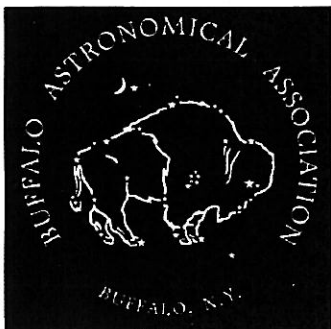
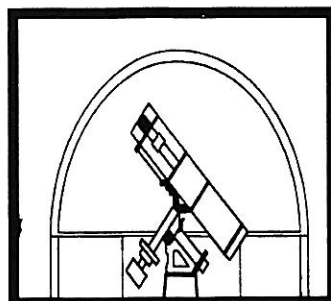


# THE SPECTRUM

Volume 2 Issue 2

Summer Edition

July/August 2000

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## OBSERVING OUR NEAREST NEIGHBORS (Part 2)

by Joe Orzechowski

In the previous issue of the Spectrum I described what I thought was a somewhat unusual observing project I planned to undertake. Starting with a list of the 55 nearest stars I intend to make observations of the 19 stars in the list that are brighter than 10th magnitude and lie north of declination -35 degrees. In this article I describe my successful observation of four of those stars plus one additional star that was below my list's limiting magnitude but one that I just couldn't resist adding to the tally.

As I alluded to in the previous paragraph, my premise that this was a rather unusual observing project is not entirely correct. While I was researching some information for this article on the Internet I stumble upon [www.nbso.org](http://www.nbso.org). Apparently I'm not as odd as I first thought. You can check it out yourself if you're curious but suffice it to say that the theme of this web site is observing nearby star.

The first star I observed was BD+50°1725. Since four of the five stars in this article have BD numbers, maybe I should mention where these BD numbers come from. Well, BD is an acronym used to identify stars from the "Bonner Durchmusterung". The best that my limited knowledge of German can do with this is "Bonn Survey". This was a catalog of about 325,000 stars compiled by F.W.A. Argelander and his assistants at the Royal Rhine Observatory of Frederick Wilhelms University in Bonn, Germany. This visual survey covered the sky from -1 degrees to +90 degrees declination and was done in the years 1852 to 1862 using a 78mm scope. That's right! They plotted over 300,000 stars with a 3 inch refractor. Each star is identified by its 1 degree wide declination zone and its sequence number within the zone starting from RA 0h 00m. So BD+50°1725 is a star in the +50 degree declination zone (+49 to +50 degrees) and is the 1725th star identified in that zone.

Let's get to some particulars now. The star BD+50°1725 is 15.9 light years away, putting it 45th in the list of 55 nearest stars. It shines at mag

6.6 making it the brightest of the five stars described in this article. It's in the constellation Ursa Major at RA 10h 11m and declination (dec) +49° 27'. Although it won't be labeled, it's probably plotted on your star chart. If you're into star hopping, start at Theta Ursae Majoris (UMa) which is in the middle of the front leg of the bear. Go about 4 degrees ESE to 31 UMa and then another 2.5 degrees to a pair of mag 6 stars. The eastern one of this pair is BD+50°1725. It shows a definite hint of orange color which contrasts nicely with the other star in the aforementioned pair.

Quite literally next on the list is BD+20°2465 which is also about 15.9 light years distant and 46th in the list of nearest stars. This star shines in the constellation Leo at mag 9.4. It's located at RA 10h 20m and dec +19° 52'. The spectral classification for BD+20°2465 is M3.5Ve which means it has a fairly cool surface. Refer to my article in the last issue for a description of spectral classes. (What!? You don't save past issues of the Spectrum?) Although faint, this star is easy to find because it's very near Gamma Leonis, the brightest star in Leo's sickle after Regulus. From Gamma go just 5 minutes of arc WNW to a mag 8.8 star. Just north of this star you'll see the slightly fainter BD+20°2465. And while you're there, check out Gamma Leonis. It's a nice double with a noticeable yellow color to both components. The two stars are mag 2.6 and 3.8 with a separation of 4.4" at PA (position angle) 125 degrees. The pair was easily split at 80x. Both stars are giants slightly cooler than our sun (spectral classes K1III and G7III). Their distance is 125 light years which is about 8 times as far away as little ol' BD+20°2465. Of course, one should never observe in Leo without going after at least one galaxy. So on my second run through this set of stars I was barely able to pick out M105 with my 4" refractor from my backyard in Snyder. Of course, the mag 7 star sitting right next to the galaxy helped a lot.

Turning north again, we come to the next star I

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**MS Word or Wordperfect ok**

**scanning available**

**DEADLINE FOR SEPT/OCT  
ISSUE IS AUG 15**

observed. This one is much closer to us, only 8.3 light years away and number 4 on the list after Alpha Centauri, Barnard's Star and Wolf 359. BD+36°2147 is in Ursa Major at RA 11h 03m and dec +35° 58' and shines at mag 7.5. This star took a little longer to find than the previous two but, as you'll soon see, there are some interesting stops along the way. Start from the N-S pair of stars in the triangle that forms Leo's hind quarters. Just about 2 degrees SE of the southern star (Theta Leonis) are the galaxies M65 and M66. Both fit nicely into the same field of a low power eyepiece. Moving a little more than 10 degrees due north of the northern star (Delta Leonis) you come upon a close pair of mag 4 stars also aligned in the N-S direction. These are Xi (53) Ursae Majoris and Nu (54) Ursae Majoris located way down in the southern tip of that constellation. For you trivia buffs these two stars are also called Alula Australis and Alula Borealis, respectively. Both are double stars. The southern one of the pair, Xi UMa, is a very nice double consisting of mag 4.3 and mag 4.8 components separated by 1.8" at PA 272 degrees. It's brighter and tighter than either of the doubles of Epsilon Lyrae (the famous "double - double"). At 110x I was only able to elongate the pair but not cleanly split them. On a historical note, Xi UMa was the first double star system to have an orbit calculated for it back in 1828. The orbital period is 60 years which means the position angle of the pair changes by about 6 degrees per year. Both components of this pair are also double with periods of 2 years for one and only 4 days for the other. So, in fact, this is also a double-double star system. Nu UMa, the northern one of the pair, is wider but the secondary star is only mag 10. On my first night I did get a glimpse of the secondary but on the second night I could not see it. If you go after this one, look for a faint companion about 7" away at PA 147 degrees.

Now where were we heading? Oh yeah, BD+36°2147. From Nu UMa go about 5 degrees WNW until you get to Omicron Leonis Minoris, the only mag 4 star in that area. Then go 2.5 degrees NE until you reach an equilateral triangle of stars that fits in a 1 degree field of view. At the SE corner of this triangle, the dimmest of the three stars, is BD+36°2147, also known as Lalande 21185. If you find it you may notice a slight touch of red in the light of this star. I mention the alternate name Lalande 21185 for three reasons. First, it points out that a star's identifier is not necessarily unique and most stars do have more than one name. Each time a star is included in some survey or catalog it is assigned the appropriate name for that list. Second, Wil Tirion's Sky Atlas 2000 labels this star as Lalande 21185 and other star atlases (including yours) may do the same. The third reason leads me to another historical note. Joseph-Jerome Lalande was a French astronomer who compiled an extensive star catalog back in the late 18th century. The star Lalande 21185 was one of the stars in that catalog. On May 8, 1795 Lalande's nephew Michael was making observations for the star catalog when he recorded what would turn out to be a very special "star". Since good scientists like to confirm their data, two nights later he recorded a second observation of the same "star". Either he or his uncle noted that the new position did not agree with the first position. Being bad scientists, the first observation was thrown out, the second one was accepted and entered into the catalog and thus did Lalande miss discovering the planet Neptune fifty years before Adams/LeVerrier/Galle did it in 1846. Why three names? Well that's an interesting story that I'll have to leave for another time.

Another of our nearest neighbors also can be found in Ursa Major. BD+44°2051 is 15.8 light years away and 44th on the list of nearest stars. This mag 8.8 star is located at RA 11h 05m and dec +43° 32'. This star was more difficult to find than the previous three. It's fairly faint and there are no bright stars nearby. But in addition to that, the star's large proper motion confused me a bit. Proper motion is the movement of a star across the sky over a period of time due to its actual velocity across or perpendicular to our line of sight. The proper motion of the stars is the reason many of the constellations with which we are familiar will look completely different in a

Continued page 3 "observing"

**MEETINGS CANCELLATION POLICY**

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

**BEAVER MEADOW TELEPHONE**

The telephone at Beaver Meadow, 716-457-3104, is for emergency use only at no cost. Local calls may be placed for a small charge - see the

collection box by the phone. This phone cannot make long distance calls.

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"observing" continued from page 2

few hundred thousand years. Many nearby stars have rather large proper motions; in fact, this is one way to identify stars that are near us. A large proper motion causes a star's plotted position to change significantly over the course of just a decade or two. And that's what confused me. The Digitized Sky Survey (DSS) image I downloaded from the Internet showed a star just to the NW of BD+44°2051 while the Guide Star Catalog (GSC) information showed a star just to the NE of it. It was not until after I logged a somewhat questionable observation and started going after Wolf 359 that I finally realized what the problem was. The star BD+44°2051 has a fairly large proper motion of 4.5 arc seconds per year in PA 282 degrees. During the 40 years or so that elapsed between the DSS image and the GSC coordinates, BD+44°2051 move to the west by about 3 arc minutes. When I applied that displacement to the star in the DSS image, everything fell into place. I went back to the eyepiece and everything looked the way it was supposed to. That's a lesson I'll have to remember as I go after the rest of the stars in my list.

The last star I observed was Wolf 359. Some of you fellow Star Trek fans may recognize the name as the place where a large fleet of starships was destroyed while protecting the Earth from the invading Borg. Obviously, if the Borg had reached Wolf 359, they were dangerously close to Earth and needed to be stopped at all cost. But I digress. Wolf 359 is not in my list of 19 stars to observe because it didn't make the mag 10 cutoff. At mag 13.5 it missed by quite a margin. But, since it is third on the list of nearest stars and I was already observing in that part of the sky (it's in Leo), I felt compelled to give it a try. Naturally, such a faint object demanded that I use something with a little more aperture than my 4-inch. Fortunately, not too long ago the weather, my schedule and a weekend all happened to converge nicely and I headed out to the observatory to use the club's 20-inch to track down Wolf 359. Burnham's Celestial Handbook (a copy can be found at the observatory) provides a useful finder chart for this star in Volume 2, page 1072. Burnham's also includes the following helpful hint: "The chart was made from a plate obtained in March 1959, so observers of the future will find it necessary to make a correction for the large proper motion of the star (4.71" annually in PA 235 degrees) ..." As I mentioned above, I could have used this information a little earlier. For those of you up to the challenge, the arrowed dot representing Wolf 359 in the finder chart must be moved about 1/4" down and to the right. Also, to help you get your bearings, the bright star at the bottom edge of the finder chart is the variable star VY (56) Leonis.

Wolf 359 is the 359th entry in a catalog of 1053 high proper motion stars compiled by German astronomer Max Wolf back in 1919. The star's current position is RA 10h 56m and dec +07° 01' in Leo about 5 degrees south of M105. The star's spectral classification is M6.5Ve with a surface temperature that's probably less than 3000K. Wolf 359 is one of the least luminous stars known which should not come as a surprise considering that it is only 7.8 light years away and has an apparent magnitude of 13.5. Wolf 359 is only 0.002% as luminous as our Sun, has a mass that is about 10% of the Sun's, and may be about the size of the planet Jupiter. If the Sun were replaced by Wolf 359 our daylight hours would be illuminated by a sun that was only 3 minutes of arc in diameter (about the size of a large sunspot group) and shining at mag -15 (only 2.4 magnitudes brighter than the full moon). Talk about gloomy! On the up side, there would be little need to worry about sunburns.

That's all for this issue. I've managed to observe 5 of the 20 stars (one additional since I added Wolf 359) in my list of nearest neighbors. That leaves 15 more to go or about three more articles. I'm not sure which is more difficult, observing these stars or writing the articles. Or perhaps reading the articles is actually the most difficult task. In any case, I'll try to have my observation report of the next set of stars ready for the next issue. Until then, keep observing or photographing your favorite objects.

## NOMINATION FOR BOARD POSITION

**The election held in June resulted in the following members being elected to office: President - Dan Marcus , Vice-President - Jack Mack , Secretary - Joe Orzechowski , Treasurer - Beverly Orzechowski.**

**They will assume their posts at the start of the BAA's fiscal year, September 1, 2000, and will remain in office until September 1, 2002. Congratulations to the newly elected officers, and thanks for your service to those who are leaving office.**

**With Dan's election we are left with a vacancy on the Board of Directors. An election for the one year portion remaining in that term will be held at the September general meeting. Anyone wishing to be a candidate should contact either Carl Milazzo or myself.**

**Rowland A. Rupp    Nominating Committee**

## Star Parties!!

Are you ready for the Summer!!! Comet Linear 1999S4 here we come!! Oh well another dud comet? No such thing. Most of the club activities this summer will include a peek at the comet. Although not a Hale-Bopp or a Hyakutake it should be great fun for us to watch this summer. See the July issue of Sky and Telescope for details and charts. What is a star party? It is what happens when a bunch of astronomers get together to view or discuss astronomy. Usually accompanied by copious quantities of food, and lack of sleep, and general merriment. The club's parties are usually held rain or shine, and we have a great time in spite of the weather. Some are bring a dish to pass, others are just come and have fun viewing. All are bring a toy parties, as we all love to ooh and ah over astro stuff. Here is this year's Itinerary.

**Saturday June 24:** Rowland and Irene Rupp are having a bring a dish to pass party at their cabin at Lime lake, Starting at 1:30 pm till midnight. There will be boating, swimming, and horse shoes.

**Saturday July 1:** Public night at Beaver Meadow Observatory This will be a New Moon night, and we will be looking for the Comet in the AM. Come out and check up on the Fire Flies.

**Saturday July 8:** 2<sup>nd</sup> Annual Celebration of Flight. Bob Hughes and crew will be at the Hamburg Fair Grounds at the Agricultural

Continued page 4 "parties"



## BAA EDUCATION PROGRAM UPDATE

by Rowland Rupp Education Coordinator

The BAA continues its program of presenting astronomical talks to students in schools, both public and private, and at social organizations, such as camps. These talks are in addition to those given at BMO on public nights or at special events like Astronomy Day. We keep a total of the number of presentations given and the number of kids addressed. These totals, along with our other educational efforts, are very influential in procuring grants, like the \$5500 grant for education obtained from the Buffalo Foundation last year.

Since the inception of this program in 1997 we have given 35 talks in the classroom to 1885 students, and 22 talks to 706 young campers. Since the end of June 1999 the corresponding numbers are 10 presentations to 325 school children, and 15 talks to 386 campers. More talks are scheduled for later in the year. This year, for the first time, we have made presentations in the Buffalo public schools, which is part of our obligation in meeting the challenge of last year's grant.

Thanks go to those who have given these talks. They include Darwin Christy, Carl Klingenschmitt, Jack Mack, Dan Marcus, Mark Reville, Carl Milazzo and Joe Orzechowski. I've given some talks myself. If I've left anybody out, please accept my apology.

Recently, teachers have asked me if we had topics on "motions" or on the Hubble Telescope. We don't. I hope that some BAA members will come up with programs to address these

needs. In the process, some new talent will be added to our in-classroom speakers program, and the participants will discover a rewarding way to pass along their enthusiasm for astronomy to the coming generation.

While I didn't pursue exactly what was involved in the request for "motion", I suspect it has to do with the motions of the Earth and the Moon in space, and the consequences of those motions—like day and night, seasons, phases of the moon and eclipses. Perhaps retrograde motion of the planets might be added for ninth graders and up. I have a copy of several of the standards for the Intermediate and the Earth Science curricula, so you will have guidance in developing your talk.

The new sets of slides we acquired through our educational grant ought to provide a solid resource for anyone who wishes to develop a talk on Hubble. That was what the grant was intended to do in the first place.

A talk usually runs about 30 or 35 minutes, which provides a few minutes for an introduction by the teacher and for questions after the presentation. This should fill a typical 45 minute class period, although a bit of flexibility is occasionally needed to accommodate the school's schedule. If anyone needs help in copying photographs to supplement their talk, contact me: I have done lots of photocopying for my own talks.

Let me know if you would like to join this beneficial program.

Parties continued from page 3

Center manning an exhibit table from 9am to 5pm. He could use some help manning the table as well as with demonstrating telescopes. There is a fee to get in but people volunteering for manning the table can get in free by contacting Bob Hughes before hand at 833-2407. Bob could use 6 to 8 people through out the day to man the booth.

This is a great way to check out all the clubs that deal in aviation, as well as meet people interested in the sciences. There will be model airplanes (propelled by rubber bands, electricity, gas engines, hand powered), rockets, as well as vendors who will be selling their wares. He could use some help for set up 7am to 9am and breakdown 5pm to 9pm.

**Saturday July 15:** Public Night. Full Moon will be in the sky. It will be great opportunity to check out the Astrovid camera.

**Saturday July 22:** Larry Carlino invites you to his house on 7118 Kinne Road, Lockport NY phone number 433-3432 from 7:30pm to midnight. Larry has a vast collection of astrotoys, assorted LARGE scopes and knows how to use them. Larry loves to test astro stuff, so bring all your toys and have fun sharing them with the rest of us.

**Friday/Saturday July 28/29:** Interclub Stargaze at Cherry Springs State Park near Coudersport, PA. Members of clubs all over the region have been invited to attend, so there should be lots of nice scopes and the skies are WAY darker than at Starfest. There is no admission and camping on the observing field is FREE. Good place to check out Comet Linear S4! If you have any questions please feel free to contact Tom Bemus at 386-7150, or at work 664-4506. How to get there coming From Buffalo:

- 1) take the 400 south to Rt. 16
- 2) Rt. 16 south to Rt. 417 east in downtown Olean (turn left onto 417)
- 3) Rt. 417 east to Rt. 44 south in the village of Ceres (turn right onto

44)

- 4) Rt. 44 south to Rt. 6 east in downtown Coudersport (turn left onto 6)
- 5) Rt. 6 east to Rt. 44 south in the village of Sweden Valley (turn right onto 44)

- 6) Rt. 44 south to Cherry Springs State Park (park on right just after airstrip)

### **Saturday August 5: Public Night**

**Friday August 11:** Alan Friedman 881-4310 or work 836-0408 is hosting a Family Star Party at the Beaver Meadow Observatory. Allen will be hosting a Bring a Dish to Pass dinner from 6 pm to 7 pm. He will supply the hot dogs and the drinks. This party will be geared to -wards the younger astronomers in the club who find the moon fascinating, and have never had a chance to use a scope by themselves. So find a young astronomer and bring him/her to the Observatory for an early night of viewing. Our younger members can try out the Astrovid and our Cookbook cameras under expert supervision. There will be some small scopes for our littler members to use, and the opportunity to use our 20". Perhaps the Perseids meteor shower will cooperate and give us a fine show in spite of the nearly full moon. What you can't convince a young person to come? come anyway and help coach our budding astronomers.

### **Saturday August 19: Public Night.**

**Thursday-Saturday August 24-26:** Starfest 2000 at Mount Forest, Ontario, about a 3 hour ride from Buffalo. Note Friday at 10am our own Bill Aquino gives a talk on Search for Gamma-Ray Burst Afterglows! Cost for 3 nights, one dinner, and 1 t-shirt is around \$82 US. Come on up and support Bill. If you need more info try or call Dan Marcus 773-5015 for more info.

May we all have Clear Skies and many Auroras this summer!

Dan Marcus

## SPY and TELL

by Edith Geiger

Four of our members gave talks at the Lackawanna Library in March and April:

**Joe Orzechowski** - 'The Scale of the Universe. '**Darwin Christy** - "Comets, their Origin and Destructive Power." **Dan Marcus** - " What You Can Expect to See at Beaver Meadow Observatory through Photography."

**Rowland Rupp** - "Extraterrestrial Intelligence."

**Harry and Marie Schick** are busy folks. They are having a new roof put on their house, and a new furnace installed in their basement. Harry is a volunteer fireman for the Main Transit Fire Department, and he and Marie, through 2nd Chance, an alternative to the SPCA, are caring for 13 cats at their home.

**Anthony and Ruth Mohler** sold their home in West Valley, and on May 27th, moved to Florida. They are living at 120 Juliana Blvd. Auburndale, Florida 33823. They will be missed. They would like to hear from YOU.

Near the end of May, **Orrin Christy** spent 10 days in Dusseldorf, Germany, attending a printing show called Trupa, which covered all aspects of printing.

**Steve Oross** is a very happy fellow with a zest for life. He installed a slot machine Program on his PC, which he claims saves him some money as he doesn't have to go clear to Canada. Before retiring, he worked for IBM fixing computers, and serving companies including: M&T Bank, HSBC Bank, City Corp, Roswell Park, U.B., Bell Aeronautics, and Bethlehem Steel.

**Lawrence Mead** is involved in the important field of breast cancer research at Roswell Park. He and his wife have a new grandson, David Neil Henson, born recently in Dallas. They also have four other grandsons. There will be other family events this summer with weddings to attend, one of which will take them to Maine for the wedding of their nephew.

On June 1st, **Gene Belstraz** was present at the dinner meeting for the Western New York Construction Users Council of which Gene is the Executor Director. Congressman, Jack Quinn was the guest speaker. His presentation was on "Western New York Development Construction and the Buffalo Inner Harbor." The dinner was held at Warren's Restaurant in Tonawanda. Prior to Gene's activities in the Western New York Construction Users Council, he retired as Associate Director of Engineering at the Linde Division of Union Carbide Corporation.

On June 1st, **Darwin Christy** was installed for his 11th year as chaplain of the Masonic Lodge 247 F&N. On June 5th, he was installed as service officer of Post 264 of the American Legion.

On June 3rd, **Bill Aquino** gave a talk at Beaver Meadow Observatory on supernovas. It was announced in the June 2 - 8 Gusto.

**Carl Milazzo** and **Fred Gordon** have presented the Galaxy Quest series at the museum. Carl was also one of the eight members who attended the NFCAA meeting at the Skyline Brock Hotel in Niagara Falls (see Spy & Tel/ May-June Spectrum).

Happy Summertime!!

## WE DID IT !!!!



Pictured from left to right : **Frank Chalupka, Bill Michilec, Neil Dennis**

Yes we certainly did ! On Saturday June 10, 2000 BAA members Neil Dennis and Frank Chalupka handed Bill Michilec of the Buffalo Audobon Society a check for over \$4000 thanks to the many generous contributions of fellow club members and the Buffalo Astronomical Association Treasury . A goal of \$3000 was set

a couple of months ago to help fund Audobon and boy did we surpass it . \$3775.50 was collected from the membership over the past few months , and on June 1 the BAA Board of Directors voted to donate \$225 to take us over the \$4000 mark.

The Buffalo Audobon Society is in the process of enlarging their Fred T. Hall main building at Beaver Meadow Nature Center and is nearing completion .The building will benefit all who frequent Beaver Meadow and the donation will hopefully solidify an even stronger relationship with the Audobon than we have had for the past 25 years. They are the ones who own the observatory and the grounds to provide us with a place to enjoy the great hobby of amateur astronomy . The Audobon will honor our donation with a Plaque displayed in the new building . Now that is something this club should be proud of .

Many thanks go out to Bill Smith and Bev Orzechowski who were the ring leaders to get this donation project going and most of all to the many members who dug into their wallets and purses and made this fund drive a huge success .

## NEW BAA WEB SIGHT

**Tom Bemus and Bill Smith** put together a new club web sight at : <http://members.aol.com/BuffAstro/>

**Contact Tom or Bill with any ideas or suggestions**

## BAA ANNALS

by Rowland A. Rupp

**5 YEARS AGO** - The July-August 1995 SPECTRUM was the last edited by Darwin Christy, who had served as editor for sixteen years. Darwin was subsequently given a BAA special award for his services in this capacity. His final editorial thanked members who made his job a success: those who wrote articles and those who helped to produce the newsletter.

Plans to take a trip to the David Dunlop Observatory in Toronto were announced in the SPECTRUM. President Terry Farrell asked that we fill out the latest membership survey. (Membership surveys seem to rear their heads every five years or so, sort of like a recurrent nova.) Bob Hughes was thanked for his efforts to coordinate Astronomy Day at BMO. According to Edith Geiger's *SPY & TELL*, Ernst Both was honored by city and county officials for his service as Director of the Buffalo Museum of Science and President of the Buffalo Society of Natural Science. Ernst retired at the end of June 1995. Summer star parties were announced. Hosts were the Ruppss, the Macks, Larry Carlino, Bill Smith and Carol Lorenc.

**10 YEARS AGO** - Star parties for 1990 were scheduled at the Macks', the Ruppss', Marilou Bebak's, Bill and Carol's and Bill and Carolyn Halpert's. Dan and Melissa Marcus planned to host a Perseid Meteor star party at BMO.

Edith Geiger's profile of Bruce Newman appeared in the SPECTRUM. Bruce frequently gave short talks on astronomical subjects at our general meetings that were very well appreciated, especially by newer members, toward whom these talks were directed. Ed Lindberg's *Instrument Notes* dealt with the fabrication of mechanical and optical flats, devices critical in both measurement and test.

**15 YEARS AGO** - Adrienne and Jerry Morris were to host 1985's first star party. Others were to be held by Claudia Bielinski, Larry Carlino, Brian Fallon, Dan and Melissa Marcus, Dave Bertuca, Tristan and Debbie DiLapo, Ken and Diane Biggie, Jack and Jane Mack and Nelson Pinochet. And, if that wasn't enough star gazing for one summer, a trip to the University of Rochester's Nees Observatory was included for good measure.

Rowland Rupp contributed an article to the SPECTRUM on William Smyth and his son Charles, English astronomers of the early to mid nineteenth century. Donald Botteron's article was in two parts. In the first, he recommended observing a complete period of Xi Ursae Majoris, a double star whose orbit takes only 60 years. Don't despair, it takes patience to be an observer! In the second half, Don reviewed several observing references, then available. We had three observation reports - by Rowland Rupp, Michael Idem and Darwin Christy.

**25 YEARS AGO** - There was no SPECTRUM for the summer of 1975; there was just a list of star parties. Two were held at the old Newstead Observatory. They must have been the last ever held there, as Beaver Meadow Observatory was under construction then. In fact, three star parties were scheduled to be held at the meadow. Tom Dessert was to host a star party at his home in Alden, while another was to be at Camp Sprucelands. Both were annual events in the 1970s.

**35 YEARS AGO** - Star parties were the feature of the July - August 1965 SPECTRUM too. Three were scheduled for Newstead Observatory, two were scheduled at Camp Sprucelands. Walter Semereau, Ed Stoklosa and Ernst Both also held star parties at their homes. Ernst's was a picnic, an annual gathering at his home in Collins, NY. Although the bus trip to Allegheny Observatory in Pittsburgh was canceled due to a lack of respondents, two carloads of BAA members did manage to take the trip and had an enjoyable time as guests of the Pittsburgh amateur astronomers.

## "The Polaris Hexagon"

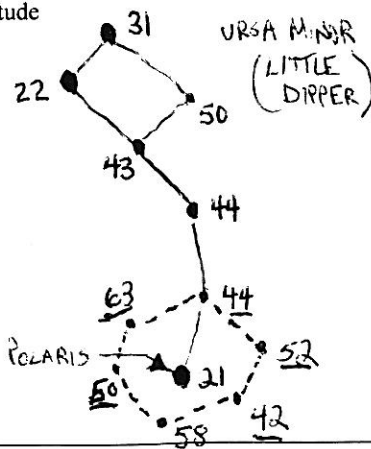
by Carl Milazzo

How many stars that make up the hexagon can you see from your observing sight tonight? To determine the limiting magnitude of the sky, add a 1/10 of a magnitude more due to dimming by the atmosphere since Polaris is only 43 degrees above the horizon. This method is how I determine the sky transparency. The decimal has been omitted so it doesn't become confused with a star. For example :44 equals 4.4 magnitude

## GREAT SKIES

- ⑥ 6.3 mag
- ⑤ 5.8 mag
- ④ 5.2 mag
- ③ 5.0 mag
- ② 4.4 mag
- ① 4.2 mag

## POOR SKIES



## Speakers Committee Report

by Jack Mack

The following is a progress report on the 2000-2001 Program. The Committee is: Bob Hughes, Jack Mack, Carl Milazzo, Steve Oross, Beverly and Joe Orzechowski.

**September: Sweetness & Light** (Not much light) Gamma Ray Burst Afterglow Detection by Bill Aquino, Tom Bakowski, Frank Chalupka, Dennis Hohman

**October: Show and Tell!** What we did (astronomically) last summer by BAA Members

**November: What? Winter AGAIN!** The smart Buffalo astronomer's winter gear guide, with seasonal tips. Panel discussion by Tristan Dilapo, Jeff Gardner, Pat Lannon, Carl Milazzo.

**December: So \*this\* is the New Millennium!** A no-holds-barred report on the members antics by Edith Geiger.

**January: Curl up with a good astronomical video** Members will demonstrate interesting video clips, downloaded & homemade digital movies, candid video cams. If it moves, we'll salute it.

**February: How's the weather up there?** An update on geomagnetic storms by Bob Hughes & Carl Klingenschmitt

CONTINUED PAGE 10 "SPEAKERS"



# OBSERVATORY NEWS

by Mark Swiderski

## Public Night Schedule:

**July 1: Mark Swiderski**  
(The Planets)

**July 15: Alan Friedman**  
(Looking and Seeing) Tips and Techniques for Observing with an Astronomical Telescope. Alan will be using some Astrovid recordings and live images to help discuss how to get the most out of the observing experience. Hope to do some of this outside.

**August 5: Tim McIntyre**  
(Astrophotography) Tim will be bringing in his astrophotography setup and will discuss How he uses it to shoot piggyback and prime focus pictures, along with the trials and tribulations of this fine "art".

**August 19: Robert Hughes**  
(Topic to be announced)

**September 2: Mark Reville**  
(Topic to be announced)



**"PIER" PRESSURE** - Anthony Davoli (C) working up a sweat as Frank Chalupka (L), Mark Swiderski (2nd L) and Peter Proulx (R) "supervise"

## Summer CCD Classes

CCD Classes will be held at Beaver Meadow Observatory on July 15th and August 19th at 6:00 PM. Club members interested in learning about CCD Technology in general and the BMO CCD System in particular are encouraged to attend. This is a rain or shine event, hope to see you there.

Bill Aquino

## Astrophoto All Nighter 2

On June 3rd, after public night a small group of us astrophotography nuts pulled an all nighter filling our cameras with celestial light trying to get a shot suitable enough for the club calendar. Some of us plan on doing it again on July 1st. So if any other shutterbugs would like to come on out and enjoy some solitude under the Milky Way (along with some profanity) come on out. The more the merrier.

## NEW PIERS SEE FIRST LIGHT AT BMO

by Alan Friedman

After months of discussion and planning, summer visitors to the Beaver Meadow Observatory will be treated to the sight of three new gleaming white telescope piers. The new piers accomplish a major improvement to our observatory. We now have a greatly expanded space for the public to circulate safely and view through the club's (and members) instruments. In addition, the piers can be adapted to accept many different mounts allowing our members a quick and solid equatorial set-up for observing and imaging. The pier assemblies are the handiwork of Anthony Davoli - and they are beautiful! Anthony also coordinated the construction project with observatory director Mark Swiderski. The crew included a team of hard working electricians, hole diggers, cement mixers and landscapers, including: Dan Marcus, Frank Chalupka, Bill Aquino, Pete Proulx, Alan Friedman, Jack Mack, Mark Reville, Stephen Oross, Tom Bakowski, Neil Dennis, John Marino and a young man named Seth, a guest from our last meeting who was inspired to join in. Many of the materials and supplies were donated by club members. The first weekend saw the rough work - which included digging the three large 48" deep holes for the foundations, welding some rebar for reinforcement, and mixing and pouring more than sixty bags of concrete

mix. (That's close to two tons, without the water! Trenches were run from the observatory to each of the piers, and conduit was run to provide electrical power and cables for video and CCD imaging. Home cooked food and fresh picked strawberries refreshed the work crew. Sore backs aside, after three months of discussion, the hard work seemed quick and moderately painless. Saturday, June 17th saw the last cables buried. As the sun went down the crew filled in the last of the trenches and visitors arrived for public night. With a flick of a switch and a few moments of alignment, the club's 10" Meade LX 200 whirled on its new western pier. The mount is rock solid and the eyepiece sits at a perfect height for comfortable observation - with no tripod legs or exposed wires to stumble over. The other two piers have been made ready for club member's Losmandy and Astro-Physics equatorial mounts. Adapters can be added for others. All we need now are some loaded cameras and clear skies. A huge collective thank you goes out to all who participated in this project. It's a thrill to see what we can accomplish as a group when we get together and push. Working together on club projects is fun, and when it comes down to it, having fun with astronomy is what it's all about.

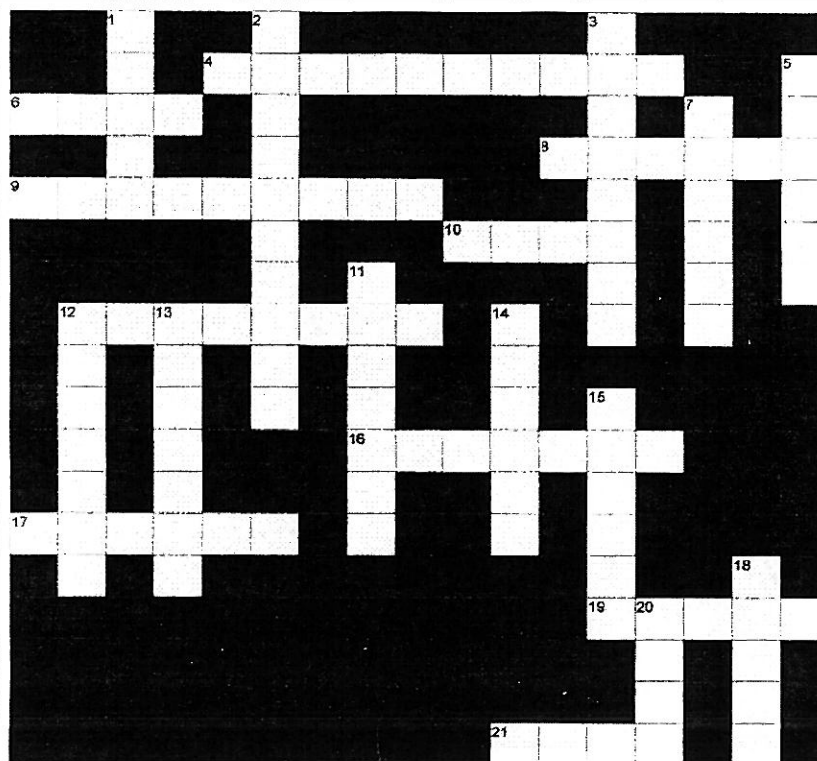
## BEAVER MEADOW OBSERVATORY

The observatory is open to "checked out" members any time. Call Neil Dennis (322-7596) to get checked out. Public nights are held on the 1st and 3rd Saturday nights April through October. There is "members only" viewing after every public night. Help is always needed and appreciated for our public events. You don't need a lot of experience to help out. Stop by and be an "observer" and see just how easy it is. The "vets" will show you how.

# ASTRONOMY PUZZLES

## ACROSS

4. MINIMUM SEPARATION IN BINARY STAR SYSTEM
6. "PLAINS" ON THE MOON
8. "JUPITER" RELATING TO JUPITER
9. STUDY OF THE UNIVERSE
10. GREAT COMET OF 1976
12. BRIGHTEST STAR NORTH OF CELESTIAL EQUATOR
16. GAMMA AQUILAE
17. REQUIRES 29.5 YEARS TO COMPLETE ITS ORBIT
19. ONE OF THE LARGEST AND NEAREST PLANETARY NEBULA
21. HOME OF LARGEST VOLCANO IN SOLAR SYSTEM



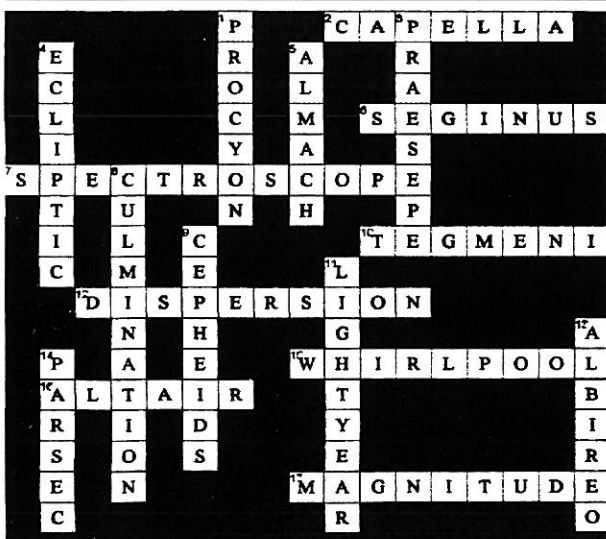
## DOWN

1. LARGEST ASTEROID KNOWN
2. "RED GIANT"
3. COMET 1973XII
5. COMET C/1999S4
7. "DOG STAR"
11. REQUIRES 12 LIGHT YEARS TO COMPLETE ORBIT
12. MIDDLE STAR IN ORION'S BELT
13. SECOND BRIGHTEST STAR
14. "ISLAND UNIVERSE"
15. DIRECTLY OVER HEAD
18. SATURN'S LARGEST MOON
20. ASTEROID

## LAST ISSUE ANSWERS

### Word Scramble

1. QUASAR
2. SKAT
3. MAGNITUDE
4. CEPHEIDS
5. MIRACH
6. PERIASTRON
7. DISPERSION
8. PARSEC
9. ECLIPTIC
10. EQUINOX



## WORD SCRAMBLE

1. AASRUIQU \_\_\_\_\_
2. ENDEB \_\_\_\_\_
3. EPEEPSAR \_\_\_\_\_
4. EVSUN \_\_\_\_\_
5. HLAACM \_\_\_\_\_
6. IUGSNES \_\_\_\_\_
7. KEOTHUOK \_\_\_\_\_
8. MRAI \_\_\_\_\_
9. PCELAAL \_\_\_\_\_
10. PPSTRCEOSOCE \_\_\_\_\_

# HAPPY SUMMER



# SELECTED COLORED DOUBLE and SINGLE STARS

BY BILL SMITH

Some of the nicest viewing isn't always the Messier objects or faint smudges of galaxies but the quiet glow of a double star especially if the stars in question show nice colors. Many times the colors seen are due to the pair being close to each other so slight color differences seem to be magnified. ***If so -- so much the better!*** These are some of my favorites that have been culled from viewing doubles from many lists over the years. They are ordered in groups by right ascension.

Colored stars are great for bright nights -- not affected by the Moon. To enhance colors in reflectors, cut an offset 3 inch hole in a piece of cardboard that will cover the front of the scope. Find the star, pop on the mask and view at high power (oooohh yeah)!

Some individual stars have also been listed - especially if they are very red.

***Try them and see for yourself.*** If you know of others please share them via the BAA egroups site or the newsletter.

I've sorted and cut off this list to fit on 1 page -- the full list is in the files area of the egroups: COLORED STARS.XLS

*Good viewing to you!*

Mostly 1950.0

STAR	SPECTRAL CLASS	R.A.	DEC	MAGNITUDE	SEP	COLOR (seen as tints)	VERY GOOD
55 Pisces	K0, F3	00h37m	+21°10'	5.5, 8.2	7"	orange, deep blue	**
57 Gamma Andromeda	K2, A0	02 01	+42 06	2.3, 5.1, 6.3	10, 0.5	gold, blue, green (tough)	**
Iota Trianguli	G5, F6	02 12	+30 18	5.3, 6.9	3.9	yellowish, green	**
NGC 884 (Perseus)	double cl	02 19	+56 53	--	--	5 red stars among many white	**
U Camelopardalis	N7.7	03 42	+62 39	8.1 - 8.6 var	--	extremely red	**
32 Eridanus	G5, A2	03 52	-03 06	4.9, 6.0	7	topaz, green	**
38 Gemini	F0, G4	06 55	+13 12	4.7, 7.7	7	yellowish, purple	**
V Aquila	N7.7	10 04	-05 41	7.4 - 8.0 var	--	intense red	**
Y Canes Venetici	N7.7	12 43	+45 43	5.5 - 6.0 var	--	very red (La Superba)	**
36 Epsilon Bootes	K1, A2	14 43	+27 17	2.7, 6.3	3	yellow, blue-green	**
39 Ophiuchus	K2, F6	17 15	-24 14	5.4, 6.0	11	orange, blue	**
Theta Serpens	A5, A5	18 54	+04 08	4.6, 5.4	22	yellowish	**
Beta Cygnus (Albireo)	K1, B9	19 29	+27 51	3.2, 5.4	35	yellow, blue	**
Mu Cepheus	M2	21 42	+58 33	3.7 - 5.0 var	--	red (naked-eye variable)	**
Σ163 Cassiopeia	-- , --	01 48	+64 36	6.2, 8.2	35	gold, blue	*
Alpha Pisces	A2, A2	02 02	+02 48	4.2, 5.2	1.9	pale green, blue	*
6 Trianguli	G4, --	02 10	+30 04	5.2, 6.4	4	yellow, blue	*
15 Perseus	K4, --	02 47	+55 41	3.9, 8.5, 10, 10.5	29, 66, 5	yellow-orange, blue	*
Hyades Cluster	--	04 17	+15 31	--	--	Variety! Poke around.	*
48 Sigma Orion	O9, --	05 36	-02 36	--	--	8 stars around Sigma Orion	*
8 Monoceros	A5, F4	06 21	+04 57	4.5, 6.7	13	yellow, light blue	*
48 Iota Cancer	G5, A5	08 44	+28 57	4.2, 6.5	31	yellow, blue	*
Gamma Leo	K0, G7	10 17	+20 06	2.6, 3.8	4.5	orangish, yellowish	*
U Hydra	N2	10 35	-13 07	4.8 - 5.8 var	--	red	*
2 Canes Venetici	M1, F7	12 16	+40 42	5.8, 8.1	11	yellowish, light blue	*
Alpha Canes Venetici	--	12 54	+38 35	2.8, 5.4	20	brilliant white	*
123 Draco	-- , --	13 25	+65 00	6.4, 6.8	69	yellow, blue	*
84 Virgo	K3, --	13 41	+03 47	5.7, 8.6	3	orange, yellow	*
Mu Bootes	A7, G	15 23	+37 33	4.5, 7.2, 7.8	110, 2	2 bluish, off red	*
Alpha Hercules	M5, F8	17 12	+14 27	3.0 var, 5.4	4.5	orange, green	*
T Draco	N0	17 56	+58 14	9.5 - 12 var	--	very red	*
95 Hercules	G3, A1	17 59	+21 36	5.1, 5.2	6	pale green & red	*
70 Ophiuchus	K1, K6	18 03	+02 31	4.3, 6.0	2	yellow, reddish	*
Gamma Delphinus	K1, F6	20 44	+15 57	4.5, 5.5	10	yellow, emerald	*
61 Cygnus	K6, --	21 05	+38 30	5.5, 6.4	28	deep yellow	*
Kreuger 60	M	22 26	+57 27	10, 11	2	very red	*
27 Delta Cepheus	G0, A0	22 27	+58 10	3.6 var, 7.5	41	yellow, blue	*
8 Lacerta	?	22 50	+41 03	6.5, 7.5, 7.5, 9	82, 119, 5	white, greenish, blue	*
O Cepheus	K0, F6	23 17	+67 50	5.5, 8.0	3	gold, deep blue	*
Messier 103 Cassiopeia	open cl	01 30	+60 26	--	--	red star in it	
Chi Cassiopeia	--	01 53	+59 01	9.8-12 var	--	red	
66 Cetus	F9, G4	02 10	-02 37	5.7, 7.8	16	yellow, blue	
30 Aries	F5, F5	02 34	+24 26	6.1, 7.1	39	white, blue	
Sigma Taurus	A5, --	04 36	+15 42	5.2, 4.8	7 min	bluish	
W Orion	C6	05 05	+01 11	6.2 - 7.0 var	--	very red	
Chi Lepus	B8, --	05 11	-13 00	4.5, 7.5	2.6	yellowish, bluish	
Messier 37 Auriga	open cl	05 49	+32 32	--	--	red star in it	
Messier 41 Canis Mai	open cl	06 45	-20 41	--	--	red star in it	
18 Mu Canis Mai	M0, A2	06 54	-13 59	5.2, 8.0	3	yellow, blue	
Messier 44 Cancer	open cl	08 37	+20 10	--	--	orange star in it	
Epsilon Hydra	G0, --	08 44	+06 36	3.5, 6.9	3	yellow, blue	
R Leo	M8	09 44	+11 39	5.8 - 10 var	--	red	
Y Hydra	N	09 49	-22 47	6.9 - 7.9 var	--	red	
Xi Ursa Major	G0, --	11 16	+31 49	4.4, 4.8	3	yellowish	

**"SPEAKERS" CONT.**

**April: I \*think\* I see something.** Deep sky visual observing by Larry Carlino & Bill Smith

**May: We're not in Kansas anymore!** The geology of Venus by John Grant.

**June: People who live on asteroids shouldn't throw stones!** Images of asteroids, meteoroid orbits, meteorites by Jack Mack

## CLUB COMMUNICATION

An email group for communications within the BAA membership and friends. This was developed by Dennis Hohman and is restriction by invitation only (ie. BAA members). Available services include e-mail to the whole group or any member; review the history of messages (900+ in 5 months); view/post items to the calendar of events; and view/post items to our own storage area of files. You can be alerted for spur of the moment viewing, auroras or just take part in lively discussions of any astronomical nature.

Group email addresses:

To post a Message: [buffalo\\_astro\\_assoc@eGroups.com](mailto:buffalo_astro_assoc@eGroups.com)

Subscribe to the group: [buffalo\\_astro\\_assoc-subscribe@eGroups.com](mailto:buffalo_astro_assoc-subscribe@eGroups.com)

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or go to the e-groups's home page at

[http://www.egroups.com/group/buffalo\\_astro\\_assoc/](http://www.egroups.com/group/buffalo_astro_assoc/)

Currently in the forefront:

Observatory events and facility expansion (ideas and pier work coordination)

Add your thoughts on Bylaws revision

Gamma ray burster news

Follow progress and submit photos and sky events for the 2001 BAA picture calendar project

Learn about astrophotography (and spur of the moment sessions at the observatory)

or

Start your own topic and be a part of BAA live!

You can even query the 39 group members (at once!) to see if anyone is going to the observatory or to get a question answered.

There are options when you sign up whether you get every e-mail message in its entirety; just a summary once a day or you can review the messages right from the e-group site by book marking: [buffalo\\_astro\\_assoc@egroups.com](mailto:buffalo_astro_assoc@egroups.com) which I prefer to do.

Bill Smith

**ARTICLES , FOR SALE ADDS, ETC.  
WANTED FOR PRINT IN THE SPECTRUM ! MY STOCK PILE OF ARTICLES  
IS NOW DOWN TO NOTHING ! IF YOU  
HAVE AN OBSERVATION REPORT OR  
ARTICLE CONTACT OR SUBMIT IT TO  
THE SPECTRUM PLEASE .**

### NEWSLETTER OF THE BUFFALO ASTRONOMICAL ASSOCIATION INC.

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