

THE

SPECTRUM



NEWSLETTER OF THE BUFFALO ASTRONOMICAL ASSOCIATION, INC.

MEETINGS NOTICE

FRIDAYS: NOV 14, DEC 12

Nov 14th: "Beginning Astronomy" - BAA members present a workshop on beginning astronomy. Topics include: how to get started; all about telescopes; and a selection of objects for viewing.

Dec 12th: "Holiday Party" - The BAA's annual holiday party once again rolls up the calendar year. A short talk and Edith Geiger's famous "rip 'em up" Candid Camera slide show get things going prior to the party. Bring a dish of goodies or drink to pass!

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.

November Meeting – Your Help is Needed!

The November BAA meeting will be something a little different and you can help make it a success. The meeting will be a series of short talks on getting started in amateur astronomy. Members Tom Bemus, Bill Smith, Larry Carlino and Joe Orzechowski will discuss "The Basics" of getting started, types of telescopes available to the beginner, and how to use that first telescope. The meeting has been advertised locally, and we're hoping for an above-average turnout from the general public – maybe even a few new members. We've done similar programs at the Beaver Meadow Observatory and turnout has been very good, despite the remote location and uncooperative November weather.

How can you help? What I'd like to ask club members to do is to contribute to the "show and tell" atmosphere by bringing along some of the astronomical equipment you've found helpful. Charts, atlases, guidebooks, references, and, of course, telescopes, binoculars and other observing accessories. Wear your name tag and be ready to share your enthusiasm for the hobby and the BAA!

Bob Titran

Hey, Look on the Bright Side!

In the last Spectrum there was a somewhat harsh criticism of the BAA's activities, accomplishments, and leadership, and of the state of the BAA in general. While I think that examining what the club is and does is healthy, I also think that looking back on some of our successes is necessary to maintain a balanced perspective.

Perhaps easiest to see is the club's growing equipment inventory. Since I joined in 1991, we've acquired a 20" telescope (one of the largest public telescopes in Western New York), a fine 6" refractor, a variety of modern eyepieces and filters to use with

them, and we've built an addition on to the Beaver Meadow Observatory to house it all. A CCD camera was built, we've built and bought computers to run it, and refurbished the 12" telescope's mount to improve its photographic capabilities.

The BAA has also been active in public education. There has been a minimum of 12 public nights at the Observatory each summer, in addition to numerous "special event" openings in support of Beaver Meadow Nature Center activities, and for meteor showers, comet collisions, comet appearances and eclipses. Buses of tourists stopped by the Observatory to view the annular

(Continued on page 6)

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

I'd like to invite all members to feel free to voice their gripes or concerns to me. You can give me a call at one of the numbers listed at the end of this column or drop me a note at 125 Roycroft Blvd, Amherst NY 14226. And, if you'd like to remain anonymous, that's just fine. At the same time I'd like to ask that all our members (but especially new members) make an effort to participate in one or more of the BAA's many activities like the monthly meetings, star parties, public nights or any special events hosted by the BAA or by one or more members.

As always, if anyone has any kind of question about BAA activities, about astronomy or about equipment and doesn't know where to turn for answers, feel free to give me a call at 632-7091 days or 839-9109 evenings. I don't have all of the answers. I don't even have most of the answers. But I may be able to help you find the answer you're looking for.

MEMBERSHIP SERVICES

To renew, join, or for address changes or questions call or write:

Joe Orzechowski, 125 Roycroft Blvd., Buffalo, NY 14226
(716) 839-9109

BAA ANNALS

Rowland A. Rupp

5 YEARS AGO - In November 1992 Ken Kimble spoke on "Measuring Astronomical Distances". Short topics in December were "December Skies" and "Laid Back Meteor Observing", but the speakers were not identified. And, of course, Edith Geiger treated us with her annual Christmas gift--her infamous "Candid Camera". The BAA was preparing to host the Niagara Frontier Council of Amateur Astronomical Associations (NFCAAA) at Buffalo State. While this SPECTRUM doesn't mention it, Dave Fliss coordinated the activity.

If you're a new observer (or even an old one) you might want to read Ed Lindberg's "Instrument Notes" on the declination and right ascension dials on your telescope. Don't look for them on a Dobsonian though. Bruce Newman's article on a 4.25-inch, f/4 telescope he assembled highlighted some of the outstanding celestial objects that can be seen with a small telescope, provided you have dark skies. He credits Tom Nigrelli for designing and building a light-weight, portable Dobsonian mount for it. Only one observation report--by Dan Marcus.

10 YEARS AGO - "Quarks" was the title of Larry Josbeno's November 1997 talk. Larry was a member of the Elmira Corning Astronomical Association. In December, Carl Milazzo spoke on "Big Telescopes"; Edith's annual expose' followed.

An article by Karyn Bennett, extracted from the ORBIT, the newsletter of the Hamilton, Ontario club, described how the Great Cheops Pyramid might once have served the Egyptians as an observatory. Another article from a Canadian astronomer was Dale Armstrong's (London, Ontario) comparison of "Refractors vs. Reflectors". Finally, Alister Ling (also London) wrote on "Small Aperture Observing". Edith Geiger's profile was of George Scheck. Observing reports were from Marylou Bebak on sunspots, from Adrienne Morris on Comet Bradfield and from Carl Milazzo on deep sky objects.

15 YEARS AGO - Steve Kramer spoke in November 1982 on the "Rittenhouse Orrery", the mechanical model of the solar system constructed

by David Rittenhouse in colonial times, and restored by Steve more recently. Steve, along with Bob Mayer, also spoke in December on the Antikythera model they had collaborated on. Then there was Edith!

Shaun Hardy, always interested in astronomical history, obtained a compilation by I. Richard Reed, Niagara County Historian, of the Lockport Daily Journal's daily accounts of the apparition of the "Great September Comet" of 1882. John Yerger was the subject of Edith Geiger's profile. Observation reports from Tristan DiLapo, Debbie Lagodna (now DiLapo) and Carl Milazzo appeared in this SPECTRUM. The old Instrument Section met monthly back then; Ed Lindberg reported on both meetings. Some names from the past showed up, like: Steve Noworyta, Jim Mower and Walt Whyman.

25 YEARS AGO - Robert Little, who had once worked with Questar, gave a talk on astrophotography at our November 1972 meeting. For December we heard about one of Ed and Olga Lindberg's travels, where they always managed to pick up some astronomical lore, and from Edith, who always manages to pick up some BAA lore. Star parties were scheduled to be held at Newstead Observatory in November and December.

The SPECTRUM had an interesting exchange of letters submitted by our late member, Irv Goetz. A Dr. Paul W. Hodge had written several books on cosmology which Irv had read with interest, although he was unclear about some of the ramifications of look-back time. (Aren't we all?--Jack excepted.) Dr. Hodge responded, and to some extent clarified the issue. What deserves notice is Dr. Hodge's courteous reply to a mystified amateur. A biography of the famous professional astronomer Harlow Shapley (1885-1972) was submitted by Kurt Erland. (How many know who Kurt Erland really was?)

35 YEARS AGO - In November 1962 Lou Reinagle reported on a lecture by Peter M. Millman on "Men and Telescopes". Apparently it was the first in a series of lectures in Millman's book, *This Universe of Space*. In December Ernst Both commented on a film strip about a trip to the moon, prepared by Lick Observatory. The December SPECTRUM had a brief biography of Ernst by an unknown author. Announcements of coming meetings of the Advanced and the Elementary Study Groups also were made.



SPY AND TELL

Edith L. Geiger

Thomas Bopp was at the annual Starfest held at Mount Forest, outside Toronto, last Aug. 7-11. A number of people, including Carl Milazzo, brought their photos of Hale-Bopp to be autographed by Mr. Bopp. After signing Carl's photos of the comet, Carl in return, gave Bopp two of his comet photos. Bopp remarked that it was the first time that this had ever happened to him.

Once again Tonawanda Limb & Brace, run by Richard and Robert Catipovic, sons of former BAA member, Miro Catipovic, have donated two prostheses limbs, this time to a 24 year old soldier from Lepoglava, Croatia, who lost both legs during a practicing training exercise, when a land mine exploded underneath him. During the last three years, the Catipovics have donated prostheses to four Croatian soldiers who lost their limbs.

Patty Rupp, daughter of Rowland and Irene Rupp, finished her infectious diseases fellowship at Dartmouth and in September she embarked on a new job in internal medicine and infectious diseases at Alice Peck Day Hospital in Lebanon, New Hampshire.

Officers

Bob Hughes - President (833-2407)
Gene Witkowski - Vice President (876-4301)
Lynn Sigurdson - Secretary
Bev Orzechowski - Treasurer (839-9109)
Dr. Jack Mack - Museum Representative

Board members at large

Joe Orzechowski - Bill Smith (664-0841)
- Bob Titran (774-2742)
Rowland Rupp - Fellow Representative
Joe Orzechowski - Membership
(839-9109)

Observatory Directors

Neil Dennis (322-7596) & Bill Aquino (731-9366)

SPECTRUM STAFF

Bill Smith - Editor / Layout
Bev Orzechowski - Circulation

Spy & Tell continued from page 2

The Buffalo News carried a letter from **Ed Czapla** in Everybody's Column concerning the controversial Toles cartoon on September 9th relating to Mother Teresa.

In the early part of September, **Darwin Christy** spoke to the men's group of the Salem United Church of Christ, in Tonawanda, of which he is a member, giving the same lecture on astronomy that he gave in June to the retired men's group of the Presbyterian Church. Both groups were deeply impressed by his knowledgeable presentation.

Darwin is now the Service Officer at the American Legion Post 264 of Tonawanda, and is the liaison between the Tonawanda Post and the head Service Post in Niagara County for people seeking help.

Bud Abate sold his 10-inch Dobsonian, and purchased Celestron Binoculars 80mm 20x with which he is very pleased.

Bill Smith's fine photographs were on display at the 36th Annual Quaker Arts Festival, September 20-21, in Orchard Park. There were around 450 participating exhibitors, including many from states as far west as Michigan and as far south as Florida.

Tom Bemus and **Carl Milazzo** attended the Astronomy Festival, October 3-4, at the Kopernik Space Education Center in Vestal, near Binghamton. John Dobson was one of the speakers.

Happy Holidays to all!



The Galactic Core Seeks Submissions and Steady Writers

The Galactic Core website is looking for astronomy writers to help produce one of the better astro sites on the net. The site is run by myself, Tim Finucane, and I am having difficulty keeping up with the writing tasks involved. The site has no commercial value as yet, so all work is on a voluntary basis. The type of articles I seek are general astronomy and space topics that can help expose our interest to the general public.

I am also seeking writers for steady monthly topics such as: what and where to view in the sky, equipment ideas and suggestions, astro computing and software reviews, book reviews, southern sky guide (very important, not much of this on the web), featured constellation of the month, astro photo techniques, observing techniques, etc. For sections such as these I would really like someone who has the time to write an article once a month.

The Galactic Core was recently reviewed in Netsurfer Digest and has gotten a lot of interest because of it. For this reason I am trying to step things up a bit and get this site really rolling. If you would like to help please contact me at:

Tim Finucane
P.O. Box 471
Lancaster, NY 14086
(716)439-6146
speljamr@buffnet.net
<http://www.THEWATCH.com/GALAXY/>

Observation Report

Date: 09/21/97
Time: 9:40 P.M. (EST)
Location: Beaver Meadow Observatory
Seeing Conditions: Very Good
Instrument: 20" Dobsonian w/35 mm Tele-Vue eyepiece

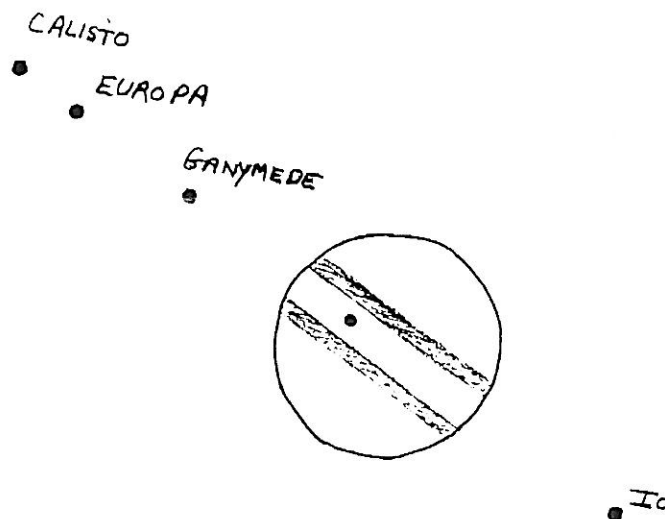
Observed:

Shadow of the Galilean satellite "Ganymede" on the cloud-tops of Jupiter, dead center between the prominent equatorial bands, at a distance from the planets limb of about 1/3 the planet's diameter.

Comments:

Just happened to be out at the observatory that evening and had been observing for a couple of hours when I decided to take a peak at Jupiter. I was both surprised and delighted to see a moon shadow on the face of the planet because I had no idea a transit event was occurring that evening and had never seen one before. Sometimes the stars smile down on us.

Bill Aquino & Dennis Hohman



We're always looking for your submissions of...

articles
artwork
book reviews
CCD images
comics
equipment reviews
for sale items
observations
photographs
poetry

quotes
more!

plus

comments
suggestions
your ideas

SPECTRUM DEADLINE

The deadline for the Jan-Feb issue is

Dec 12th.

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**VIA BILL AQUINO****TIME WELL SPENT IN ASTRONOMY****Moon**

Full Nov 14	Last Qtr. Nov 21	New Nov 29	1st Qtr Dec 7	Full Dec 13	Last Qtr. Dec 21	New Dec 29	1st Qtr Jan 5	Full Jan 12
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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.

OBSERVATORY ACTIVITIES

Mr. Perseus' Neighborhood

An informal study/observation group is being formed to explore the Perseus constellation and nearby regions during the upcoming winter month's. Key members of the group are Don Knecht (838-2456), Dennis Hohman (662-2904), and Bill Aquino (731-9366). We don't have a firm schedule other than to meet a few times while the constellation is up to make observations and exchange notes. Anyone interested in joining the group should give one of us a call. This invitation is open especially to NEW members of the club.

Thanksgiving Party

Weather permitting, Neil Dennis and Bill Aquino are planning a "Star Party" on the evening of Friday, November 28th. This is a holiday weekend and most members should have a little time off and plenty of leftovers to pass around. A confirmation message will be posted on the observatory's answering machine in the afternoon the day of the party (Nov 28).

Call the machine (457-3104) to get the details.

- Bill Aquino & Neil Dennis

Date	Event, elevation above noted horizon @ time listed [binos or small scope helpful]
Nov 15	Moon is within 4° of bright star Aldebaran; 24° above W @ 6 AM
Nov 17	Leonid meteor shower - gibbous Moon - poor prospects
Nov 28	Try to catch Mercury as it sets; 7° above SW @ 5:30 PM
Nov 28	STAR PARTY — see "Thanksgiving Party" article at left.
Dec 2	Mars is within 2° of the Moon; 15° above SW @ 5:45 PM
Dec 3	Moon just above Neptune; 21° above SW @ 5:45 PM
Dec 4	Jupiter is within a few degrees of the Moon; 30° above SSW @ 6 PM
Dec 8	Saturn is within 2° of the Moon; 48° above S @ 9 PM
Dec 11	Venus at greatest brilliancy of the year (mag -4.7); 16° above SSW @ 6 PM
Dec 12	Moon is within 1° of the bright star Aldebaran; 35° above E @ 8 PM
Dec 13	Geminid meteor shower - full moon - poor prospects
Dec 22	Venus is less than 2° from Mars; 15° above SW @ 6 PM
Dec 24	Red sleigh, fat man, 8 reindeer, moving fast - HAPPY HOLIDAYS!
Dec 27	Mercury is within 2° of the Moon; 12° above SE @ 8 AM
Dec 31	Venus, Mars and Moon together; 12° above SW @ 6 PM

BEAVER MEADOW OBSERVATORY

457-3104

We welcome BILL AQUINO as observatory co-director! Bill will be primarily responsible for our public events while Neil Dennis will keep busy on building and equipment maintenance.

Observatory combination changed on Nov 8th. Call Bill Aquino at 731-9366 or Neil Dennis at 322-7596 for info and new combination.

Attention Observatory Users!

November 8, 1997:

** Combination will be changed, see Neil Dennis for the new combination.

By the time the SPECTRUM arrives we will have had a busy weekend at the Observatory! Besides having the last public night for 1997, some of our goals for this weekend are to install the networking cabling between the CCD computer and the new 486sl that we have in the new warming room. Once we get the networking up and running along with a 50' cable for the CCD camera (to avoid tripping on the cables!). It will be nice to process the CCD camera images in relative comfort of a bug/frostbite free room. The CCD camera will be taken out of service for some upgrades- 1) to increase the sensitivity, 2) center the chip in the center of the adapter tube and 3) make an adapter to fit Dan Marcus's reflex viewer/filter holder. I expect to get the camera back to the Observatory sometime in Feb 98.

Observatory needs

I would like to discuss with all about wants and needs of the users. I know the CCDers would like some kind of internal Zip drive (for moving lots of data) & faster Modem, others have been talking about realuminizing mirrors, new roof, computer desk with heat, surveillance camera for lunar photography and a new VCR. Your input is important as we will be working on these over winter. Send or call your ideas to me at 773-5015.

Daniel Marcus

IDEAS WANTED

Observing Report

My notes tell me that back on the evening of July 5th, I examined some of the summer's best objects with my Meade 8" SCT, including the Hercules Cluster (M13), the Ring Nebula (M57), the double star Alberio and Jupiter. I then tracked down two objects in Scorpius that always give me trouble: globular clusters M4 and M80. Having had good luck with these objects, I viewed some of the double stars in the area listed in my Edmund Scientific Mag 6 Star Atlas. These included α Sco, a magnitude 3.1 white star paired with a magnitude 8.7 bluish companion; β Sco, a pair of stars listed as white and blue, but which appeared to both be white to me; and γ Sco, another white and blue pair. I observed all of these at fairly low power (62X), so I did not note that γ Sco is actually a close "double double."

On the evening of September 3rd I was viewing again with the 8". The sky was particularly clear though not very steady. Consequently, I didn't see a tremendous amount of detail on Jupiter, but I did catch the shadow of the moon Europa on the planet. I explored the Sagittarius area since haze and trees usually hide this region from me. I examined several globular clusters near the "bottom of the teapot," including M54, M70 and M69, however they didn't show much detail and looked, for the most part, like fuzzy little balls of light. I then moved northward to the Lagoon Nebula M8. The nebula was more prominent with a Deep Sky nebula filter (the nebula is just over Buffalo as I look at it). An Oxygen III filter made the nebula more detailed, but I had to work at seeing this detail due to the overall darkening effect of the filter. The Trifid Nebula (M20) was nearly invisible without a filter. The Deep Sky filter revealed that there was indeed an object in the eyepiece, and the O-III filter was required to show the divisions that give the nebula its name. At one point, while attempting to sweep from M8 to M20, I stumbled across two small, dim clusters. As it turns out, the objects I had "discovered" were NGC 6544 and NGC 6553, two 8th magnitude globular clusters – not a bad couple of finds for an 8" scope in the suburbs pointing low on the horizon in the direction of the city!

On the morning of September 18th, my wife Laurie and I viewed the lunar occultation of Saturn using an Edmund Astroscan. This little scope is perfect for this type of "quick look before work" astronomy – setup and takedown time is minimal. We watched the moon slowly approach then cover the planet until Saturn was no longer visible at 7:03 AM. As an added bonus, the planet Mercury was very bright and easily visible in the eastern sky.

On the evening of October 17th, I had the 8" out again. As dusk settled, I caught a glimpse of Mars, Antares and Venus through the binos – nice grouping. The night was clear, cool and calm – a very nice night for viewing. I got some of my best views ever of Jupiter, which not only confirms that it was an excellent night, but also demonstrates that you see more every time you look, and that observing skills improve with practice. Jupiter's North Equatorial Belt was lumpy and convoluted, with a large festoon projecting into the Equatorial Band west of the planet's meridian. Two very dark knots in the NEB were also visible. The North Temperate Belt and the North North Temperate Belt were also both plainly visible – the first time I can recall seeing these features so clearly through the 8". The South Equatorial Belt was wider and less distinct than the NEB, and I did not see any other Southern Belts, only the darkish South Polar Region beyond the South Tropical Zone. No spots were seen. Observations were made at 167X and 200X. A blue 80A filter seemed to make the belts a little more distinct, but I don't think I saw anything with the filter that I couldn't see without it. The article in the September 1997 Sky and Telescope was helpful in sorting out what I had seen.

Saturn was also impressive. The Cassini Division was easily seen at the east and west edges of the rings, where they "make the turn" around the back of the planet. With effort, the Division could be followed almost entirely across the front of the planet. I wasn't able to distinguish the B and C rings clearly. There was a dark "ring" of sorts visible just above the rings as they crossed the front of the planet, but I couldn't be sure if this was the C ring or the shadow of the rings on the planet. A single dark band was visible on the planet's northern hemisphere, no other markings were visible. Observations were again made at 167X and 200X.

I next attempted to find Uranus and Neptune with my binoculars as Bill Aquino has mentioned at recent club meetings. Uranus went smoothly enough using the finder chart in the May 1997 Sky and

Telescope. The view through the scope was of a small green-gray dot, confirming that I was on target. Neptune, however, was a different story. The indicated location was fairly low on the horizon, and the binos were showing almost no guide stars whatsoever. After a few more attempts, all of which lead to completely blank areas of the sky, I gave up. I'll have to try earlier in the evening next time. An unexpected bonus was the "discovery" of several binocular double stars in an area of the sky I seldom look towards, including α 1,2 Cap, β Cap, ψ Cap and ζ 1,2 Cap.

Finally, I tried to track down the asteroid Vesta, the brightest asteroid of 1997. Unfortunately, the asteroid was near the almost full moon, and I found myself in the same situation I was in with Neptune. With a washed-out sky, no guide stars, no way to pinpoint the position of the asteroid, and no patience left in reserve, I gave up the hunt. I'll give this one another try in a couple days, this way the moon will be out of the way and picking out the asteroid may be a bit easier.

Bob Titran

Smudges of Gray

While looking, from memory, for the large open cluster NGC 752 in Andromeda with the 20" Dobsonian at 60x, Tom Bemus and I bumped into the NGC 708 galaxy group. The whole group fits within the 1.1° field of a 40mm MegaVista eyepiece. The group consists of 9 "bright" members of mag 12.7 to 14.5 and several fainter "hints of smudge" in an area of .7° diameter. Surrounding this group of galaxies were 7 more galaxies (a couple were smudge) arranged in a rough circle .5 to 1° away. No details beyond shape were seen, but to see that many galaxies at once was a special treat. 200x helped to define their contours. Aligning Tom's 8" on the same field revealed a mottled patch where the group lay.

NGC 752 lies 1.5° to the northeast and is a huge 3/4° cluster suitable even for 3" scopes and binoculars. Supposedly it is visible to the naked-eye. I'll need a newer eyeglass prescription before I try that!

Bill Smith

ASTRONOMY WORKSHOP

Friday, October 10th, marked the astronomy workshop sponsored by the BAA under the auspices of Erie 1 BOCES. The purpose of the workshop was to introduce topics in astronomy to science teachers that could be presented in their classrooms, and to provide information to the teachers for their own use in class. Jeff Arnold of Erie 1 BOCES, Carl Klingenschmitt and I coordinated the effort.

Thanks go to the presenters, all of whom, other than Carl Klingenschmitt, are BAA members. Several took off from work to further this BAA effort to promote astronomy in the schools. These speakers were:

Joe Orzechowski-----	"Scale of the Universe"
Carl Klingenschmitt---	"Artificial Satellites"
Rowland Rupp-----	"Voyager"
Jack Mack-----	"Cosmology"
Dan Marcus-----	"Photographic Tour of the Heavens"
Darwin Christy-----	"Comets-Their Origins"
Rowland Rupp-----	"What Is a Star"

How well the meeting was received will be seen by how many requests for speakers in the classrooms follow. The initial reaction of the audience appeared favorable. A specific request for a talk on telescopes and observatories was made by one of the teachers. Other topics that had been suggested earlier by science teachers appear in the September-October 1997 SPECTRUM. Anyone who has one of these talks, plans to develop one, or has a talk on a different subject that he or she believes would be appropriate for this program should contact me.

Rowland A. Rupp, 839-1842

Hey, Look on the Bright Side continued from page 1

solar eclipse of 1994, and a TV news van came to the Observatory to televise last Spring's lunar eclipse. Local scout and school groups are frequent Observatory visitors. Club members have appeared on local radio and TV, have written articles for the Buffalo News, and continue to support the Buffalo Museum of Science's astronomy programs. Members frequently lecture to school and other community groups, and some teach their own continuing education classes on astronomy. Most recently, several members presented a workshop to local teachers as part of an effort to improve teacher's knowledge of astronomical topics.

Club members have also done a great deal simply as part of enjoying and sharing their hobby. The club has a small, dedicated group of CCD camera users. Numerous members took advantage of Comet Hale-Bopp to try their hand at "old fashioned" astrophotography. Club members produce some top notch lunar, planetary and constellation photos. Many members have hosted star parties, and the BAA is represented at several nearby regional star parties. Hey, we've even got our own web site.

What's the bottom line? Yes, the club could be more active, more visible, more organized. So could NASA, so could most organizations – and I think it'd be silly to feel otherwise. But we've accomplished quite a bit lately, and we have a lot to be proud of.

Bob Titran

LITTLE GAS GIANTS

When you mention viewing the gas giants, most amateur astronomers naturally think of Jupiter or Saturn which are favorite targets for many telescopes. There are however two additional gaseous giants, Uranus and Neptune, distant members of our solar system and planets I had yet to see for myself. They are currently located close to one another in the constellations of Capricornus and Sagittarius respectively. During autumn this region of the night sky is close to the meridian at dusk making it a convenient time of the year to search for them. I decided to "go for it" and began reading up on the planets in preparation. Uranus and Neptune are much smaller and considerably farther away than Jupiter or even Saturn. Think of them as Little Gas Giants. Uranus has an equatorial diameter of 51,118 kilometers compared to 142,800 for Jupiter. In addition, Uranus is positioned 19.1 AU's from the sun while Jupiter is at only 4.2, a considerable difference in both instances. Neptune is even worse. It is slightly smaller than Uranus (50,538 kilometers at it's equator) and is positioned a whopping 30 AU's from the sun. Because of Pluto's eccentric orbit Neptune is currently the most distant planet in our solar system, marking the inner boundary of the Kuiper Belt. Could this small, non-stellar object, be seen from my backyard using only binoculars or a small telescope?

To find out if it was possible a star chart would be essential. Capricornus and Sagittarius are fairly large constellations and having a good idea of the planets positions before pointing my telescope would really help. I found two good positioning charts which showed both planets location. The first is on page 84 in the May 1997 issue of Sky & Telescope, while the second is on page 93 of "Skywatch 98", a yearly observing guide published by Sky & Telescope. The chart in Skywatch 98 is the better of the two because it plots both planets positions from the fall of 1997 all of the way through to the end of 1998. But the problem with this chart is that it's too small (3 1/4" X 4 1/2"), difficult to read with a red flashlight, and it's cluttered-up with 15 months worth of positioning information. Something much larger and easier to read would be better. My solution was to borrow a decent star chart from the club's library ("Atlas of the Night Sky", BAA library book #007) then xerox, and enlarge to 11 x 17 inches, the section of sky that was needed. For quick referencing a copy of the small positioning chart from Skywatch 98 was placed into the upper corner. An

added benefit to this method was that observational notes could be scribbled directly onto the chart and fresh copies could be made if the original became damp and unusable. Armed with the home-brew chart I was ready to start looking.

Uranus has a visual magnitude of 5.7 which is barely detectable with the unaided eye at a very dark site, and completely invisible from my suburban backyard. Neptune has a visual magnitude 7.8 and requires an optical aid in order to see it. I decided to start with binoculars (7x35) and look for Uranus first. It wasn't too difficult to find thanks to it's respectable magnitude. Uranus is currently positioned about 1 degree south of the star Omicron Capricornus. Neptune on the other hand, is completely invisible in binoculars from my backyard (there is a street-light in front of the house). This forced me to switch over to a small refracting telescope (60 mm aperture at 15X magnification). It took quite a bit of hunting to find this planet because there are no bright stars anywhere nearby during this portion of it's orbit. Neptune is slightly north and west of the globular cluster M75 (also very dim). I carefully marked the observed positions of both planets on the chart for later reference. Each planet appeared as a star-like point of light in the small refractor so my sighting was based on position only. To be absolutely certain I had found them, each of the points of light would have to be resolved into a disk. This would mean a trip out to the observatory to use larger telescopes at a much darker site.

Both of these planets have a very small angular-size when resolved into disks through a telescope, so I decided to use the 20" dobsonian for the job. Uranus has a disk size of 3.7" (arc-seconds) while Neptune appears as only a 2.3" disk. Contrast this with Jupiter's disk size of 46.5" and Saturn's at 19.5" then you can see why I thought the dobsonian was the best instrument to use. Sunday following the Harvest Moon was the next clear night and I was off to the observatory. Using the positions already marked on the chart, I managed to find both planets again and confirm the earlier sighting from my backyard with the small refractor. The dobsonian did do a good job at resolving the planets into disks, as expected. However, this can be a difficult telescope to observe with. It does not track, so frequent adjustments to compensate for the Earth's rotation are necessary. This time of year the ecliptic is quite low to the southern horizon and this put the scopes eyepiece at a very uncomfortable position. It was too low to allow me to stand erect and to high for using a chair, so I had to bend slightly forward at an awkward angle to line my eye up with the eyepiece. This angle got progressively worse as the planets began to set in the west. My lower back was sore for two days after this observing session. The spotting scope on the dobsonian is also somewhat of a nuisance. It's eyepiece is too close to the main tube making it difficult to see through. And although the spotting scope has a wide field of view, only the brighter stars can be seen clearly. Anything at magnitude 6.0 and lower is easy to pick out. This included Uranus at magnitude 5.7, so finding and resolving this planet was quick and easy. Neptune is fainter at magnitude 7.8 and is barely perceptible in the finder scope. It took me quite awhile to locate and resolve this planet. Also, the finder scopes crosshairs are very faint which makes it difficult to know whether or not the telescope is pointing correctly. All of these little things combined to make finding Neptune a real chore.

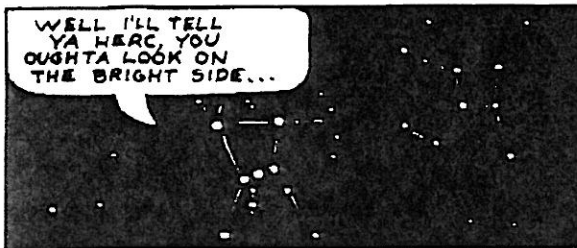
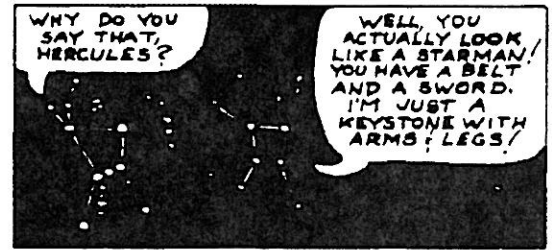
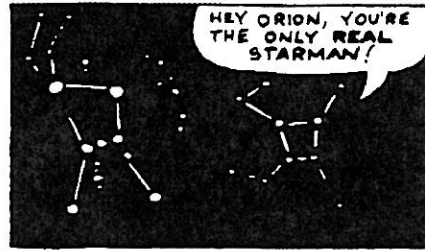
On a subsequent trip to the observatory about a week later, I found the planets again, but with the club's 12 inch "equatorial" reflector instead. This is a much more civilized telescope. The optics are not as dazzling as in the 20 inch dobsonian but the instruments usability compensates for the lesser imaging. It also has far superior "spotting" capabilities making it easier to find objects in the first place. The scopes tracking feature and overall mechanical stability allowed me to change eyepieces without re-aiming as was sometimes necessary with the dobsonian, this was a blessing. But it's best feature by far is the ability to rotate the entire tube, allowing the eyepiece to be placed in a comfortable (painless) position while viewing. It is a bit complicated to use, but once you figure it out this is a nice telescope to observe with.

Were all of these efforts worth the view? After all, I did not see any planetary ring systems, like you do when observing Saturn. And I didn't see any atmospheric features like on Jupiter. Both Uranus and Neptune simply appeared as very small, featureless, almost colorless disks, at their very best. Even Mercury and Venus are more exciting to look at than these

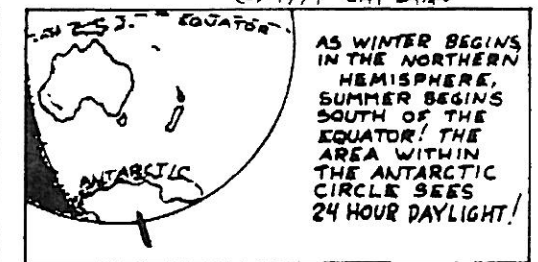
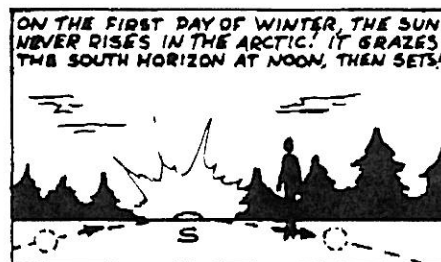
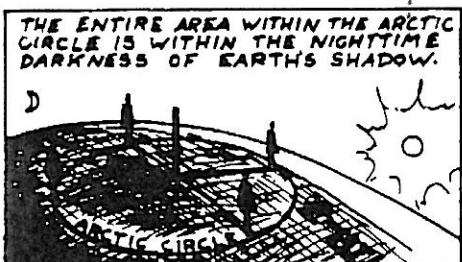
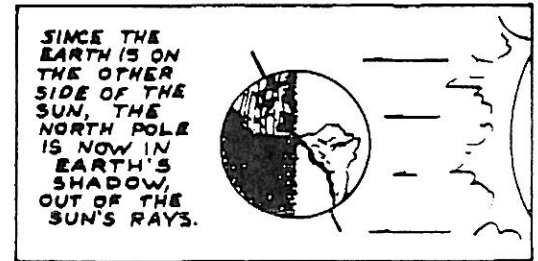
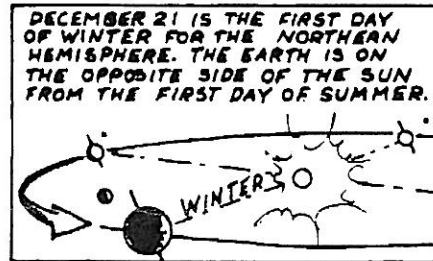
(Continued on page 7)

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

For November



For December



POETRY CORNER:

Yes truly,
A rainbow in the middle of the night;
'Tis the light of the moon by which it shines;
'Tis a strange and wonderful omen
That few people have ever seen;
'Tis double; look: a paler one above.

— Shiller, William Tell

Little Gas Giants continued from page 6

two planets! But overall I guess I would have to say yes, it was worth the effort. Through my observations and efforts I have gained a much better understanding of our solar system. And to me the "little giants" are no longer dots on a chart or pictures in a magazine, they are real worlds. I know, because I've seen them for myself.

If anyone would like a copy of my home-brew star chart let me know, and I'll be glad to send you one. It may save you some time if you decide to search for these planets yourself. I also came across some good articles while reading up on Uranus and Neptune that you might find interesting; SKY & TELESCOPE, April 1986, page 333, "A place called Uranus". SKY & TELESCOPE, September 1996, page 38, "Neptune at 150". ASTRONOMY, September 1996, page 42, "Neptune's discovery 150 years later". ASTRONOMY, July 1997, page 50, "Observer of the Gas Giants".

Bill Aquino

BAA Web Site

Mark Reville had designed and loaded a web site for us. More details in the next SPECTRUM. Call Mark at 627-4213 for the site address as your editor "left it where he wouldn't forget it"...

Happywords

WE WISH YOU ALL:
GOOD THINGS, HEALTH &
HAPPINESS FOR YOU AND
YOUR FAMILY AND
BEAUTIFUL ASTRONOMY
DURING THE HOLIDAYS
AND COMING YEAR!!

BEV & BILL
(YOUR EDITORS)

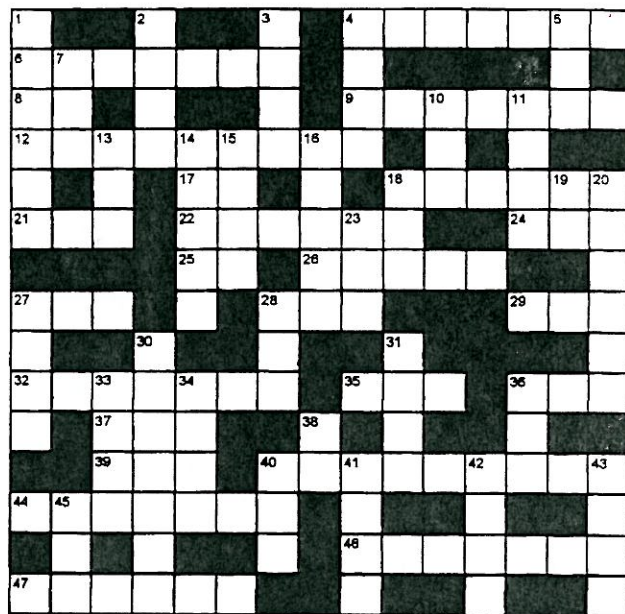


Crossword

Across

Down

- | | |
|--------------------------|------------------------|
| 4 Lunar phase | 1 Milky Way |
| 6 Not professional | 2 Sun |
| 8 Fa. so | 3 Blocks horizon |
| 9 Driven to observatory | 4 1987A Super |
| 12 M31 found here | 5 Black gold |
| 17 Sun god | 7 Male |
| 18 Work | 10 Make a noise |
| 21 Pitch and | 11 Fanatic group |
| 22 Starry Messenger home | 13 Condenses |
| 24 Big Bang | 14 Great nebula |
| 25 Interjection | 15 Reading writing and |
| 26 Whale constellation | 16 The Dragon |
| 27 Canine | 18 Consume food |
| 28 2000 pounds | 19 Exclamation |
| 29 M13 here (abbrev) | 20 Once every 365 |
| 32 The arrow const | 23 Centaurus (abbrev) |
| 35 What you breathe | 27 Dawn opposite |
| 36 Slippery roads | 28 Boston beverage |
| 37 H StarTrek Borg | 30 Creation start |
| 39 Small Business Admin | 31 What stars do |
| 40 Meteor trail | 33 Sudden wind |
| 44 Robbers exit | 34 Warming trend |
| 46 N.S.E.W | 36 Not well |
| 47 Many photons | 38 Mice and Men |
| | 40 Affirmative |
| | 41 Small hair |
| | 42 Spaces |
| | 43 Clean your mirror |
| | 45 Make mistake |



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Holiday Edition — it's the 11th month, do you where your renewal is? Hope it's sent in!