on the order of detail on Jupiter. A very bright comet may interfere in seeing such details due to being too bright! This is a perfect reason to observe comets in twilight or when the Moon is in the sky and washing out the tail. Occasionally a short-lived arc (or hood) on the sunward side of the inner coma may be seen. These hoods are material ejected in a shell-like manner a few hours earlier and are a few minutes of arc in diameter (several Jupiter diameters) and hence can be seen at lower powers. Comet Bennett had some fine hoods. Also rare "shadows" of the very inner coma of perhaps 1 minute of arc or so wide by up to several degrees long can be seen against the tail. Hyakutake showed this feature which was visible at low-medium power.

The coma or head of the comet appears generally circular when the comet is far from the Sun. It becomes elliptical and the bright central condensation will appear off-center as it nears the Sun. The much larger coma has no 'edge' as the gas density just keeps getting thinner farther away from the nucleus. This is where you have to play the magnification game. Too much power will spread out the light over a larger viewing area, reduce the surface brightness and may result in a poorer view. Vary eyepieces to give the best overall coma view. It takes scrutiny but try to look for stars that are behind the coma. Once you see them it's amazing how little their light is diminished (check the next night) -- which shows just how thin that coma is.

It may seem odd but generally comas shrink as the comet approaches the Sun then increase again as the comet moves away from the Sun.

TALE OF THE TAILS

For my money a comet isn't a comet unless it has a tail. All tails are the cometary gas and dust blown away from the coma by the solar wind. Generally a tail starts to form when the comet is about as far from the Sun as Mars is. Actually there are three types. An ionized gas or plasma tail is narrow, straight and flows essentially directly away from the Sun. It is not particularly striking although often shows clumps or spurts and usually appears with a bluish tint in color photographs. Note where it merges with the coma. Hyakutake and others I've seen showed this juncture to be narrow, like a straw stuck in a snowball.

The dust tail gives a comet its awe and splendor. The dust is released from the nucleus and shines by reflected light and hence appear yellowish in color photos. This is what is usually seen by the naked eye. Dust tails grow with accumulated time of solar heating, thus dust tails are often better after the comet has reached closest approach to the Sun. Dust tails are wide, often curved and show streaks in bright comets. Hyakutake showed clumpiness as seen in binos and striations that a low power scope could pick out by sweeping from the coma down through the tail. Also useful is to sweep, with binos or scope, perpendicular to the tail so you start in dark sky - cross the tail - and back to dark sky. Sometimes features not seen scanning in one direction are visible when scanning in another. When Hyakutake was near the Big Dipper, its length and width was so huge that this slow telescopic scanning was physically and visually exhausting -- but what memories!

The third tail type, the sun pointing or anti-tail, is a faint and diffuse extension of the main dust tail. It is strongly curved and when the Earth passes through the plane of the comet's orbit, this tail can appear to us as a sunward pointing spike.

TELLING TALE of TAIL DETAILS

Visual tail details are usually more difficult to see than coma features. Some filamentary structure, striations and irregularities can usually be seen. Comet West (1975) showed these well, assuming my 20-year old memories haven't been aggrandized by time!

continued next page

Tinsel in the Darkness continued from page 5

Often in the brighter comets, Hyakutake included, the outer edges of the dust tail will appear brighter than the 'inner' area.

To see small details your scope must be at the outside temperature. I kept my 10" Dobsonian out a lot with a plastic tarp on it to keep it from frosting up and stored it in an unheated alcove of the house during cloudy weather. Note that even big binoculars will NOT do in seeing jets and coma details -- the magnification even on a huge comet is way too low.

On average, 2 to 6 comets can be seen with a 6" scope each year (15-20 in 1994). Perhaps one comet every year or two will approach naked-eye brightness and exhibit a short tail. These dim ones serve well as practice comets for the better 'one every 5 or 10 year variety' that blaze with intricate detail.

Many of the observing hints have been presented before but toward a planetary and deep-sky object context. Perhaps this article will shake your memory and uncover some hidden details in sightings you've already made. In any case this information can be used on the supposedly even bigger comet Hale-Bopp coming our way in 1997.

Remember -- periodic, several-times-a-night, not necessarily continuous, observation is a must to see the unpredictable details a comet may show. Coma features require higher powers. Go the extra step to put in more observing time -- on every clear night. A great comet comes around very rarely; each one is different; and they may never return to give you a second chance. On to Hale-Bopp!

- Bill Smith



Observatory Upgrades Coming!

With the work needed to refurbish the equatorial mount now complete, the Board of Directors has approved nearly \$1000.00 in equipment purchases for the Beaver Meadow Observatory. Additionally, a number of donations have also been made.

The Board has allocated funding for the purchase of TeleVue 22 mm Panoptic and 40 mm Widefield eyepieces. Donations of \$250.00 have been made by Bill Smith and other contributors toward these purchases and to the purchase of a TeleVue 24 mm Widefield eyepiece and a Televue 1.8X barlow lens. The purchase of a Lumicon 2" Oxygen-III filter and a basic set of four 1.25" planetary filter has also been approved. Gene Witkowski donated a Telrad finder for the 8" telescope.

Mark Reville donated a 40 Mhz motherboard and a math coprocessor, and the purchase of a one gigabyte hard drive has been approved. A copy of the Richard Berry's 1996 Discover the Universe calendar was donated by Carl Milazzo.

One of Carl's photos appears in this year's calendar. A copy of Antonin Rukl's Lunar Atlas will be purchased. Gene Witkowski donated a 19" color monitor (which needs some repairs, we hope minor). The purchase of some blank videotapes and a window fan has also been approved.

What's this all mean to the Observatory user? The new eyepieces, filters, atlas and Telrad will improve what's available to the club's observers and public night assistants.

The club's better, older eyepieces will be freed up for use on the 8" loaner telescope. The beefed up computer will improve both our CCD imaging capabilities and our astronomy software demonstrations. The color monitor and videotapes expand the available rainy-day activities, and the window fan will help keep us cool on muggy nights.

Bob Titran

Public Night Classes - Any Interest?

Is anyone interested in a 1-2 hour class on what to do as a Public Night Assistant? A class of this sort would probably include a review of Observatory basics (opening up and shutting down, using the 'scopes, etc.) as well as what to talk about, what to point out, etc. The class would likely be in a discussion group format, so any questions participants ring could be easily addressed. This idea's been discussed before, but we're not sure who, if anyone, would be interested. If a class like this is something you'd attend, please let Bob Titran know. Thanks!



Rogues and Rascals of somewhat astronomical proportion

Alfred William Lawson

Visionary, aircraft designer, thinker and part nut all describe Alfred Lawson. His 1939 book, *Penetrability*, emphasized how matter interacts with life. Not only do people breathe but so does the Earth. He theorized that there was a hole in the North Pole, not unlike a mouth, that 'inhaled' the sun's emissions of life supporting gases and proteins. The entire globe received its nutrients this way. Naturally, what goes in must come out! Hence, the Earth eliminated its wastes through an opening in the South pole. A 'global' digestive tract connected the two poles. The passing of gas created forces that caused the Earth to rotate on its axis. Lawson certainly had plenty of critics but also plenty of followers!

He had some other ideas of a similar ilk. During the Great Depression he advocated to abolish all monetary standards (including the abolishment of the gold standard). In its place he wanted to use a concept of 'direct credits' or a 'valueless currency with no purchasing power'. Lawson held rallies and crowds listened. Folks carried signs reading "Direct Credits for Little Children and Feeble Old Folks".

On the human brain he said that each person was destined to be what they are due to the content of menorgs (mental organizers) and disorgs (mental disorganizers) that comprised the brain. A simple majority of one kind predisposes you to your direction in life.

With ideas like that, who would think he was a pioneer in aviation. His airplane company designed a training plane for WW I and the world's first passenger plane in 1919. It flew from Milwaukee to Washington DC and back but never was a commercial success. He did envision a big plane that would go cross country nonstop and get refueled during flight from supply planes that would drop a hose that a crewman would connect to the fuel tanks -- somewhat like is done today.

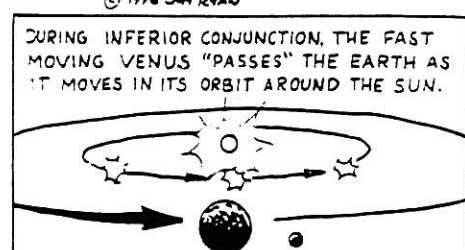
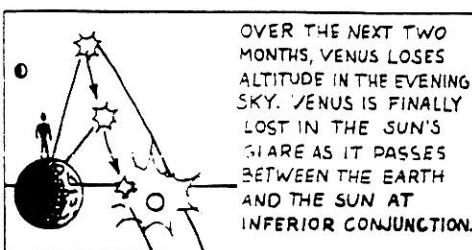
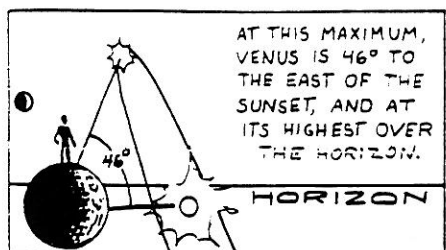
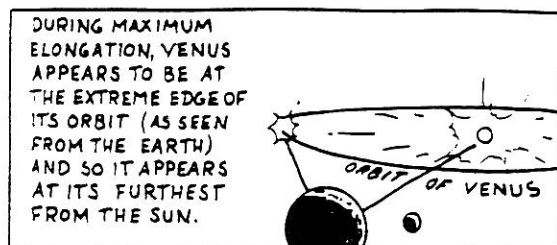
Bill Smith

This article is a topic idea. Further articles in this style will depend on member's input. Please send in submissions for this topic or an article based on any other topics you have in mind. This is your newsletter, do share your thoughts.

FOR SALE:

☆ TELESCOPE: 18" F/4.5 open truss Dobsonian. Galaxy optics with 3.1 secondary. 2" low-profile focuser has 1.25" adapter. Includes 11x80 finder! Includes Telrad! \$2600. Call Diane Borowski to take a test drive: 717-627-2240.

The following 'educomic' is supplied by Jay & Debbie Ryan, two amateur astronomers from Cleveland, Ohio.



Two Points to Ponder

Einstein's Theory of Relativity

A quotation from Albert Einstein on his theory of relativity -

"... If my theory is correct, the Germans will say I am German, the Swiss will say I am Swiss and the French will say I am a great scientist. If I am proven wrong, the French will say I am Swiss, the Swiss will say I am German ..."

via Joe Orzechowski

The Basic Building Block

From Frank Zappa -

"Some scientists claim that hydrogen, because it is so plentiful, is the basic building block of the universe. I dispute that. I say that there is more stupidity than hydrogen; and that is the basic building block of the universe."

via Bill Smith

POETRY CORNER:

MILKY WAY

From an open train window
in Mexican mountains,
the spill of light cascades
across darkness, dust kindling
the night. Effervescent billows
show us our reflection
in the cosmic mirror,
distorted view, as I see myself
and can only project
what others see.
We look from the arms
of our spiral, wrapped
around ourselves,
double over and wonder
at the star stuff
in every single finger tip
which smudges the night.

Carol Hamilton

Workshops on Backyard Astronomy a Hit!

On the weekend of November 11-12, two days of workshops on beginning backyard astronomy were held at the Observatory, with a public night on the 11th. Despite high winds, heavy rain (then heavy snow) and several technical difficulties, the event was very well attended and quite successful.

The workshop consisted of four half-hour talks on getting started in astronomy presented on Saturday and repeated on Sunday. About 25 people attended the Saturday workshop, with an additional 15 visitors on Sunday. Most people stayed for the entire workshop - much of the weekend was spent playing to a packed house. A number of people from the Saturday session stayed for the evening presentation and were joined by a swarm of cold, wet Cleve-Hill students who had been promised a bounty of "bonus points" for visiting the Observatory.

Many thanks go out to all members who helped make this weekend a success in one way or another - crowd control, answering the phone, bringing a dish to the potluck dinner whatever. Special thanks go out to our lecturers, (in order of appearance) Terry Farrell, Bruce Newman, Bill Smith, Joe Orzechowski, Rowland Rupp and Richard Jones, without whom this event wouldn't have been possible. Special thanks also go to Bob Hughes, who bailed us out of trouble by bringing his TV set to the observatory so we could show a few Astronomical videos, and to Dave Junkin, who saved our skins by loaning us a slide projector lamp when we needed it most!

Bob Titran

The stock of poems is low. Please send a copy of your favorites to the editor. Thanks.

ed. note: The perpetrators responsible for this article getting lost in the cracks have been shot.

LYNX

Each after each, ungrouped, unnamed, revolved.
Brown's "Aratos"

Lynx or Tiger (Lynx sive Tigris) is probably a forerunner of Aratos' ?????????????? which was somewhere in front of the Greater Bear. This modern figure was reported by Hevelius.

Not in use anymore is the original name 'Tigris', the Tiger -- from the idea of its resemblance to a tiger. The Tiger was subsequently made into the Polish Bull and the Little Fox which carried the Goose. Jamieson had shown a rather strange object similar to a lynx, but its head was more like that of a canine than of a feline. He referred to it as a Bobcat.

Somewhere along the way, this constellation, so named, became accepted by modern day astronomers to fill in where no other asterism had covered. Hevelius is responsible for the naming of the Lynx in his "Firmamentum Sobiescianum" of 1687. Perpetrating one of the witticisms which the science of astronomy had permitted, he looked into the dark space of emptiness and declared that anyone looking in that area would need the eyes of a lynx to see anything at all -- so -- the Lynx it was!

In the Lynx, there appeared in July of 1893, a much-discovered comet 'b' of that year whose name was derived from two discoverers, Rordame and Quenisset. The coordinates were not available and whether

it ever returned is a mystery.

Probably its main interest is the Lynx's numerous double star combinations. Espin mentions 50 plus in his fifth edition of Webb's "Celestial Objects".

Lynx is bordered by Ursa Major, Leo Minor, Cancer, Gemini, Auriga and Camelopardalis.

Darwin Christy



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Give yourself one 'Pat on the back' if you can identify the ????????? in the Lynx article on this page!