NOVEMBER-DECEMBER 1996

THE SPECTRUM

NEWSLETTER OF THE BUFFALO ASTRONOMICAL ASSOCIATION, INC.

MEETINGS NOTICE — FRIDAYS: DEC 13

Dec 13th: "Holiday Party" - Our December meeting will, of course, feature Edith Geiger's annual Candid Camera show. This presentation spotlights BAA members who have unknowingly or unwittingly fallen victim to her photographic snare. You're sure to enjoy this good-natured look at the lesser-known eccentricities of some of our members. The show will be followed by a Christmas Wine & Cheese party. Anyone who wishes to donate a few Christmas cookies for the party is welcomed to bring them along; they will be greatly appreciated.

Also welcome are any slides or short presentations members would like to show. It's open mike - open projector!!

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.

Call Bob Hughes (833-2407) to suggest meetings ideas or to volunteer for a talk.

HOLIDAY BUYERS ALERT

It's time for our annual warning. Spread the word. Folks should have only good astronomical experiences. What will you say when someone asks you: "You're into astronomy, what telescope should I buy?"

You need to ask what interests they have, what do they want to see, and what's the budget. There is a lot of department store junk out there and junk at any price isn't cheap! Not only do you feel cheated but the experience can turn one off to astronomy but quick! Binoculars (8x40 to 10x50) are a great way to start. Unfortunately they don't look like a telescope; most begineers do not give them a fair shake; and quite frankly they are boring for the under 14 set. While binos are essential to most experienced observers, it takes time to appreciate them. Taking time is a good thought: slow down and enjoy — the universe will wait for you.

REVIEW THIS ARTICLE:

Choosing a Low-Cost Telescope; Sky & Tel, Dec 1993

- Use just your eyes and binoculars first - if after 6 months you're still interested in observational astronomy, then go for a scope.
- Know the sky before you buy - what would you look for and how would you expect to find it? Visit your local or club library.
- Don't buy anything advertised by high power (aperture is more important).
- Shaky and wiggly mounts in a store DO NOT improve at home.
- Don't settle for smaller than 1.25" diameter eyepieces.
- Expect to spend $400 - there are no "good, cheap" scopes.
- Do go to public nights and star parties. Folks there can give wonderful "hands-on" instruction. Join an astronomy club. Your $15 membership opens the door to all sorts of equipment and to 'those in the know' that can get you going in the right direction.
- Spend time with your starry-eyed kids. They will need lots of guidance, patience and cheerleading. Astronomy's gift door opens slowly. It takes time and perseverence to get good peeks inside.

EDITORIAL: Bill Smith

IMAGINARY ROADBLOCKS

Astronomy is a great hobby. We are driven by interest and passion. We all have our niches -- archeoastronomy, spaceflight, observation, general interest and so on. Time draws demands upon us. Often it seems we do not spend enough 'quality' time on our astronomical hobby. Many reasons are given why we don't have (or take) the time. Mainly they are pure balderdash; just imaginary roadblocks! Some common ones ...

I can't do anything worthwhile with what I have. — Whoa, lighten up! This is a fun and relaxing hobby and both those adjectives can be suitable, worthwhile nouns. 'Serious' work can be an option at any scale. Rejoice in what you can do and don't dwell on what you cannot.

I can't afford to ...syndrome — Spending money does not have a bearing on enjoyment as long as you don't let it. Many free to low cost options are available. Club membership opens the door to $30,000 in facilities! A very special door to the universe is available just for those who use their naked-eyes alone. The truly inspired will see more than those more well off probably because they observe with focussed eyes and mind.

I really don't have the time ... — Snap out of it! Do you find yourself saying that about everything? Set aside some pure astronomy time and let another area take that excuse for awhile. Funny how it does work!

I don't know enough to get started. — You don't need to know music to enjoy it and you don't need to know orbital dynamics to be in awe of the beauty in Saturn's rings. Do 8 million American birders know in-depth ornithological details or do they just simply enjoy what they see?

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.

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

"Heaven's net casts wide. Though it meshes are coarse, nothing slips through." - Lao-Tsu

MEMBERSHIP CORNER

Joe Orzechowski

September and October have been very busy months for me at work, at home and at the BAA membership table. I'm always swamped with renewals at this time of year but this year I had to deal with the added difficulty of running out of membership cards. Of course, it was my fault for not placing an order with the printer sooner. Unfortunately, this meant that not everyone who paid their dues received a card and that the processing of mail-in renewals and membership applications was delayed. I do apologize to those members who had to wait a long time to get their cards in the mail. I'm finally caught up and renewals and membership applications are once again being processed promptly. But, if in all the confusion, your renewal fell through the cracks or you have not yet received your membership card, please let me know and I will straighten things out right away. The FTC (Fell Through the Cracks) Award this year goes to Frank Chalupka. Sorry about that, Frank.

If you haven't renewed your membership yet, you can see me at the next general meeting or mail your renewal to me at 125 Roycroft Blvd., Amherst, NY 14226. Hint: If you see a (96) after your name on the SPECTRUM mailing label, you're membership has NOT been renewed for the 1996-1997 year. The BAA is once again holding the line on prices with annual dues for each of the membership categories set at the same level as last year: $20 for Family, $15 for Individual, and $10 for a Student or Senior Membership.

September was a good month for new members. The following people have recently been added to the rolls of the BAA:

William Aquino
6965 Walmore Road
Wheatfield, NY 14304
731-9366

Dennis Hohman
4056 North Freeman Road
Orchard Park, NY 14127
662-2904

Regina Frank
65 E. Girard Blvd.
Kenmore, NY 14217
876-1069

Michael Ried
PO Box 761
East Aurora, NY 14052
655-2885

Allen Goodrich
1620 Grover Road
East Aurora, NY 14052
652-5254

Joan Riley
1340 Maple Road #5
Williamsville, NY 14221
688-1679

John Grimmer
348 W. Hazeltine Ave.
Kenmore, NY 14217
875-7157

Allen Goodrich scans the East Aurora skies with his Meade LX200. His primary targets? Planets and galaxies. Allen's other interests include electronics, amateur radio, computers and, apparently, writing. Allen has already submitted an article for publication in the SPECTRUM. The other new members said they used binoculars, a small refractor or no instrument at all to do their observing and every one of them indicated an interest in naked eye observing and constellations. These are exactly the kind of people who can benefit the most from joining the BAA. Hopefully, they'll learn a great deal from other members they meet at the meetings and out at the observatory. Our more experienced members can teach them about the stars and the night sky and about telescopes and what kind of performance to expect from them. Then, if any of these new members purchase their first scope or move up to a larger instrument, they'll be the "informed consumers" we keep hearing so much about.

Bill Aquino uses a Bausch & Lomb refractor and binoculars to do his observing. His other interests include scope building, CCD imaging, and electronics. Regina Frank scans the heavens with a pair of 10x50 binoculars and is also interested in computers. Regina, be sure to ask about the Skyglobe program which is available from the BAA. John Grimmer and Joan Riley both did not list any instrument on their application but have been observing through the club's scopes out at Beaver Meadow. John's astronomical interests range from constellations and aurorae to comets and galaxies. He also owns a computer and is skilled at wood working. Joan's interests include constellations, the planets and general astronomy. Dennis Hohman uses binoculars and a Celestron 80mm refractor to observe from his home in Orchard Park or out at Beaver Meadow. Planets and galaxies interest Dennis while his outside interests include amateur radio, scanners, electronics and computers. Please be sure to extend a warm BAA welcome to all of these new members when you meet them at the observatory or at our meetings.

GOT A QUESTION, GET AN ANSWER

I'd once again like to remind all our members, but especially our new members that I do more than just collect your dues once a year and keep the SPECTRUM mailing list current. I'm also here to make sure you get the most out of your membership in the BAA. If you're interested in helping out at the observatory, would like to host a star party, would like some help deciding on which piece of astronomical equipment to invest in next, or have any other question about astronomy or the BAA, please stop by the "membership table" at the back of our meeting room and see me or give me a call at 839-9109 or 632-7091. I'll be more than happy to take a stab at answering your questions or I'll direct you to the people who can help you.

BAA ANNALS

Rowland A. Rupp

5 YEARS AGO - The BAA's Dr. Gil Brink, professor at U.B., spoke at the November 1991 meeting on "Cosmic Confusion", a topic I'm sure he could hardly do justice to in just one hour. At the December meeting Tom Nigrelli gave us a summary of "December Skies", Joel Stuckey reported on the CCD camera committee and Edith Geiger finished with "Candid Camera". Wine and cheese followed.

The SPECTRUM had an article by Perry Pezzolanella on the approach of the Galileo spacecraft to the minor planet Gaspra. Ed Lindberg wrote on problems with telescope optics, addressing collimation, in particular. Buffalo State had just won an award from the Astronomical League and Sky Publishing Corporation for the Best Astronomy Day for 1991.

10 YEARS AGO - Art Gielow presented "Skywatchers of Ancient Mexico", a planetarium show at Buffalo State, where he is Planetarium Director. For December, we had John Yerger show us techniques for sketching astronomical objects. Edith Geiger followed, as did the Xmas party. John was Observatory Director at Beaver Meadow at that time. By the way, the Fall 1996 edition of Buffalo Spree had one of John's still life paintings on its cover.

Paul Noye had a short item in the SPECTRUM in which he showed that objects moving away from us in opposite directions at nearly the speed of light will move away from one another at a speed less than the sum of their velocities. His note, entitled "Two & Two Do Not Always Equal Four", reminded me that two occasionally equals one, as you shall see elsewhere in the current SPECTRUM. Edith Geiger did a profile on our Vice-President, Gene Witkowski. It's interesting reading.

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BAA Annals continued from page 2

15 YEARS AGO - Our November 1981 speaker was --ME. The topic was "Extraterrestrial Intelligence". Unfortunately, my plan to produce a little green man as an exciting conclusion went awry. This December also featured Art Gielow, as well as "members' photos". (I assume they were astrophotos, not portraits.) A wine and cheese party was to follow, but no mention was made of Edith's slide show. Can it be that she missed a year, or was "members' photos" a euphemism for her annual expose?

Edith did have a profile in the SPECTRUM on former member, Jim Machowski. "Celestial Boulders" was the title of Carl Milazzo's article on asteroids. Shawn Hardy had a brief article on "Misleading Terms in Stellar Astronomy" -- terms like: dwarf stars, blue giants and "early" and "late" type stars.

25 YEARS AGO - For November 1971 Dr. Fred West, a former BAA member and professor at Buffalo State, spoke on large reflecting telescopes. As was always the case back then, the meeting was held at the Buffalo Museum of Science where, afterwards, weather permitting, we would peer through the Kellogg 8-inch on the roof. Edith Geiger's Xmas topic that year was "You've Got to be Kidding". Ed and Olga Lindberg were to speak too, but their topic was unknown. A Xmas party in the museum's lounge was to follow.

Dr. Fred Price wrote a seasonal article, "The Star of Bethlehem". He explored several celestial phenomena that might account for the "star", before settling on a conjunction of Jupiter and Saturn as the most probable explanation. The third annual astrophotography exhibit, to be held at the museum in the Spring of 1972, was in the planning stage. Photographers with all levels of skill were invited to send in their photos.

35 YEARS AGO - Clark Chapman was our speaker at the December 1961 meeting. An expert observer, he spoke on "The Problems and Techniques Involved in Observing the Planet Jupiter". Others participating in that meeting were Karl Kalweit, who gave a report on the recent Soviet photographs of the far side of the moon, Daryl Krupp who gave the "constellation of the month" -- Cassiopeia, and Ron Clippinger who gave a short talk on "Astronomical Anecdotes".

Work parties were busy on most Saturday mornings building our Newstead Observatory. Both the Elementary and the Advanced Study Sections were planning meetings for the coming weeks.

SPY AND TELL

Edith L. Geiger

On September 17th, **Rowland Rupp** spoke to the Lions Club of Kenmore. His talk was on the BAA and also on the discovery of new planets.

Gail Willsky is a faculty member at the Medical School at UB in the Biochemical Department. She was in Hinsdale, Pennsylvania, at the time of the Perseids, with great hopes of seeing a spectacular display. Things started around 12:30 A.M. and she did see 6 or 7 beautifully bright meteors, but then, as one might expect, the fog rolled in and closed the curtain on the event.

August Grillo continues to play flute in the Amherst Symphony. He has been a member for 25 years. He also plays with Tony Piccolo's orchestra, "Music of the 40's." Augie has been doing some CCD imaging which was seen at Beaver Meadow on Astronomy Day last May.

Bill and Carol Smith have purchased 14 acres in Cherry Creek and plan to build in the spring. This will mean that they won't have to drive as far to attend our meetings.

Larry Picchione works as a school bus driver for the Ken-Ton Transportation Department. By some strange coincidence, he drives students on field trips to Beaver Meadow. He worked at General Motors for 26 years. When the foundry in Buffalo closed in 1984, he went to work in Defiance, Ohio for 6 years, retiring in 1990. He then returned to Tonawanda.

Gerry Hanley, one of our new members, lives in South Wales. He teaches phys. ed. in the high school and is also the football coach. He is a ham radio operator, and is now trying his hand at astrophotography, with a fine picture of Comet Hyakutake.

It was in Gerry Hanley's backyard in September that **Carl Milazzo** saw a very dull green glow on the ground about the size of a firefly. It was around midnight, the quarter moon had just set, and it was 40 degrees. Carl says it was a glow in the dark fungus with a strand like fiber, and it pulsated. He saw four in the same area.

Ed Cerasani has many interests. He graduated from Buff State with a Bachelors in industrial arts (now called technology). He became a teacher in Houston and Dallas where he taught science in education, and electronics. He is now working at A L Design, Inc. on Military Rd. in Kenmore, where they make load cell transducers for measuring force loads with an electrical-mechanical device.

From Sept. 28 to Oct. 3rd, **Darwin Christy** attended the reunion of the 70th Fighter Squadron of the 13th Airforce in WWII. The reunion takes place every two years, and this year it was held in Memphis. There are 148 squadron members still living, and 34 attended the event. They came from all over the U.S., with one coming from Hawaii. They enjoy the camaraderie of getting together to share memories of their mission in the South Pacific. Darwin is the official photographer for this very special occasion.

On Oct. 14th, Darwin and Ruth celebrated their 53 years of wedded bliss.

Happy Holidays to one and all!

PROFILE

Robert M. Titran

Bob was born in Columbia Station, Ohio, a small town about 20 or so miles southwest of the flourishing metropolis of Cleveland. It is a place where one knows most of the townsfolk, and can lie on the ground on beautiful clear nights and watch the twinkling stars, and meteors flying by.

Bob attended Copopa Elementary School, Columbia Station Middle and High School. He was always an excellent student, and in high school he won the Bausch & Lomb Science Award, and was a member of the National Honor Society.

After graduation, he enrolled at the University of Toledo, majoring in engineering physics. While there he became founder and president of the University of Toledo Wargame Club, where opponents move miniature armies around on maps, creating historical battles on a tabletop. Sometimes, according to their interests, they recreate fictional or hypothetical battles.

After 1 1/2 years at the university, he decided to transfer to Cleveland State University, where he majored in chemical engineering. He was a member of the student section of the American Institute of Chemical Engineers, and was its president for two years. He was also a member of Tau Beta Pi, an engineers' honor society. He enjoys baseball, so after classes he and his friends would walk to the Baseball Stadium to watch the

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SPECTRUM DEADLINE

The deadline for the Jan-Feb issue is

Dec 13th.

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

New	1st Qtr	Full	Last Qtr.	New	1st Qtr	Full	Last Qtr.	New
Nov 10	Nov 17	Nov 24	Dec 3	Dec 10	Dec 17	Dec 24	Jan 1	Jan 8

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

Astronomical Naked-Eye Sky Events In November

8	***6:25 AM***	***23°***	***ESE***	***Venus 3° above and bright star Spica 10° below the Moon***
9	***6:25 AM***	***12°***	***ESE***	***Excellent chance to see a very thin Moon!***
9 & 10	***daytime***	***solar views***		**Beaver Meadow Open House Call 457-3104 for events schedule. Observatory open Sat: 1-5 & 7-10pm; Sun 1-5 (day only)**
13	5:50 pm	13	SW	Can you spot star cluster M23 2° above & left of the thin Moon? - BINOS
14	5:15 pm	24	SSW	Jupiter 5° below and left of the Moon
15-20	6:00 AM	18°	ESE	Venus passes close to bright star Spica in constellation Virgo
18	☆ ☆			Fair conditions for Leonid meteor shower (quarter Moon in evening sky)
20	5:45 pm	33°	ESE	Saturn 5° right of the Moon

Try viewing the Leonids after midnight when the Moon is almost set.

Check out Comet Hale-Bopp in eastern Ophiuchus above M14.

Astronomical Naked-Eye Sky Events In December

3	6:50 AM	50°	SSW	Mars 4° above & left of the Moon; constellation of Leo above
6	7:00 AM	35°	SSE	Bright star Spica 3.5° below the Moon
8	7:00 AM	18°	SE	Venus 1.5° below and right of the Moon
11	5:00 pm	8°	SW	Mercury 7° left and bit below very thin Moon
12	5:00 pm	17°	SW	Jupiter 5° below and left of the Moon
13	7:30 pm			**MEETING of the BAA**
14	☆ ☆		***NE***	***Very good conditions for Geminid meteors; also good before midnight unlike most meteor showers.***
17	5:30 pm	17°	SW	Saturn 3° below & right of the quarter Moon
25-1/6	5:10 pm	7°	SW	Neptune 2° above and bit left of low Jupiter; closes to 1.5° on 12/31 - BINOS

Good year for the Geminid meteor shower.

Watch Mercury close in on Jupiter from the 11th to the 21st.

Venus will be becoming more prominent in the evening sky.

This could be last good month for Jupiter in the evening sky. It sets only an hour after the sun at month's end.

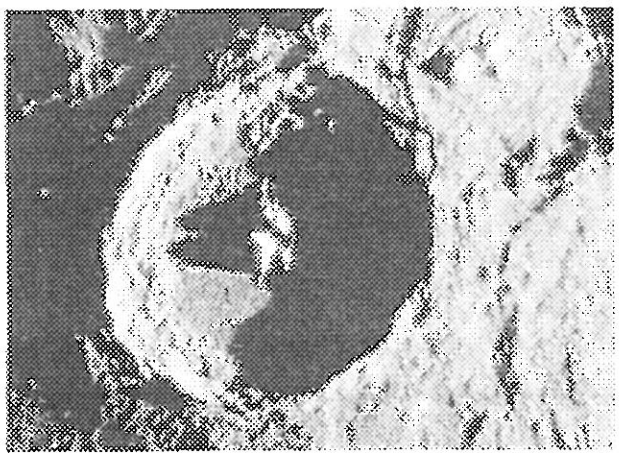
BEAVER MEADOW OBSERVATORY 457-3104

Congratulations and best wishes to **Neil Dennis** and **Dave Fliss,** the new Observatory Co-directors. Bob Titran and I would like to express our thanks to all of you who made being directors so much fun!

I intend to be holding ***CCD classes*** when the moon is not interfering this winter. If you wish to be included, or want to join in the photographic chase of Comet Hale-Bopp, please contact me at 773-5015. As the comet gets better at the end of winter, (keep your fingers crossed that it develops a great tail, and gets almost as bright as predicted) it would be helpful if we had a core group of photographers to keep track of the comet on all clear nights. This will require more than one person knowing how to do astrophotography. Of course if any of you artists out there wish to give us a hand with sketches, that would be great! Of course there will be a comet breakfast some time in February to catch it as it comes into the morning sky, so stay tuned!

Public Weekend: on Saturday November 9 there will be a bring a dish to pass picnic at the observatory starting around 4:30 pm. Public night is apt to be jammed, so please come on out and give us a hand. *[If you weren't at the monthly meeting this will be a past event. - Ed.]*

Observatory Users: The Observatory Combination will be changed on Sunday November 10 so get your dues paid and contact Dave Fliss or Neil Dennis about the new combination number.



Lunar crater Theophilus, on the western shore of Mare Nectaris.

photo by Gene Witkowski

Bob Titran biography continued from page 3

games.

It was at Cleveland State that he met Laurie Manista, a lovely young lady who was majoring in mechanical engineering. They graduated in 1990 and were married in 1992. They had the good fortune to become employed at DuPont in Niagara Falls, Bob as a chemical engineer in equipment reliability, and Laurie as a mechanical engineer and supervisor over a maintenance crew. They continue to work at DuPont.

The company sent Bob on a trip to Dayton, Ohio, to learn about chemical process pumps. He also went back to Dayton, and later to Chicago, to study failure analysis in which one examines a failed piece of equipment to determine what caused its failure and what steps are needed to prevent similar future failure, extending the operating life of a machine. Recently, Bob went to Charlotte to study vibration analysis, where one studies the way a machine vibrates, in order to diagnose its condition and hopefully detect an impending failure before it happens.

When Bob was in middle school his father purchased a 4" reflector from someone with whom he worked who was moving away and didn't want to take it with him. Bob's father has been a metallurgical engineer at the NASA Lewis Research Center in Cleveland for over 30 years. His field is in the use of refractory (high temperature) metals in space power systems.

When Bob came to Grand Island he brought the scope with him. He picked up a brochure at the Buffalo Museum of Science and found out about the BAA. He attended Astronomy Day at Buff State, and went to our 1992 May Dinner Meeting at the Lord Amherst, where he heard Bill Smith and Dan Marcus talk on their trip to Australia to photograph Comet Halley. Bob joined the BAA that year and has been a valued member ever since.

In addition to the 4" telescope, he now owns an 8" Schmidt-Cassegrain and an Edmund Astroscan. He is interested in general astronomy, planetary, lunar, deep sky, and auroras, and has dabbled a bit in astrophotography. He is extremely interested in solar astronomy, and thinks it would be great to someday do high resolution photos of the sun similar to the pictures of the moon taken by Gene Witkowski.

Bob has been co-director with Dan Marcus at Beaver Meadow Observatory. Bob has held this position from 1993 to the present. Their service to the BAA has been immeasurable.

Bob has found great enjoyment during the last 2 years joining several BAA members in their sojourn to Starfest for the four-day astronomy/camping event at Mount Forest, Ontario.

He likes to read science and technical books along with fiction and fantasy, and as he is a game player, he enjoys magazines on the subject. He continues to be enthusiastic about wargame events, and over the July 4th weekend of 1996, he attended the Origins National Gaming Convention in Columbus, Ohio. He played a number of games recreating historical battles in miniature, including an Allied mission to bomb an Axis industrial center, Napoleon's battle at Quatre Bras, and the Civil War battle of Atlanta.

Bob and Laurie find gardening very satisfying, and take delight in the great outdoors, and hiking those wondrous trails. They have taken short trips around New York State, either for a day or weekend, and have experienced the excitement of white water rafting on New River in West Virginia. They have also camped at Letchworth and Allegany State Parks.

They joined the museum Hiking Club, and found great pleasure in traveling the Bruce Trail in Canada, and the Finger Lakes Wine Trail. It is not an organized hiking club as such, but they see many of the same people on the hikes. Bob and Laurie have trekked through Buckhorn Island State Park on Grand Island, and strolled along the banks of Cattaraugus and Chautauqua Creeks with groups that finally found themselves stomping up the middle of the creek! What fun!! A couple of years ago, they spent four days in the Adirondacks on Long Lake and environs and hiked up the long, difficult, treacherous, rocky trail to the top of Blue Mountain.

Last August, Laurie and Bob found another interest when they had an opportunity to learn about kayaking. They signed up for a canoe trip from the locks at Lockport to Gasport, which ended up being changed to a sea kayak trip. A gorgeous day, and a great time! They have added cross-country skiing to their outdoor activities, and have glided over the snow on Grand Island and at Tifft Nature Preserve.

Bob and Laurie have season tickets to the Kavinoky Theater at D'Youville College, as well as season tickets for the Buffalo Bandits Lacrosse Team, and as Bob says it "ensures that we are exposed to approximately equal amounts of culture and roughhousing."

Bob is a well-mannered, affable, intelligent gentleman with an alert mind, a warm personality, and a willingness to help wherever needed. He is our newly elected member of the Board of Directors in which he will have much to offer for the future of the Buffalo Astronomical Association.

Edith L. Geiger

Something to do on a Cold Evening

Burrr...it's dddark and cccold out there but I want to do some astronomy. If observing this time of year is not your thing and when a book won't do, then there's the Internet. Some warm viewing of the sun will surely brighten even the bleakest cloudy day. Yes, you can do solar viewing on the Net, almost live too. Anyone who has spent time on the Net has discovered THERE IS A LOT OF STUFF — some good, a lot only fair to really bad. Where is all the good stuff? I don't know but I do have three excellent sites for solar viewing.

MEES SOLAR OBSERVATORY
http://www.solar.ifa.hawaii.edu/mees.html
Daily white light, Ca-II lines and polarimeter images.

BIG BEAR SOLAR OBSERVATORY
http://sundog.caltech.edu/cgi-bin/daily.cgi
ftp://suncub.bbso.caltech.edu/wlfulld/wd1996/
Daily white light, H-alpha images and solar web connections.

NASA SOLAR DATA ANALYSIS CENTER (SOHO)
http://umbra.nascom.nasa.gov/sdac.html
See the sun in a different light (the far-ultraviolet). Much detail here even when not a single white light sunspot is visible. Solar news items, solar mission info, the Yohkoh X-ray archive, radio images and NASA web connections. Coronal movies can be viewed too.

Solar viewing the Internet way is perfectly safe. No need for expensive solar filters or taking time off from work. Past events are recorded and available at the touch of a few keys. Much factual information as well. Lots of areas to explore and hypertext links to them. Now if only that darn sun would show a few spots ...

- Bill Smith

INTERESTING ARTICLE?

What areas on the Internet *have you found fun. Send them in to the SPECTRUM. Sharing is always in season. Submissions make great holiday gifts. Your editor would really rather place articles than write them!*

OBSERVING REPORT

Throughout the first week of October, I was able to view Mercury, Regulus, Venus and Mars lined up in the morning sky. Over the course of several days, it was easy to see Venus's position relative to Regulus change slowly.

- Bob Titran

"We owe our corporeal existence to events that took place billions of years ago, in stars that lived and died long before the solar system came into being." - Robert Jastrow

THE UNIVERSE - A Unified Theory of Mass Energy Space Time Frame Mechanics

RELATIVITY - As Defined by the Modified Kepler Equation for Mass Energy Space Time

1. Motivation for a New Theory of the Universe

Most scientists realize that the current theories of physics do not adequately account for the complete nature of the universe. Many unexplained phenomena still exist. The normally accelerating electron does not radiate energy and fall into the nucleus of the atom. No adequate definition of gravity exists. How does the photon sometimes act as a particle and other times as a wave? A unified theory that includes gravitation and electromagnetic effects is needed. But one does not have to look this deeply into the theory of physics to find unexplained phenomena.

The ocean tides are a good example of an unexplained phenomenon. Oh, one says "The gravitational theory explains the tides." If one looks into the dictionary or encyclopedia, it shows the high tide occurring under the full moon as would be predicted by the current theory of gravitation. However, if one walks on the ocean beach under the full moon, one observes that the beach is widest and that the tide is at its lowest level. This is a direct contradiction. Tides cannot be caused by the flow of several feet of water around the earth in a day at speeds of a thousand miles an hour. This would wash away all of the continents in a day.. The human race could never survive in such a circumstance. We owe our very existence to a universe that does not obey the current law of gravitation. One law of nature is compatible with all of these unexplained occurrences. The law of conservation of the total energy of the universe explains all of the previously unexplained occurrences. This new unified theory of the universe agrees with nature. As the moon moves toward one side of the earth's water, the distance decreases and with the decrease of distance the potential energy increases in this direction. Potential and kinetic energies are directional. To preserve the constant total energy, without a flow of very large amounts of energy, the kinetic energy must decrease in this direction and with this the volume of the water must decrease causing the low tide. No force of gravity, as it is commonly thought of, is necessary. Mass, time, gravity, centrifical force, the photon, and electromagnetic effects are all easily explained by this new unified theory which is demonstrated by its agreement with nature.

2. EQUILIBRIUM - Mass, Energy Transfer, Planck's Constant, The Photon, Gravitational and Electromagnetic Fields, Gravity, Matter, and Antimatter.

EQUILIBRIUM is a state of constant total energy of the system. No total energy change takes place.

Planets orbit the sun in a state very close to equilibrium. The electron of the atom is in a state of equilibrium relative to the rest of the universe when no energy transfer is occurring. At equilibrium a positive change of total kinetic energy density relative to the rest of the universe is always accompanied by a negative change of total potential energy density relative to the rest of the universe.

Kinetic energy (MASS) is angular acceleration $1/t^2$ of inertia mL^2. Relative to the rest of the universe, an increase of the total amount of mass m (angular acceleration of inertia mL^2/t^2) must be accompanied by an equal but negative change of the total potential energy of m relative to the rest of the universe (M-m) where M is the total energy of the universe.

THE FUNDAMENTAL EQUATION of the universe is an expression of constant total energy of the universe. For every value of m relative to (M-m) there is a definite value of $mL^3/t^2 = K(M-m)m$ or relative acceleration of the volume of m which is equal to a constant K(M-m)m.

The addition of a PHOTON of energy to m would be equal to a photon change of the potential and kinetic energy relationship of m, a change of volumetric acceleration of m, relative to the rest of the universe (M-m) according to the fundamental equation of the universe $mL^3/t^2 = -K(M-m)m$ and as a result at equilibrium:

$$+ \text{delta } mL^2/t^2 = - \text{delta } K(M-m)m/L$$

where delta means "change of". No change of the total energy M of the universe can occur. If the total kinetic energy density increases the total potential energy must decrease by an equal amount. Any expansion of the total universe is an expansion relative to mass and is a decrease of the total potential energy of (M-m) relative to m and therefore an increase of the total kinetic energy of m relative to (M-m).

The ocean tides are an example of this energy equilibrium. As the moon moves toward the water of the ocean on one side of the earth, potential energy increases with the decrease of distance and the kinetic energy decreases in that direction reducing the volume of the water and this causes the low tide. Many observations show that the low tide occurs directly under the full moon. This is not the high tide that is predicted by the dictionary and encyclopedia according to the current physics theory of gravitational force of attraction. In fact this is the direct opposite.

We see that energy is conserved in the moon-earth system as the moon moves toward one side of the earth. However, to conserve the total energy of the rest of the universe, as the moon moves away from a point on the earth the potential energy decreases and the kinetic energy increases, thus increasing the volume of the water and increasing the tide at that point. The high tide occurs in the rest of the effective universe or in the earth's ocean at right angles to the low tide. This is the same mechanism that causes the planar nature of the solar system and many of the extragalactic systems.

As the universe expands relative to the galaxy, potential energy of the rest of the universe decreases relative to the mass of the galaxy and the potential energy of the mass of the galaxy increases relative to the rest of the universe, because all changes are relative. Its kinetic energy decreases in that direction of relative contraction. In a direction perpendicular to the direction of contraction there must be a relative expansion of the galaxy or a relative potential energy decrease and a kinetic energy increase. The kinetic energy of the galaxy increases in this direction at a right angle thus causing the planar nature of the galaxy and the gravitational field.

ENERGY TRANSFER is a change of the state of the equilibrium or a change of relative energy density. Relative kinetic energy changes can occur without a change of total energy relative to the rest of the universe or without an energy transfer occurring only if an equal negative potential energy change takes place at the same time. An energy transfer is a change of relative total acceleration. Equilibrium exists only because no energy transfer, or change of acceleration and energy density is occurring. Kinetic energy and potential energy are states of acceleration. Kinetic energy is relative angular acceleration of inertia and potential energy is relative acceleration of distance. At equilibrium the sum of these two energies or accelerations is a constant which is designated by the fundamental equation of the universe. The QUANTUM nature of the universe is determined by the physical nature of the transmitter atom relative to the receiver universe (the relative frequency v = 1/t). Planck's constant h = the quantum E/v and

$$hv = h/t = E$$

where

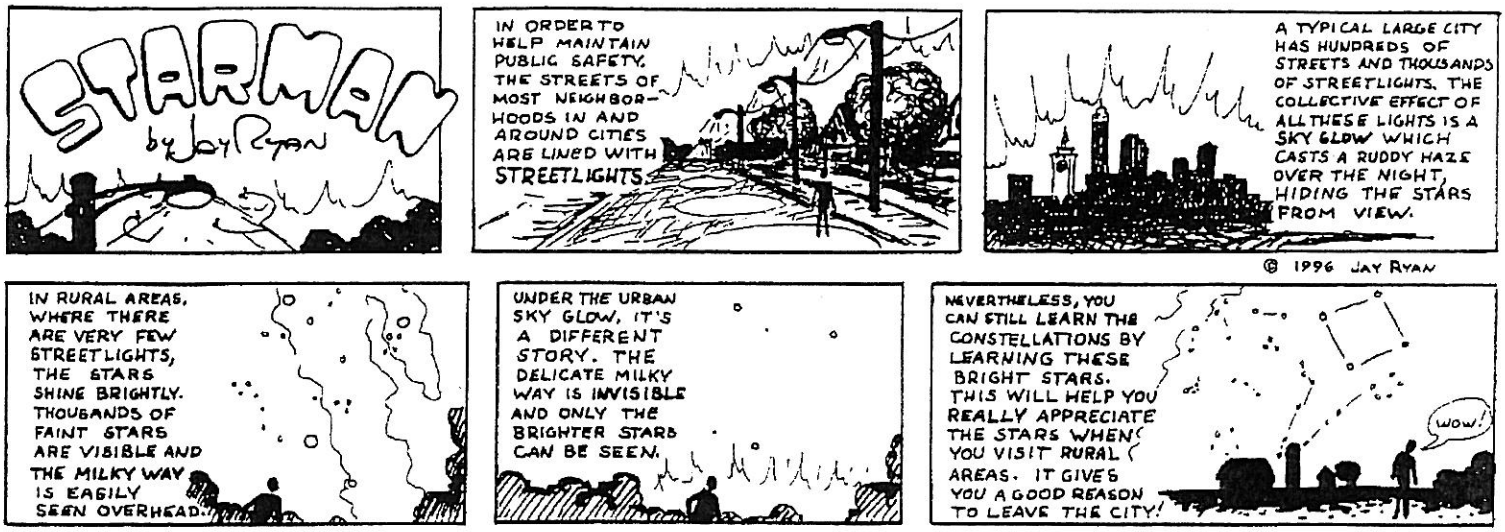
$$E = \text{delta } [mL^2/t^2 + K(M-m)m/L] = \text{THE PHOTON or quantum}$$

An increase of the total energy of m is a transfer of energy from the rest of the universe (M-m) to m in the form of a photon. The relative frequency v of m relative to (M-m) determines the size of the photon when the values of m and L^2/t^2 and (M-m) are fixed by the fundamental equation of the universe $mL^2/t^2 = K(M-m)m$. The value of h would also be fixed by the values of m, L, $1/t^2$, 1/t and (M-m) -- the change of time with time. The photon is a change of the potential and kinetic energy of the rest of the universe relative to the change of the kinetic and potential energy of an electron of a special frequency, direction and density.

(Continued on page 8)

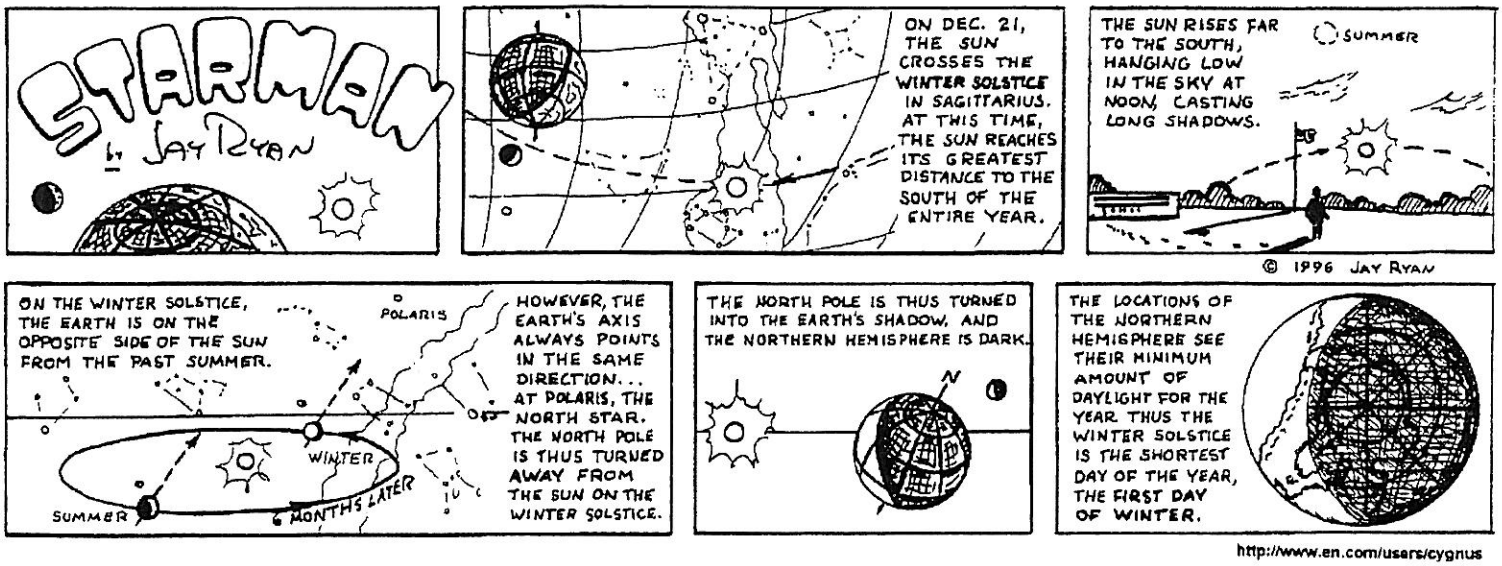
The following 'educomics' are supplied by Jay & Debbie Ryan, two amateur astronomers from Cleveland, Ohio.

For November



http://www.en.com/users/cygnus

For December



http://www.en.com/users/cygnus

POETRY CORNER:

CYGNUS X-1

In the constellation of Cygnus
There lurks a mysterious, invisible force
The Black Hole
Of Cygnus X-1
Six stars of the Northern Cross
In mourning for their sister's loss
In a final flash of glory
Nevermore to grace the light ...

[from the Rush song "Cygnus X-1" on *A Farewell to Kings* LP, the song portrays a spaceship voyage through a black hole with good imagery of the immense gravitational pull of a collapsed star]

LOOKING FOR CONTRIBUTIONS!

We are not only looking for submissions but also any suggestions about what you'd like to see.

The SPECTRUM will only be a success if you participate.

Submissions make great holiday gifts.

FOR SALE:

BURNHAM'S Celestial Handbooks, vols. 1-3, softcover. The set for $20. They retail for $35-40. Encyclopedic and indispensable (I have 2 sets, keeping 1). Call Bill Smith, 664-0841.

"Stars are like animals in the wild. We may see the young but never the actual birth, which is a veiled and secret event." - Heinz Pagels

The universe .. continued from page 6

TIME is a function of relative density as expressed by the fundamental equation of the universe $1/t^2 = KM/L^3 - Km/L^3$. The fundamental equation of the universe defines time as the difference of the density of m and the density of M. Energy change multiplied by the time in which the energy change took place, the action, is called Planck's constant. This constant, h = Et could only exist if values of E and t were related to the rest of the effective universe as defined by the fundamental equation of the universe.

GRAVITATIONAL FIELD is the relationship of relative volumetric acceleration of energy m and the values of m and (M-m) according to the fundamental equation. The greater the relative mass density or angular acceleration of inertia, of m, the smaller the relative volumetric acceleration:

$$mL^3/t^2 = K(M-m)m \text{ or } 1/t^2 = KM/L^3 - Km/L^3$$

Gravitational force is the product of the effective acceleration of gravity g and energy m. Where g = the effective linear acceleration $KM/L^2 - Km/L^2 = L/t^2$ according to the fundamental equation:

$$\text{Gravitational force } Fg = mg = m(gM - gm)$$

or

$$Fg = m(KM/L^2 - Km/L^2) = mL/t^2$$

where KM/L^2 equals linear acceleration gM of the relative universe and Km/L^2 equals linear acceleration gm of the mass m, both according to the fundamental equation of the universe. The effective linear acceleration g would be gM - gm. It is apparent that this equation is derived from the fundamental equation of the universe $1/t^2 = K(M-m)/L^3$ and that for a particular value of m, volumetric acceleration L^3/t^2 equals a constant K(M-m). As the value of m changed, the value of volumetric acceleration would change. The relative volumetric accelerations of two values of m would be observed as an apparent gravitational force or a relative acceleration of mass.

(to be continued.. Gravitational and Electromagnetic Fields, Time and Distance, Electron and Positron, Angular and Linear Kinetic Energy, Angular Momentum and Energy Transfer)

Allen C. Goodrich

TWO PLUS TWO EQUALS ONE

Seeing Paul Noyes' article in an old SPECTRUM about two & two not always equaling four reminded me that that shouldn't surprise anyone since two equals only one in the first place. Learning this in my high school days has been of immeasurable value ever since. While I've never claimed high distinction in mathematical prowess, I'm sure this simple algebraic proof will be as convincing to you as it is to me.

Start by setting X equal to one:	X=1
Then multiply both sides of the equation by X:	X2=X
Next, subtract one from both sides:	X2-1=X-1
Factor the left side:	(X+1)*(X-1)=X-1

Now, divide both sides by the factor (X-1):

(X+1)*(X-1)/(X-1)=(X-1)/(X-1)

Or: X+1=1

But, since we already declared X=1 in the first step, then 1 plus 1, or 2, on the left side must equal the 1 on the right side.

It's knowing little things like this that makes life so much more rewarding. Try this the next time you balance your checkbook. You will marvel at the wonders it will create.

Rowland A. Rupp

This reminds me of the cancellation by six rule of division (that seldom works): For example take $\frac{16}{64}$, *cancel the 6's:* $\frac{16}{64}$ *and you get* $\frac{1}{4}$!

-editor

BOOK REVIEW:

Bill Smith

OBSERVER'S GUIDE 1997 by Astronomy Magazine
OBSERVER'S GUIDE 1997 by Sky & Telescope Magazine

Both of these are magazine-like, low-cost guides not only to what's in the sky for next year, but are pretty solid manuals to amateur astronomy in general. While both magazines also have beginner's articles you would have to look through 5 years of back issues to match the content of these concise guides.

THESE GUIDES ARE GREAT AND SHOULD BE MANDATORY READING FOR ANYONE NEW TO ASTRONOMY.

Both guides cover a wide variety of topics. Each is also short enough to get through them. Both have articles that cover:

- an overview of current astronomical research and space probes
- advice on how to start out right in amateur astronomy
- how to choose and use binoculars; what you can see with them
- what to look for in a telescope
- a guide to comet Hale-Bopp which could be very good in Spring 1997how to orient yourself to the sky and use sky maps
- monthly star charts and selected wonders of the sky
- a simple lunar map and guide
- special observing problems and tips for observing from the city
- the appeal of astrophotography and what can be achieved with a stationary camera

also in these guides are listings of:

- meteor showers and how to view them
- astronomy clubs, conventions and planetariums
- review of home computer software
- review of recommended books
- what is on the Internet
- lots of amateur photographs that show the beauty of the universe

WHEW! Now that's a packed magazine. The many ads in these guides have some useful information in and around all the product hype. Personally I think Astronomy's is more logically organized and Sky & Telescope did a more thorough job with better monthly charts. Both guides have printed their star charts on dark backgrounds — bad idea as they are hard to read in the dark. Which is better? A tough call!

Experienced amateurs will need these guides less, but putting monthly sky events in one handy guide is worth the price. Specialized events such as lunar occultations, variable star maxima and the like are not here but are fully covered in the monthly magazine issues. Three words of advice: GO BUY ONE!

If you want to get started right or progress fast in this hobby then you'd be hard-pressed to do better than getting either publication.

- ***Both of these guides will be available for viewing at the membership desk November and December.***

Potporri ...

FREE:

10" f/5.6 tube on Dobsonian mount. No optics, focusser or finders. Can use 10" f/5.6 or faster mirror. 12" ID heavy fiberglass (3/8" wall) tube accepts standard mirror mounts. Very solid but heavy. I've used this scope for 16 years.

Call Bill Smith, 664-0841.

Hidden Hollow Convention

Six members from the Martz observatory attended what may have been the last Hidden Hollow convention in south central Ohio in September. Perhaps 300 people congregated this year to experience a mixed bag of weather, good talks, telescopery, a swap meet and observing. This convention was well organized with on-site camping and bunkhouses; warming room and the late night 'red-light' cafe. A variety of restaurants were a 12 mile drive away. Early fall touring, day hiking and selected tourist sites were available for non-astronomical family, the sleepless or those that didn't attend the talks.

The small, overworked staff did another excellent job. Their 31" Newtonian was available the whole weekend and was exceeded in size by the 36" 'yard' scope brought by astronomy diplomats Bob & Lisa Summerfield. Long lines at both were the rule but worth the wait.

Pretty cloudy weather on Friday night limited observing to Jupiter and Saturn. Saturday morning and afternoon were for talks, the swap meet and sale with a handfull of commercial vendors, touring the telescope field where just about any commercial and homemade scope could be seen, and catching up on sleep as the weather was improving remarkably.

The talks topics were 'Star Clusters' by Brent Archinal of the Naval Observatory; "Reflections of a Secondary Observer" -- a tongue-in-cheek presentation about living with a professional astronomer by JoAnne Archinal; "The Cassini Project for Saturn" by Steve Edburg; "Volcanism in the Solar System" by Sky & Telescope's Steve O'Meara and "The Latest on the Comet Impact" longingly told by David Levy. Perhaps the most interesting talk, actually an open forum, was scheduled for 8:30pm on "Where are the new members coming from?" and included member involvement issues. I don't know if it occurred or not as the crowd was definitely outside observing. Too bad, that would have been a good subject.

(Continued on page 10)

TELE TALK

• COLLIMATION HELP: Many folks put a black dot on the primary mirror's center and on the diagonal's center as an aid when using a Cheshire eyepiece. These two dots can be confused with each other. Better is to use a white paper hole reinforcement circle on the primary. The black diagonal dot is now much more obvious and the white circle is easy to see, even at night.

*** A supply of nice self stick plastic reinforcement circles will be available at the membership desk the next few meetings. Try them, they're grrrrreat! ***

NOW THAT'S DENSE

• BLACK HOLE DENSITY: The space between an atom's nucleus and its surrounding electrons is empty. In a black hole the electrons are crushed into the nucleus eliminating this space. How empty are atoms (and all matter)? If you compressed all the water in both the Atlantic and Pacific oceans they would form a black hole only a fraction of an inch across. (Stardate 10/95)

TRIVIA

compiled by Darwin Christy

The largest sunspot seen occurred in April 1947 and covered 6 billion square miles.

The endurance record for a sunspot was in 1840 when one spot lasted 18 months.

The brightness of the "first magnitude" is equal to the flame of a standard Plumber's candle as seen from one mile.

The total amount of starlight received by the earth is one fifteenth the light of the full moon.

The weight of sunlight on the surface of the earth is about two pounds per square mile.

The sun contains 98% of the matter in our solar system.

The star Epsilon Aurigae is the largest known star. It is 5000 times the size of the sun.

There have been over 14,000 objects launched into orbit around the earth. A third has fallen back.

Jupiter's moon Ganymede is the largest moon in the solar system.

The Great Red Spot on Jupiter is thought to be a storm thousands of years old.

The largest volcano in the solar system is on Mars (Olympus Mons). It is three times the height of Mt. Everest.

The largest canyon in the solar system is on Venus. It is over four times larger than the Grand Canyon and thought to be caused by a Venus-quake.

The center of gravity in the earth-moon system is 1060 miles below the earth's surface on the side the moon is on.

The asteroid Icarus orbits closer to the sun than Mercury.

Vulcan is the name of a planet thought to be between Mercury and the sun.

Only 200 stars have been given proper names.

There are only four stars that have a brightness over zero magnitude (Sirius, Canopus, Alpha Centauri & Arcturus).

The next magnitude is 2.512 times fainter than the one before it.

There is no true South Pole star.

There are 88 constellations that are recognized in current astronomy, equal to the number of keys on a piano.

The moon is moving 1/19 of a inch per second closer to the earth per year.

An average aurora can generate up to 50,000 volts at one million amperes.

The sun generates 70,000 horse-power per square yard.

In one million miles in its orbit the earth only moves 1/8 of an inch from a straight line.

The star Castor is really two sets of triple star systems.

The earth surface curves two inches per mile.

The earth's atmosphere contains approximately 40 million tons of water.

Most American meteorites have been found in the midwest.

If you wanted to look at telescopes and assessories there were plenty of all types and construction on the telescope hill. On site comparisons of the virtues of commercial vs. homemade; Dobsonian vs. driven; reflector vs. refractor are better at a convention than through a pile of catalogs. Opinions of the owners made it sound as if you were at a storyteller's convention or on PBS's 'Point-Counterpoint'.

Much better weather on Saturday night brought the observers out of the woodwork. A rare 'no dew' night made it a pleasure be outside. There was not a lot of touring the field going on as pent up observing needs kept most clustered around their own and their neighbor's scope. Dave Hecei & Marcy Kupiec managed to wade through the entire book: Overlooked Objects by Brent Watson finding all the objects in Marcy's new Portaball. A long clear night leaves plenty of time to just sit back and enjoy the night sky, resting both eyes and feet.

Conventions are a speed course in amateur astronomy. There is plenty to see, do and learn. Everyone is pretty open to help or explain their scopes, gear and philosophy. The usual comment after attending your first convention is 'Why didn't I do this 5 or 10 years ago!'.

- Bill Smith

1997 CELESTIAL DELIGHTS

Yes the BAA's naked-eye observing guide needs to be prepared.

Do you have a computer? Do you own a planetarium program and a word processor. Do they need exercise? Do you want to help your club, newsletter and have all sorts of public visitors take a little piece of you home?

If so then step right up! You don't have to do it alone. I can provide a lot of goodies ...

- 1996 Celestial Delights on many formats (my normal is MS Word for Windows) to act as a guide
- a planetarium program if you don't have one (SKYGLOBE, EZCosmos, DEEP SPACE or DISTANT SUNS)
- various notes and guides on how I did it
- a list of all those who respond — make it a group effort!

We really do need some fresh insight on this very visible public handout. Audubon moves a lot of these to their membership. A fun and great way to lend a hand. Contact Bill Smith, 664-0841.

Inside:

The SPECTRUM

BUFFALO ASTRONOMICAL ASSOCIATION, INC.

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125 Roycroft Blvd.
Buffalo, NY 14226

SPECTRUM NOTE

SPECTRUM IS ON ITS WAY!!!!

MEETINGS NOTICE

November 8th: "Long Period Variable Stars" - In commemoration of the 400th anniversary of the discovery of the variability of the star Mira, BAA member Joe Orzechowski will speak about the history, physics and observation of long period variable stars. Join us for this introduction to some of the more changeable members of the stellar family.

December 13th: "Candid Camera/Wine & Cheese Party" - Our December meeting will, of course, feature Edith Geiger's annual Candid Camera show. This presentation spotlights BAA members who have unknowingly or unwittingly fallen victim to her photographic snare. You're sure to enjoy this good-natured look at the lesser-known eccentricities of some of our members. The show will be followed by a Christmas Wine & Cheese party. Anyone who wishes to donate a few Christmas cookies for the party is welcomed to bring them along; they will be greatly appreciated.

Meetings: 2nd Fridays @ 7:30 pm Sept-June.

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

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

COMET ALERT

Comet Tabur (C/1996 Q1) is the latest to grace our night sky. For the particulars on this comet see page 10 of the November 1996 issue of SKY & TELESCOPE. On the evening of Oct 30th Comet Tabur will be shining at mag 6.2 about 1° NW of β Bootis, the star at the peak of the kite (or ice cream cone) pattern of that constellation.

BUFFALO, NY OCT 28 P M 1996

DEFEAT MUSCULAR DYSTROPHY SUPPORT MDAA

The SPECTRUM

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Have you renewed your membership? If your mailing label still shows '(96)' you need to renew. Get them in this month!!

BUFFALO ASTRONOMICAL ASSOCIATION INC.
RENEWAL APPLICATION

(If you have not moved since last year, we only need your name.)

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Membership Desired:

- ❑ $15 Individual
- ❑ $10 Student (to college undergraduate)
- ❑ $20 Family
- ❑ $10 Senior

Make checks payable to the Buffalo Astronomical Association. Please return this form with your payment to:

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