

# The Spectrum

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## Table Of Contents

Message from the President

Page 2

Observatory News

Page 3

Membership Corner

Page 3

Meetings

Page 3

Editors Note

Page 4

Star Parties

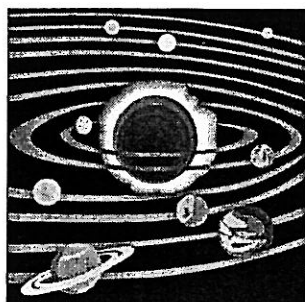
Page 4

Spy and Tell

Page 4

BAA Annuals

Page 7



## A Bulls - Eye by Bill Aquino

The ground-based study of GRB optical transients (OT's) is dependent upon spacecraft detection then localization of the brief gamma ray burst itself. These bursts are not of sufficient energy to penetrate the many miles of Earth's atmosphere so localization from the ground is impossible. The main localization spacecraft we now have available are the HETE II built by the folks at MIT (in near Earth orbit) and the Inter Planetary Network (IPN) currently composed of Kronus-Wind (in solar polar orbit) and the Mars Odyssey Explorer (in mapping orbit around Mars). The IPN provides good localizations but they are delayed up to 24 hours because of the time lags involved in receiving telemetry from these distant spacecraft. This means that for quick localizations we have all of our eggs in one basket, namely HETE II. Quick localizations are very important because within 24 hours the OT's have faded below the upper limit of most Earth based telescopes. Late notification that a burst has been "localized" equates to almost no data. If we are ever to understand GRB's its essential we have very quick and very accurate localizations of their positions in the vastness of the night sky.

HETE II was designed to do just that, provide ten-minute notifications and a 10 arc-minute error circle to search. Unfortunately, HETE II over the last two years has been having a lot of problems; an important sensor malfunctioned during launch, there were calibration issues, software and hardware problems, which all had to be overcome and work-a-rounds developed. The spacecraft has been limping along providing some decent localization's but most were often late and had large error circles sometimes involving vast areas of the sky almost impossible to search. However, the HETE II mission specialists have been working hard on the problems and on the night of August 13<sup>th</sup> 2002 at 02:44:19 UT their efforts paid off when they hit a dead-on Bulls-Eye. This set into motion an amazing sequence of global ground-based observations that illustrates "real-time" astronomy at its finest. **Table 1** lists the sequence of important events that occurred during the first 24 hours since the localization of GRB020813. I have culled these items from the flood of messages posted to professional and amateur GRB chat groups. Although the messages detailing each observation are posted sometimes many hours later after careful analysis, I have combined the observation and results together in chronological order so that you can follow along in sequence and see how the

(Continued on Bulls-Eye page 5)

## Unsung Heroes of the BAA by Carl Milazzo

Charles Kowal joined the BAA in 1956, and later got a degree in Astronomy from Cal Tech. For his entire career, he worked at Mount Palomar, where he discovered many asteroids and comets. He also proved that Galileo saw the planet Neptune. Kowal, in 1974, also discovered a moon of Jupiter.

Alan Gee was a BAA member in the 1960's and is an expert telescope maker, telescope-making judge and writer. Alan designed the first reducer lens for a telescope, which makes a telescope's field of view wider and faster photographically.

Clark Chapman was a BAA member in the 1960's who received his Astronomy degree from the University of Arizona. He is an expert on solar system astronomy and is an author of several astronomy books. In the 1970's, he gave a talk to our club about his recent adventure of an asteroid occultation across New York State.

John Riggs was a club member from the 1960's through the 1980's. He was a variable star observer and a member of AAVSO. He was a BAA officer and observatory director, telescope maker and astrophotographer. He has given several talks to our club, has written dozens of articles and started the club observing section, which ran for ten years.

Dale Hankin was a member of our club during the 1960's and 1970's and was very active at the club observatory. He was a member of ALPO (Assoc. of Lunar and Planetary Observers). He discovered several lunar domes. He was a deep-sky and asteroid observer and astrophotographer. He wrote a booklet jointly with Jack Newton on astrophotography and he created an astronomy magazine called Modern Astronomy.

Larry Hazel was a member of the BAA during the 60's and 70's. He was an officer and he gave several talks to our club. He was a member of AAVSO, and he has made over 30,000 variable star magnitude measurements. Also, he created over 200 variable star finder charts, based on his photographs. He made telescope optics, mounts and drive systems. From scratch, he made an H-alpha and Calcium line solar scope. He was an active astrophotographer and has observed many solar eclipses.

Wayne Johnson was a member of the BAA during the 1970's and later moved to California, where he became president of the Orange County Astronomy Club, which has over 500 members. He is often a speaker at the annual Riverside Astronomy Convention. He has discovered several supernovae and helped create the supernova search and monitoring network called Sun-Search.

Phil Cizdziel joined our club back in the 1970's. He was active at our observatory and the UB observatory. He gave several talks to our club, while at the same time he was a student at UB. He was the second person ever to graduate from UB with an Astronomy degree. Later, he got his Masters degree in Astronomy from the Uni-

(Continued on Heroes page 7)

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**BAA Web Site**

Tom Bemus and Bill Smith put together a club web site at :  
<http://members.aol.com/BufAstro/>

**Meetings**

BAA meetings are held on the 2nd Friday of the month from September to June in the New Science Building on the Buffalo State College Campus. Meetings start at 7:30 pm and all members and guest are encouraged to attend.

**Spectrum Deadline**

Article for the next Spectrum will be due by:  
October 18th 2002

**Message from the President by Joe Orzechowski**

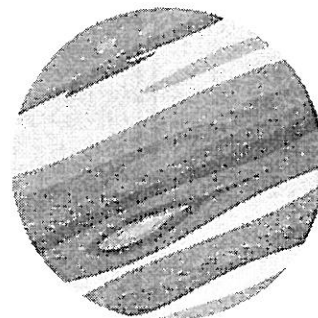
I'd like to start by welcoming my fellow officers for the coming two year term. Our Vice President is Dr. Jack Mack, Secretary Peter Proulx and Treasurer Bev Orzechowski. Our job is to handle the administrative chores of running the BAA and to do the best we can to ensure that member wishes are addressed. So, if you have any questions, comments, requests or complaints, please don't hesitate to mention it to one of us. (Or all of us if you really feel strongly about something.)

Speaking of members, Alan tells me that our membership has been growing rather steadily over the summer months thanks to a successful Astronomy Day event and to some inspirational public night presentations at BMO. I would like to welcome those of you who are new to the BAA and issue a special invitation to come join us at our regular meetings. (A schedule of upcoming meetings appears elsewhere in this issue.) Hanging out at the observatory and coming to our monthly meetings are two of the best ways I know to pick up little astro tidbits. You can meet people who share the same astronomical interests, be it astrophotography, double stars, observing the planets, armchair astronomy, collecting telescopes, or whatever. At the same time, I'd like to ask that some of our long time members make an effort to greet and welcome our new members and help make them feel at home.

I recently visited the Beaver Meadow Observatory to help out on a public night. Despite the weatherman's threat of clouds, we had a sizeable group of visitors. Those who made the effort were rewarded with clear albeit hazy skies. It was good to see several BAA members in attendance helping introduce visitors to Venus, the First Quarter Moon and the summer constellations. I noticed that four walls now enclose the pier slated for use with the robotic scope and there were discussions regarding the design and construction of the roof. I think

the robotic scope will be a great new asset for the members and an attraction for the visiting public. I also had an opportunity to use the new laser pointer while showing some of the summer constellations to a group of Girl Scouts. This little device is nothing short of awesome. It makes pointing out stars in the sky as easy as pointing to a slide projection in a classroom.

I hope my words will convince some of you to attend a Friday meeting or to come out to the observatory and help out on a public night. Why not both. They are a great ways to learn and to meet fellow members. See you at the meeting.

**MEETING 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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## Observatory News by Bill Aquino

We have had plenty of clear skies during the last two months so the observatory has been pretty busy with a lot of members stopping out on the clear nights. Autumn will arrive soon and should provide some of the best clear nights of the year here in Western New York so I expect the pace at BMO to remain brisk until the beginning of winter. The new high-powered laser pointer has arrived at BMO and it has been a big hit with the membership and especially the public. It certainly makes pointing out objects in the sky a lot easier, this was a great addition to the astronomical tools we have available at BMO.

If you have not made it out to one of the public nights yet this year make it a point to attend at least one, they are fun and you will be glad you did. Just as a reminder we have four remaining public nights and the scheduled speakers are;

Sept 7 – **Bob Titran**  
 Sept 21 – **Roland Rupp**  
 Oct 5 – **Frank Chalupka**  
 Oct 19 – **Anthony Davoli**

### Special Thanks

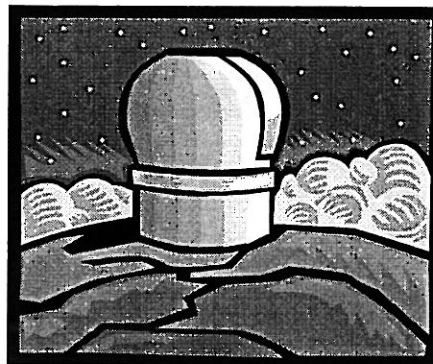
Need to be extended to the public night volunteers. It is generous donations of both time and resources that make BMO such a dynamic facility. Note: I think it is VERY important for the club to say Thank You, often and publicly, to those members whom volunteer. During busy public nights and in the dark it is sometimes difficult for me to stop and greet all of the club members spread out about the grounds. If I somehow omit your name from the lists below please let me know so I can have an opportunity to thank you.

**July 6th Public Night Volunteers** included Frank Chalupka, Paul Tabor, Rick Pason, Ed Cersani, Ted Bistany, Fred Gordon, Bill Aquino. The skies were overcast and smokey from the big Canadian forest fires.

**July 20th Public Night Volunteers** included Tom Bakowski, Ted Bistany, Anthony Davoli, Alan Friedman, Bill Aquino. Partly cloudy with some haze.

**August 3rd Public Night Volunteers** included Neil Dennis, Pete Proulx, Larry Carlino, Bill Aquino, Don Knecht, Tom Bakowski, Gary Flagg, Ted Bistany, Bob Titran, Rick Pason, Paul Tabor, Fred Gordon, Tom Nigrelli. The skies were crystal clear and we had a large public turnout.

**August 17th Public Night Volunteers** included Alan Friedman, Joe Orzechowski, Pete Proulx, Bill Aquino, Ted Bistany, Tom Bakowski, Anthony Davoli, Bob Hughes, Paul Tabor. Clear skies early.



## Membership Corner

By now you've received your renewal notice for BAA membership which is due on September 1<sup>st</sup>. Prompt replies are much appreciated. You can combine your dues, a contribution to the Observatory robotic scope project (don't forget - the BAA will match each dollar you contribute with money from the observatory fund) and astronomy magazine subscriptions at club discount rates - all in one check. Enclose with the form (please update any changes to address, phone or email) and return via mail or bring to the September meeting.

We close the 2001-2002 year with 30 new memberships. Welcome to our most recent new members: August & Judith Cenker, Gary Ehlert, Donald French, Deborah Hovland, Owen Mangan, Sam Neal & Debra Benton, Bruce & Judith Robinson and Keith & Sarah Sutton. Most of our new members have been

enticed by the beautiful night sky at Beaver Meadow Observatory. If you haven't made it out yet this summer, September and October are often the clearest observing months of the year in WNY and we still have some warm public nights left before the first frost.

BAA Membership/ Alan and Tristan



## Upcoming Meetings

### September 13, 2002 - What We Did Last Summer

Members of the BAA will once again describe some of their observations, activities, and accomplishments during this past summer. These presentations are being organized by Carl Milazzo. If you did something or went somewhere astronomical this summer and you'd like to share the experience with the rest of us, contact Carl (688-4869) so that he can put you on the schedule.

### October 11, 2002 - Variable Stars

Member Joe Orzechowski will speak to us about these interesting stellar objects. His presentation will touch on several aspects of variable stars including their nomenclature, the discovery and classification of variable stars, and the physics driving them.

Regular meetings of the BAA are held at 7:30pm on the second Friday of every month from September to June (except for the March dinner meeting) in the Science Bldg. on the campus of the State University College at Buffalo on Elmwood Avenue.



## Letter from the Editor (Electronic *Spectrum* Available) by Jamie Seibert

Some of you may know this, but for those who don't, I've started putting together an electronic version of *The Spectrum*. The last four editions (including this one) have been available over the internet in a "PDF" file format. There are a couple of reasons I decided to do this. First, there is a lot more that can be done with an electronic version over a printed version. Things like color pictures and member photographs are just a few things that I've added to the electronic version. The other big reason for producing an electronic version is that we would be able to cut back on the number of printed editions we produce. After several discussions with the Board and a few trial runs, it has been decided to ask members if they would like to continue to receive *The Spectrum* in the printed form or would they be happy to just receive *The Spectrum* in the electronic format.

The printed version of *The Spectrum* won't be going away. All member submitted articles, and the regular columns will appear in both the printed and electronic version. Other than what has been mentioned above, the editions will be the same.

Anyone who would like to only receive the electronic version should send their E-Mail address to me. My E-mail address is [jseibert@buffalo.edu](mailto:jseibert@buffalo.edu). I will compile a list of Address and cross reference it with the current membership directory. Anyone I don't receive an E-mail address from will receive a printed version like normal. I'd like to encourage anyone with internet access to participate in this. Not only will you be saving the club some money to use in other projects, but I think you'll enjoy the extra stuff available in the electronic version. You can download this issue and the past two issues from the following web site [http://jseibert5.cit.buffalo.edu/BAA\\_Spectrum](http://jseibert5.cit.buffalo.edu/BAA_Spectrum). To open a "PDF" file, you will need a program such as Adobe Acrobat Reader. This is a free program for Windows PC and Macintosh computers. You can download this program here <http://www.adobe.com/products/acrobat/readstep2.html>. I hope to hear from many of you soon.

Jamie Seibert  
The Spectrum Editor

## Star Parties

We want to thank everyone who elected to have a Star Party this year and those who plan to host Star Parties this fall! Your hospitality is always appreciated!

Star parties are a great opportunity to get out and meet other club members while sharing the fun astronomy has to offer. All club members are welcome to host their own star party. If anybody is interested, there are still open dates this fall. Check your BAA calendar for the moon phases and any public night conflicts. Contact Janice and Jeff Gardner at 639-0866 or [MMDAWG@AOL.COM](mailto:MMDAWG@AOL.COM)

Current star party schedule:

2002 Informal CSSP weekends (<http://members.aol.com/CherrySpSP>)  
10/5-6, 11/1-2

Stars-n-Parks @ CSSP (<http://members.aol.com/>)

[CherrySpSP/2002\\_schedule.htm](http://members.aol.com/CherrySpSP/2002_schedule.htm)  
8/31, 10/5

Black Forest Star Party (CSSP) (<http://www.bfsp.org/starparty/>)  
9/6-8

Sat Oct 5 Anthony Davoli An evening at his new home or Beaver Meadow. Location pending the completion of his new home. Check E- groups or contact Anthony for further details. 826-1068

CKSP 2003 (Cedar Key, FL) 2/23-3/1, 2003 Need a break in the middle of winter? Head down to Cedar Key Florida for a little warm weather observing. Tom Bemus has organized a week of astronomy activities at this wonderful dark site.

All BAA members are welcome to come on down. (<http://members.aol.com/bemusabord/cedarkey.html>)

## Spy and Tell by Edith L. Geiger

Carl Milazzo reports on a June event which took place at Griffis Sculpture Park in Ashford Hollow. It was attended by well-known artists from around the world who were living there enjoying the many sculptures, including six brand new figures. The artists were from Latvia, Israel, Finland, Canada, and many from around the United States. Some of our members set up telescopes so the artists could appreciate the night sky. Those who helped were: Fred Gordon, Tom Bakowski, Jeff Gardner, Mark Reville, and Carl Milazzo.

On July 5th, Carl Milazzo, Mark Reville, Howard Sterling, and Percy Barbour visited Tom Dey to do some observing with his 29-inch telescope and see his 44" mirror which will be as a telescope a year from now. On both occasions, observing continued until dawn. The sky was clear, and all kinds of deep sky objects were seen, as well as an abundance of fireflies.

On July 16th, Darwin Christy gave a talk on comets, at the Ripley Free Library. Ripley is Darwin's home town. There were 25 people in attendance, and the age group ranged from 8 to 80. Darwin's talks on astronomy are well-known, as he speaks to a number of groups each year.

Orrin Christy and his friend, Mike Lance, built a boat for the SIKa Challenge, building it in 1hr. 20min. On July 20th, they raced the boat and took the first "heat", and won the final "heat". This is the 6th time they have won the race in 14 years. Our hearty congratulations!

Neil Dennis enjoys reading and spends a great deal of time reading stories of adventure. He also reads a lot of mail on the computer. In addition, he works around the farm. He's interested in model airplanes, and works with a recreation group in the Pioneer schools. Carol likes to do crossword puzzles

and read mysteries. With Neil and Carol being such avid readers, it must be very quiet around their house.

Frank Chalupka drove their daughter, Lee, a third year medical student at U.B., to Arizona to attend school and work with the Navaho Indians, which proved to be very rewarding. Frank flew home and later returned to Arizona to pick up Lee when she was finished. Before going home, Frank and Lee visited the Grand Canyon, Bryce Canyon, Zion National Park, and Mammoth Cave. Daughter, Kristen, was seen on TV helping to run rides for the Carnival held in Williamsville during July. Frank's wife, Kathleen, is a very happy, charming lady. She is a dedicated homemaker, and delights in working in her beautiful garden. She has a new hobby. A friend introduced her to antique searching which provides many hours of pleasure enjoying things from the past with their interesting histories. By the way, Frank has his blue belt in karate. Beware! He's a powerhouse of energy! Anyone need a body guard?

Bob Titran is going back to school in the fall to get his teaching certificate and masters. He'll be going to Canisius, reliving those good ol' college days!

Star Fest was held August 8 at Mount Forest, Ontario. There were 1300 in attendance, but where we used to have 16 or 17 of our members at the event, this year there were only two: John Dean and Carl Milazzo. Observers had the good fortune of having five clear nights. Carl gave a talk on, "Fifty Years of Amateurs Making Telescopes". Carl showed some of his slides and some taken by Darwin Christy.

On October 9 at 7:30PM, Carl will be speaking at the Ridgeway Library in Ontario. His subject will be, "Constellation Hopping from Lepus".

*(Bulls-Eye continued from page 1)*

astronomical community struggles to collect data during these all-important early hours after a GRB's detection.

**Time since  
Burst detection**  
Hours: minutes

**Description of observation or notice**

00:00	HETE II spacecraft detects a bright and long duration gamma ray burst. The spacecraft's on-board computer localizes the burst to within a 28 arc-minute circle.
00:04	HETE II notification message is transmitted to the professional community.
00:05	The ROTSE-III fully robotic telescope automatically slews to the localization field and begins to continuously image the field. However, it is still twilight at their location (Los Alamos) so the initial images are unusable because they are saturated by bright sky.
00:11	AAVSO notification message is transmitted to the amateur community.
00:18	The sky over New Mexico has now darkened enough for the ROTSE-III robot, which is still imaging, to take its first useful image. This is an "unfiltered" one-minute exposure but is several magnitudes below the telescopes normal capability due to adverse sky conditions. No optical transient (OT) is detected at this point.
01:43	The 36" KAIT robotic supernova-hunting telescope (California) begins imaging the field and 21 "unfiltered" exposures are taken over a 3-hour period. An optical transient is detected in their images, which is decreasing steadily in magnitude.
01:46	The 22" Super-LOTIS robotic telescope (Arizona) begins imaging the field and takes 110 consecutive one-minute images in the "R" band. By co-adding the first nine images they can estimate the magnitude of the OT to be 18.4 at this time.
01:50	The 144" CTIO telescope located in Chile begins imaging, they image for 1 hour obtaining a total of 10 five-minute images. Four in the "B" band and 3 each in bands "R" and "I". [Note: multi-band photometry provides an indication of the color or temperature of an object].
01:53	Mission specialists analyzing the HETE II detection data are able to refine the bursts location. The ground analysis now localizes the burst to within a 4 arc-minute circle located within the original 28 arc-minute circle. They transmit an updated localization message to the astronomical community.
01:54	Caltech astronomers operating the Oschin/NEAT robotic telescope system (Hawaii) take 3 "unfiltered" two-minute exposures. They work to quickly analyze their data and will become the first to publicly announce the detection of the OT. At 3 hours and 54 minutes after the gamma-ray burst was detected by HETE II, this group will post the OT's coordinates to within an accuracy of 0.5 arc-seconds.
02:38	AAVSO amateurs from the Houston Astronomical Association image the field with their 18" telescope and an "unfiltered" camera. They manage to detect the OT but by shooting "unfiltered" do not get a useful "R" band data point.
03:02	Carnegie/Princeton/Catolica astronomers using the 234" Magellan/Baade telescope located in Chile take two images in the "I" band 50 minutes apart; they also detect fading in the OT.
03:04	HETE II mission specialists still working on the spacecraft data further refine the localization for the burst and get the error circle down to a mere 1 arc-minute in diameter. Once again, they transmit an updated localization message to the astronomical community.
03:54	Caltech astronomers operating the Oschin/NEAT robotic system are the quickest to analyze their data and now announce the discovery of the OT. They post the objects coordinates; RA 19:46:41.88 and DEC -19:36:05.1 +/- 0.5arc-seconds.
04:05	The Mt. Palomar 200" telescope begins to image the field. They image for 1 hour and 50 minutes and also detect fading. However, the rate of fading has now increased. [note: this shift in the rate of fading is known as a "temporal break" and is a common feature found in gamma ray burst OT's].
04:23	The 55" astrometric telescope at the USNO Flagstaff observatory images the field. They collect two "I" band images and determine the OT's position very accurately; RA 19:46:41.874 and DEC -19:36:04.81 +/-0.05 arc-seconds.
04:41	The 360" Keck I in Hawaii images the field and determines the red shift to be $Z = 1.254$ [note: this value is typical for a GRB optical transient].
05:53	The VLA makes a short observation of the field and detects a radio source coincident with the OT.
08:07	KISO observatory in Japan begins observations in B, V, R, I bands with a 36" telescope. They estimate the "R" band magnitude at this time to be 19.0.
08:59	Astronomers at Bisei Observatory (Japan) image the field with a 36" telescope. They estimate the "R" band magnitude at this point to be 19.35.

*(Continued Bulls-Eye on page 6)*

(Bulls-Eye continued from page 5)

10:52	AAVSO amateur Peter Nelson from Ellinbank, Australia takes 4 ten-minute exposures in the "R" band with a 12" telescope. The OT is too faint by this point to be clearly detectable in his combined image.
14:02	Amateur astronomer Berto Monard in South Africa images the field with a 12" telescope and an "unfiltered" camera. He reports that by combining thirteen 45-second exposures the OT is just detectable in his image. However, by shooting "unfiltered" he does not get a useful "R" band data point.
16:06	The Campo Imperatore Observatory in Italy begins imaging the field with a 24" telescope. They estimate the "R" band magnitude at this time to be about 18.85.
17:51	Astronomers at the Campo Catino observatory in Italy image the field with a 29" telescope. They estimate the "R" band magnitude at this time to be at about 19.5.
17:54	Astronomers at TUBITAK national observatory in Turkey image the field taking 8 three-minute exposures using a 54" telescope and estimate the "R" band magnitude to be 20.0.
17:57	The Campo Imperatore Observatory in Italy, which is still imaging the field with a 24" telescope. Now estimate the "R" band magnitude to be about 19.70.
18:27	Radio astronomers using the IRAM radio telescope (France) begin observing the field. They observe at 89.189 GHz and 232.032 GHz but do not detect any new radio sources.
20:39	The Inter Planetary Network (IPN) reports that the 020813 gamma ray burst was also detected by the Mars Odyssey and Kronus-Wind spacecrafts. Their triangulation of the burst matches the HETE localization.
21:01	The Chandra X-ray telescope begins to image the OT. They use the Project Directors discretionary time and will observe continuously for nearly 22 hours. They detect the OT emitting X-ray energy and fading in X-ray intensity at nearly the same rate as the optical fading.
22:54	The Very Large Telescope (VLT-Melipal) in Chile images the field for two hours and discovers significant variability in the polarization of the light from the OT.

**Table 1:** Chronological history of GRB020813 observations and notices.

In past Spectrum articles I have referred to gamma ray bursts as "cosmic ghosts" because they are so unpredictable and difficult to observe. GRB020813 is a rare exception and hopefully will provide us with a much-improved model of the typical early light curve of optical transients. Our current model (shown in **Table 2**) is very vague. It was presented at the First High Energy Astrophysics workshop for amateur astronomers in Huntsville Alabama back in the spring of 2000. Unfortunately this model is based on extrapolation as opposed to direct observations. At the time this model was put together we had almost no early data points (within the first 24 hours) so the magnitudes listed are only extrapolations based on late observations (well past 24 hours) made by very large aperture telescopes. As you can see in the table the range of possible magnitude for any given time is quite broad, which is a good indication that we really do not know how bright a typical optical transient should become during the first 24 hours.

Time	Max Mag	Min Mag
10 minutes	12.6	15.6
30 minutes	14.0	16.6
1 hour	14.9	17.4
2 hours	15.8	18.5
4 hours	16.6	19.7
6 hours	17.2	20.3

**Table 2:** The current early epoch model of a typical OT.

I have suspected for some time now that the minimum magnitudes listed in table 2 are the ones really closer to typical. But this is based on only a scant few data points obtained by astronomers in the last year or so. In addition, the model shown in table 2 does not take into consideration "temporal breaks" which evidence shows are capable of occurring within the first 24 hours after detection. The early results from GRB020813 seem to be in agreement with my suspicions. However, it will take several months for all of the data collected on GRB020813 to be published in the astronomical journals. At that point I will be able to get my hands on it and draw my own conclusions. In the meantime let's hope the recent software patches loaded into HETE II produce more early data points like GRB020813 has.

The implications for amateur astronomers, if indeed the typical early light curve proves to be fainter, will be significant. The accepted standard for OT light curve analysis and modeling are accurate "R" band photometric measurements. Adding "R" band photometry filters reduces the sensitivity of most amateur imaging systems by at least one magnitude. Amateur systems hit the proverbial "brick wall" at about magnitude 19 to 20 (unfiltered) where it becomes very difficult for amateurs to image beyond this point. If we couple the loss of sensitivity due to the "R" filter with an OT model of faint early magnitudes, we may find the majority of the amateur GRB hunters unable to produce accurate "R" band early epoch data points. We will have a much better picture of the situation if we can get a few more HETE II Bulls-Eyes.

# BAA Annals by Rowland A. Rupp

## BAA ANNALS

5 YEARS AGO - "The Science in Sci-Fi" was the topic given by John Allen Price at our September 1997 meeting. In October our own Tom Bemus spoke on "The Possibility of Colonizing Mars". I wonder if recent discoveries on the red planet would change what Tom had to say. Tom also treated us to a travelogue of southwestern astronomical sights, probably obtained during his recent honeymoon there with Kat.

Our speakers were busy. Darwin Christy spoke to a men's group on a variety of astronomical topics, and Gene Witkowski gave a video imaging presentation to the Niagara Fall club. I had given several talks to school kids on Comet Hale-Bopp and was in the process of organizing our in-the-classroom speaking program. To date, we've made presentations to around 2500 school kids and to another thousand kids and adults at various camps.

Edith Geiger wrote a profile on - me! How embarrassing. I'll survive if you don't re-read it. Fred Price wrote an observation report on Comet Hale-Bopp that included his sketches. The obituary for Ruth Christy appeared as well.

10 YEARS AGO - Charlie Fassell from Canada's Niagara Centre was our speaker for September 1992. His topic, "Niagara Centre at Work, Eh", was scheduled for the preceding June, but must have been delayed. Dr. David Meisel from SUNY Geneseo spoke in October on CCDs. We also were planning to host the fall meeting of the Niagara Frontier Council of Astronomical Associations at Buffalo State in November. Dave Fliss and Ed Lindberg coordinated that meeting. A new slate of officers took over club activities: President-Bill Smith, Vice-President-Bruce Newman, Secretary-Luann Szucs, and Treasurer-Steve Kramer.

Larry Carlino had an article on best buys in telescopes. While his summary of 1992 is clearly out of date, Larry frequently updates his material, so if you want advice in buying a telescope in a particular price range, contact Larry.

Ed Lindberg's "Instrument Notes" dealt with the Foucault method for testing mirrors. Darwin Christy wrote briefly on the famous early 20th century astronomer and physicist, Sir James Jeans. Bill Smith reported on the observations he made during the summer including: Comet Shoemaker-Levy, the lunar eclipse (partial) of June 14, the Milky Way and globular clusters.

15 YEARS AGO - Raymond Rusk, a Ph.D. candidate from the University of Toronto, spoke on jets associated with quasars and BL Lacertae objects at our September meeting fifteen years ago. Our speaker for the following month was not yet confirmed. Does anyone know who it was?

Ralph Dakin, well known for his work in optics including the Dakin Barlow, wrote an article for *The Spectrum* on "Matching A Binocular to Your Eyes". He presented a table showing how the size of the pupil of the eye diminishes with age up to age 90. I extrapolated his table and found we will all be blind if we last to 100. Leslie Martin wrote an article on sunshine, noting the different theories of the sun's source of energy as they changed over time. Carl Milazzo wrote on the "Active Galactic Nuclei" in which he explained active nuclei ranging from quasars to Seyfert galaxies. *Spectrum* editor Darwin Christy extracted an article by Karyn Bennett from the *Orbit*, the newsletter of the Hamilton Centre, RASC, on "Ancient Egyptian Astronomy".

*The Spectrum* carried observation reports by Fred Price and Carl Mi-

lazzo. The obituary for Bob Mayer appeared. Bob, a member of the BAA's college of Fellows, was an expert machinist who frequently applied his skills for the benefit to the club's equipment and for the personnel needs of its members.

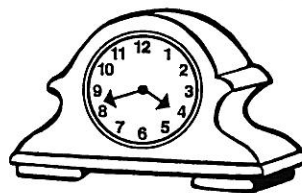
25 YEARS AGO - The BAA's Dr. Fred Price and Larry Carlino combined forces in September 1977 to report on "Recent Visual Observations of Jupiter". Who spoke in October? *The Spectrum* merely says "a number of interesting speakers are tentative".

Larry Carlino had just taken over editorship of *The Spectrum* following Ernst Both's ten year tenure. He noted that "contributions are needed." They still are! President Fred Price wrote an essay in support of our meeting at Buffalo State rather than at the Buffalo Museum of Science, where we had met until September 1976. Subsequently, for a time, we met at Buffalo State for half the year and the museum for the other half. Revisions to the by-laws were proposed, primarily to address the newly built Beaver Meadow Observatory and to clarify some wording. Edith Geiger, Rowland Rupp and Richard Zygmunt served on the committee that prepared the changes.

Edith wrote a profile of Ernst Both, thanking him for his service in editing *The Spectrum*. This is worth reading. You will find the Museum's former Curator of Astronomy and, ultimately, Director is a very talented guy. Larry Carlino reported on his sky-test of the newly introduced Edmund Astroscan, then priced at \$149.95. He liked it up to a point, noting it looks like "an inverted red mushroom" - perhaps a more accurate description than mine - a bowling ball with a handle.

35 YEARS AGO - Walter Semrau, the BAA's accomplished solar observer, spoke on "The Sun In Action", at our September 1967 meeting. Nearly all the rest of that issue of *The Spectrum* was devoted to Edith Geiger's profile of this amazing artisan. A notice that Richard Zygmunt would no longer be *Spectrum* publisher appeared. Ernst Both offered to take over until "we have ironed out the particulars". Take a look at "25 YEARS AGO" and see just how long Ernst worked at it.

George Keene from Rochester addressed us in October with "Close-Up Photography of the Moon". George was an expert astrophotographer. Fred Price recalls his early observations of the moon, and Richard Zygmunt reflected on his construction of Hilltop Observatory at Camp Sprucelands. Darwin Christy also had an article on "Grooving a Pitch Lap", a ski 11 fading from use.



(Heroes continued from page 1)

versity of Hawaii. He has worked at the many giant observatories on top of 13,000 foot Mauna Kea. He also has a Masters degree in Electrical Engineering and has made CCD's for Santa Barbara Instruments.

Richard Jakiel was a member of our club back in the 1980's and was an excellent deep-sky observer. He made highly detailed and realistic pencil drawings of deep-sky objects. He has had over a dozen of his deep-sky articles and drawings published in *Astronomy* and *Sky and Telescope* magazines. Also, he is president of the Astronomy club of Atlanta, GA, which has about 300 members.

Nancy Adams was a BAA member in the 1980's and did a lot of Public Nights and public solar viewing at the Buffalo Museum of Science. She later got a degree in Astronomy from SUNY at Stonybrook. She now works at Harvard College Observatory.

Diane Tesmer was a student at Buff State and at the same time was a member of three Astronomy clubs in the 1980's, one of which was the BAA, of course. She organized several Astronomy Days at Buff State. One year, over 3,600 people attended. *Sky and Telescope* and The Astronomical League considered it the best show of the year in all of North America.

Tristan Dilapo joined the BAA in 1982 and has been a club board member. He has built several telescopes and observatories. He has given talks and has helped out with our club observatory. Tristan is an expert observer and has done some astrophotography. He is very active with CCD imaging and is contributing to science by sending his data to professional astronomers. He is working in many fields of astronomy scientifically, such as: asteroids, comets, novae and supernovae.



## E-Noise is E-Noise is E-Noise

It is very important to keep a "nose" on the air during space missions. Odors from dangerous chemicals in the air must be detected early and fast. One possible danger is hydrazine, the rocket fuel carried on board spaceships. If it leaked into the cabin area, it could do a lot of damage before anyone knew it was there. The job calls for a "super nose" that can detect faint smells far beyond the ability of human beings.

Scientists at Caltech studied the way human and animal noses worked. They thought it might be possible to make a super-nose. NASA thought this was a good idea, so scientists and engineers at the Jet Propulsion Laboratory in Pasadena developed an electronic nose, or "E-Nose." This nose can sniff using a pump, smell using polymer sensors, and decide what's in the air using a mini-computer. E-Nose was developed to monitor the air that the crew in the International Space Station will breathe. It was tried out on the Space Shuttle, and it worked just fine.

E-Nose will also have many uses here on Earth. It can monitor the air inside submarines and in factories to warn people very early if something is making the air unsafe to breathe. It can be used in processing food to tell if food is beginning to spoil. And someday it may be used on another planet or moon to sniff out what's "cooking" up there.

You can find out more about E-Nose and have fun testing your own nose at the Space Place Web site, [spaceplace.nasa.gov/enose\\_dol.htm](http://spaceplace.nasa.gov/enose_dol.htm). The Space Place has fun and educational activities for parents, children, and teachers -- and lots of facts related to many of NASA's space missions.

*This article was provided by NASA's Jet Propulsion Laboratory, managed by Caltech in Pasadena.*

## For Sale

Discovery 8" f/6 Dobsonian Telescope  
1 Year Old

96% Enhanced Mirrors

Great Views, Like New

Cost \$475 will sell for \$325

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Meade Finderscope 6x30

Like New \$35

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Finderscope

\$59.95

Call Ralph Green at 649-5911

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