

THE SPECTRUM

Newsletter of the Buffalo Astronomical Association Inc.

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July - Aug 1998

STAR PARTY ISSUE

BAA Star Parties

The term "STAR PARTY" is misleading to most amateur astronomers. Don't come wearing a suit and tie, or evening gown and highheels. It's not a party; it's observing as a group, looking up at the sky for celestial objects. Even though it is Summer, if clear, it often becomes cold around midnight, so bring a warm coat. Come by yourself, or with a friend, or bring the entire family. They can act as your navigators, as they read the star party map, while you're driving to the site.

Our astronomy club has had a tradition of holding member star parties all over western New York for more than 50 years. These gatherings give our members a chance to experience different conditions at each site, such as darkness level, horizon obstructions, and local meteorology. Some members have scopes that are not portable, or an observatory of a different design. Some are on the Internet, while others use solar equipment that shows the sun's flares and prominences.

HEAR YE, HEAR YE — CALLING ALL MEMBERS

All club members are welcome, no experience is necessary. For beginners, this is your best opportunity of the year to learn amateur astronomy. At star parties, everything is informal — no reports, no lectures — you can get out of your lawnchair any time and wander around from scope to scope. Many of our longterm members are skilled and knowledgeable, and are always willing to help you make progress as an amateur astronomer.

Besides learning at star parties, the goal as amateurs is to have fun while trying. And don't worry, be happy, because ALL STAR PARTIES ARE HELD RAIN OR SHINE. If it is cloudy or raining, we can all look at our favorite astronomical sights on the Internet, watch videos and slides, compare equipment, and ask lots of questions. Other activities at Star Parties include open discussions, looking at favorite astro-books, software, log books, astro-photo albums, or even setting up carpools to some of the regional outdoor astro-conventions. The parties give members the opportunity to give our club leaders some input as to fall programs, field trips, and other activities. So, bring your questions with you, such as: how do I collimate a scope? How do I clean optics? What kind of filter works on what kind of object and why? When was the last time Jupiter's great red spot was actually deep red? What's the difference between a nova and a super nova?

If the skies are clear, you'll definitely want to bring your binoculars or telescope. If you don't have any equipment, that's fine, just bring your naked eyes and we will hop from constellations to deep sky objects and on to the Milkyway. Now and then we'll see the flash of a meteor, Iridium satellites, and fire flies. We can examine equipment that members have, so you can decide what you may want to purchase, build, or modify in the near future. We can share breathtaking views through members' scopes, look at some of your favorite celestial objects, and explore the skies for new vistas such as other colorful double stars besides Alberio, or other ring nebulae besides M57. And don't forget the Moon — which dark area on the moon is the Sea of Tranquility? The Star Parties scheduled this summer are:

July 11 @ 8pm at Jack and Jayne Mack's home, 1 Hunters Lane, Amherst NY; if lost call 632-6210. Jack is active on Internet, has a special mount for binoculars, and is an expert on astro-physics.

July 18 @ sunset at our club's Beaver Meadow Observatory. It's a great time to be shown how to operate the observatory and how to use the 6, 12, and 20 inch scopes and the CCD detector; if lost call 457-3104.

July 25 @ 8pm to 1am party at Larry Carlino's home at 7118 Kinne Rd, Lockport NY; if lost call 433-3432. Larry has about a dozen scopes (the largest is a 28 inch Dobsonian), two observatories, CCD, B&W videos of the moon and planets, a log book of drawings spanning over 30 years, and a nice astro-library.

Aug 1 @ sunset at Beaver Meadow Observatory.

Aug 8 @ 10am to 3pm visit the Buffalo Museum of Science rooftop solar observatory; if lost call 896-5200. The solar scope will be operated by Marilou Bebak. We will be able to see sunspots, spectra, flares, and prominences. Maybe this summer these will result in an aurora.

Aug 8 @ sunset be sure to catch Roger & Michele Whitfield's backyard star party at 7100 Goodrich Rd, Clarence NY (SEE MAP); if lost call 741-4198. Roger has a 10 inch Newtonian German Equatorial and is active on Internet.

(Continued on page 2)

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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BAA web site via Mark Reville: www.webt.com/mreville/indexbaa.html
TAXACOM computer bulletin board - 716-896-7581

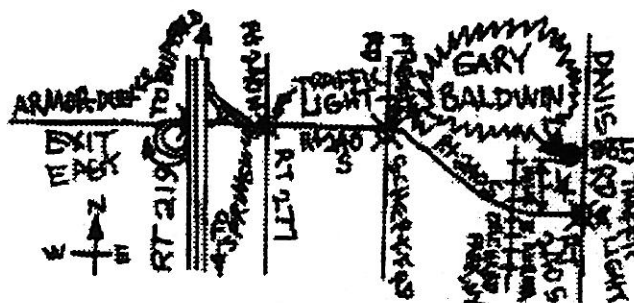
Star parties continued from page 1

Aug 15 @ sunset at Beaver Meadow Observatory

Aug 22 @ sunset in the backyard of Gary Baldwin, 885 Davis Rd. East Aurora NY (SEE MAP), if lost call 652-9297. He has a long driveway, a homemade dome observatory housing a homemade 12 inch Newtonian German Equatorial that automatically takes photographs. Gary has made a barndoor tracking mount for piggyback widefield astrophotography and has a nice photo album.

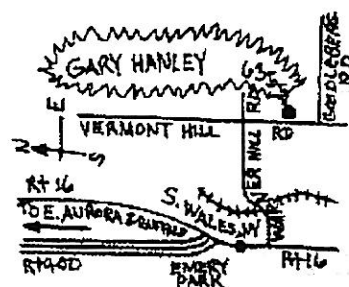
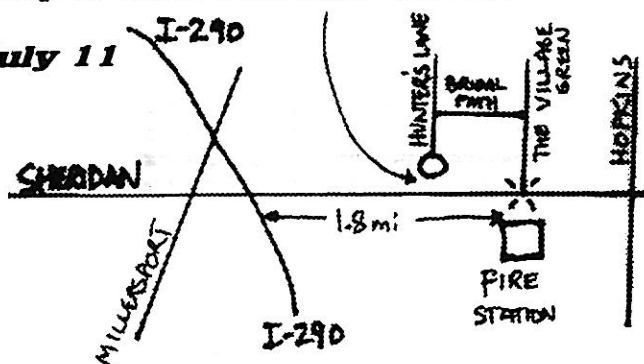
Aug 29 @ sunset at the home of Gary Hanley, 6355 Vermont Hill Rd. South Wales NY (SEE MAP), if lost call 652-9168. He has an 8 inch Dobsonian on top of a hill, with a perfect horizon for watching an aurora. Gary has a pond with a large fountain, has done some astrophotography, and is a HAM radio operator.

Gary Baldwin's Aug 22



Map to Jack and Jayne Mack's

July 11



Gary Hanley's Aug 29

BEAVER MEADOW OBSERVATORY

July 18, Aug 1 and Aug 15

At the Beaver Meadow Observatory there are nature trails, an active beaver pond, and all sorts of wild life. Once it gets dark we can play with the 6" refractor, 8" reflector, 20" dobsonian, and fool with the CCD camera on the 12".

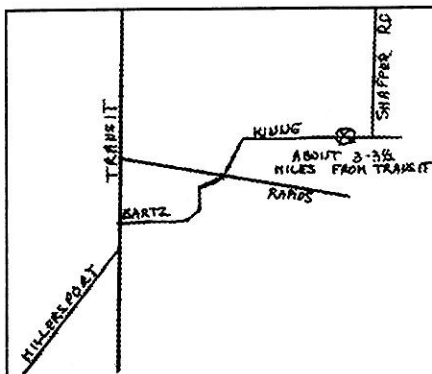
The dates shown are public night dates. There is always members-only viewing after every public night. Public nights are coordinated by our observatory director Bill Aquino, 731-9366.

YOU'RE INVITED!!

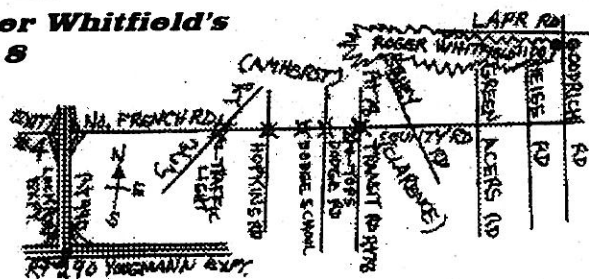
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- ☆ Rowland & Irene Rupp's Lime Lake Star Party & Picnic is on ☆
- ☆ Saturday June 27. Map on page 10. ☆
- ☆ You may not read this in time but it was advertised ☆
- ☆ at the last 2 meetings! ☆
- ☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆

This article, these star parties, schedules, and maps were organized by Carl Milazzo. THANK YOU CARL!!!! - eds.

Larry Carlino's July 25



Roger Whitfield's Aug 8



Officers

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

Board members at large

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

Observatory Directors

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

SPECTRUM STAFF

Tim McIntyre - Editor / Layout (668-8322)
 Steve Kramer - Able Assistant

BAA ANNALS

Rowland A. Rupp

5 YEARS AGO - The summer 1993 SPECTRUM announced coming star parties. Hosts were: the Macks, the Rupps, Bill Smith and Carol Lorenc, and Mark Reville. We also planned to support the Beaver Meadow Nature Festival in mid-July.

A report on the forthcoming Subaru 8.3 meter mirror, written by Rowland Rupp, appeared in the SPECTRUM, as did his book report on John Sanford's Observing the Constellations. Bill Smith gave us a "Binocular Tour of the Virgo Cluster". Sky and Tell reported that Bill Halpert had just won a prize scholarship in the Bel Canto Foundation Opera Competition.

10 YEARS AGO - We had plenty of star parties in 1988. They were held by: the Catipovik's (Miro is now retired and living in Florida), the Rupps, Marilou Bebak and the Rogers, Larry Carlino, the Biggies, Brian Fallon, the Morris and the Macks.

The conclusion of Leslie Martin's article on "Planetary Temperatures" appeared in the SPECTRUM. Steve Kramer contributed two articles on observations, one of a meteor, another of a comet, written by David Rittenhouse in the 1780s. Ed Lindberg reported on mirror testing in his "Instrument Notes" column.

We had a report from Carl Milazzo on his many recent observations. He claimed having "seen over 1500 deep sky objects" so far. I wonder how many he's seen by now—ten years later. Other observation reports were made by David Czuba and Dina Adimey.

15 YEARS AGO - Miro Catipovik, Steve Desmond, Pat Loebel, Claudia Bielinski, John Yerger, and the Rupps hosted star parties in 1983. Tristan DiLapo had a star party at his downtown nightclub and Marilou Bebak held one at the museum's Kellogg Observatory. Carl Milazzo was the star party organizer back then.

Fred Price wrote a report for the SPECTRUM on his discovery of a miniature "straight wall" on the floor of the lunar crater Proclus. Ken Kimble submitted an article on cosmological lookback time. Observation reports were by Carl Milazzo and Michael Idem.

25 YEARS AGO - Bill and Elaine Deazley hosted a summer star party at their home in Cowlesville, and Octavia Black hosted her annual event at Camp Sprucelands. Other parties were held at our old observatory at Newstead, and for the first time (I think) at our new potential observatory site at Beaver Meadow. We were checking out the site at that time.

The SPECTRUM had John Riggs' regular deep sky observing feature. The start of an article by Charles S. Palmer, that originally appeared in Popular Astronomy in 1926, entitled "Two Hours with Alvin Clark, Sr.", appeared in the SPECTRUM.

The master telescope maker was 82 years old at the time.

35 YEARS AGO - In 1963 Ernst Both and Ron Clippenger hosted star parties at their homes, while three other parties were held at Newstead Observatory. The SPECTRUM advised star party attendees to remember to bring warm clothing, a long-sleeved shirt and insect repellent to discourage bugs and telescopes.

One more star party was scheduled to be held at Kellogg Observatory on the roof of the museum, where the July 20th solar eclipse would be viewed.



SPY AND TELL

Edith L. Geizer

Jim Wornick has provided a little gem for our amusement. "In outer space, Hubble is looking at the stars, in Washington, Starr is looking at the Hubbells.

Jim's mastery of pyrotechnics takes him around the country lighting up the sky for thousands of onlookers dazzled by the brilliant displays. In May he worked at a strawberry festival in West Virginia using the Confetti Cannons and puppets which had been used at the Atlanta Olympics. The six puppets in the parade were 15' high and were strapped to the parade participants backs, with long poles fastened to their hands. He worked in Atlanta with the Festive Effects Company.

Jim became interested in fireworks when he received a chemistry set as a 10 year old lad. Fireworks would become his profession. He ran his own business for several years, but has been tied up with a fireworks company for 8 years. Fireworks are in great demand, and on July 4th there will be 20 shows in the western N.Y. area. Jim will be shooting at the Fox Valley Country Club in Lancaster. The biggest display will be at Buffalo Hill Campground on Rt. 20 A in Varysburg. A company in South Carolina has 800 scheduled. Jim works for, sells, and shoots for Skylighter Fireworks in Orchard Park. He also sells and shoots for Melrose Fireworks in South Carolina.

The fireworks slogan: "The sky is our canvas and fire is our paint."

From April 26-30, **Darwin Christy** returned to one of his favorite places, the National Cemetery at Gettysburg, where he has been photographing the main monuments over a number of years. With the 180 he took in April, he now has 480. Weaving around many monuments throughout the battlefield, he covered about 30 miles during his recent visit.

On April 19th, Darwin spoke at the noon meeting of the Rotary Club of the Tonawandas, on "Comets, Their Origin and Destructive Powers." His talk was received with great enthusiasm, and because he made it so interesting and informative, there were no questions asked during the Q. and A. period. His picture and a report on his talk appeared in the Rotary Newsletter.

One of our new family members, **Brian Parfitt**, has built a 10-inch Dobsonian with the help of his father.

Ed Czapla and his wife visited their daughter in Texas for a few weeks in May. Ed celebrated his birthday on May 30th. Happy Birthday Ed!

Bob Titran continues to lead a very active life. He has carried a heavy workload at DuPont lately; relished the trip to the Caribbean to view the solar eclipse on Feb 26th; set out a dozen tomato plants in May; went to Chicago in June to attend a friend's wedding, and is making plans to be at Starfest 98 in August.

Joe Orzechowski and **Carl Milazzo** were present at the Regal Cinema on Transit and Wehrle Drive as an added feature at the showing of Deep Impact. Carl brought his telescope and a display board, and showed people Arcturus through his scope. Joe did the paper work and passed out fliers and answered questions. As a result of their appearance at the theater, we acquired some new members.

On May 29th, the children from the pre-kindergarten class in Hamburg, accompanied by their parents, were treated to an evening under the stars when **Tristan DiLapo**, **Mark Reville**, and **Carl Milazzo** set up their telescopes in the school parking lot for observing from 8 to 10 o'clock. It was a clear night and the event was well received.

A happy summer to all!



SPECTRUM DEADLINE

The deadline for the Sept-Oct issue is
Aug 15th.

Send all submissions to **Tim McIntyre**
157 Dartwood Dr., Cheektowaga, NY 14227
e-mail: **TMcint9320@aol.com**

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

1st Qtr July 1	Full July 9	Last Qtr. July 16	New July 23	1st Qtr July 31	Full Aug 7	Last Qtr Aug 14	New Aug 21	1st Qtr Aug 30
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NOTE After midnight events are listed for the proper day! Thus 1 am on the 10th means you must be prepared be up late on the evening of the 9th

**Don't miss the club's
star parties!****Article, dates &
maps on pgs 1 & 2.****Beaver Meadow
Observatory**

The observatory is open to "checked out" members anytime. Call Bill Aquino (731-9366) or Neil Dennis (322-7596) to get "checked out".

**MEMBERS ONLY VIEWING AFTER
EVERY PUBLIC NIGHT**

Public nights are the 1st and 3rd Saturday nights April through October. There is members only viewing after every public event.

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 how easy it is. The 'vets' will show you how.

Date Event, elevation above noted horizon @ time listed [binos or small scope helpful]

July 3	Venus is within 4° of the bright star Aldebaran, 17° above E @ 5:15 AM
July 4	Beaver Meadow Observatory — CLOSED for the holiday!
July 14	Jupiter 1° north of the Moon, 43° above S @ 5:00 AM
July 17	Saturn 2° north of the Moon, 41° above SE @ 5:00 AM
July 18	PUBLIC NIGHT @ Beaver Meadow Observatory — visit us!
July 19	Moon passes 0.3° north of the bright star Aldebaran, 5° above E @ 5:00 AM
July 21	Venus, Mars and the Moon are close, 14° above ENE @ 5:30 AM
July 25	Moon, bright star Regulus and Mercury are all very close, 10° above W @ 9 PM
July 28	Delta Aquarid meteor shower — waxing crescent moon — good prospects
Aug 1	PUBLIC NIGHT @ Beaver Meadow Observatory — visit us!
Aug 4	Venus passes 0.8° south of Mars, 13° above ENE @ 5:30 AM
Aug 10	Jupiter near the Moon, 35° above SW @ 5:30 AM
Aug 12	Perseid meteor shower — waning gibbous moon — poor prospects
Aug 13	Saturn is 2° north of the Moon, 56° above S @ 6 AM
Aug 15	PUBLIC NIGHT @ Beaver Meadow Observatory — visit us!
Aug 19 ***	Venus is within the Beehive cluster, 14° above E @ 5:45 AM
Aug 19	Mars is 4° north of the Moon, 18° above E @ 5:45 AM
Aug 20	Venus is 3° north of the Moon, 10° above ENE @ 5:45 AM
Aug 25	Mercury passes 3° south of Venus, 12° above E @ 6:15 AM
Aug 31 ***	Mars is within the Beehive cluster, 24° above E @ 6:15 AM
Sep 5	PUBLIC NIGHT @ Beaver Meadow Observatory — visit us!

BEAVER MEADOW OBSERVATORY 457-3104**Thank You for your Generosity**

The following members have recently made donations to the observatory. Your generosity is greatly appreciated, THANK YOU! Bill Smith has donated additional planetarium software (First Light) and an educational simulation program called "Orbits". Dan Marcus has donated two 6" glass blanks for the telescope group, and is also loaning the club several of his video tapes including; Dreams of Flight - to the moon, Dreams of Flight - beyond the moon, and Apollo 13. Bill Aquino has donated a black/white television for use with the video camera. Frank Chalupka and Tim Leary have each donated cables for wiring up the imaging systems. Also, a special thanks to the anonymous volunteer who added a handle to the sidedoor of the observatory.

**CCD System**

The upgrades and modifications to the CCD camera have been completed and the system has been returned to the observatory. If you are interested in astro-imaging you should seriously consider learning to operate this cutting-edge technology. It is not as difficult as it first appears. Dan Marcus will once again be offering classes on CCD imaging. See the observatory events schedule for dates and times.

Saturday	Time	UPCOMING OBSERVATORY EVENTS	Sunset	Moon Phase
July 4	—	Observatory Closed for the Holiday	8:57 PM	1st Qtr
July 11	—	Open Date	8:55 PM	Full
July 18	8:30 to 11:00 PM	Public Night Lectures and Observations	8:50 PM	Last Qtr
—	6:30 to 8:30 PM	Telescope Group Meeting	—	—
—	6:30 to 8:30 PM	CCD Classes	—	—
July 25	—	Open Date	8:44 PM	New
August 1	8:30 to 11:00 PM	Public Night Lectures and Observations	8:37 PM	1st Qtr
—	6:30 to 8:30 PM	Telescope Group Meeting	—	—
August 8	—	Open Date	8:28 PM	Full
August 15	8:00 to 10:30 PM	Public Night Lectures and Observations	8:18 PM	Last Qtr
—	6:00 to 8:00 PM	Telescope Group Meeting	—	—
—	6:00 to 8:00 PM	CCD Classes	—	—
August 22	—	Open Date	8:07 PM	New
August 29	—	Open Date	7:50 PM	1st Qtr
Sept 5	7:30 to 10:00 PM	Public Night Lectures and Observations	7:43 PM	Full
—	5:30 to 7:30 PM	Telescope Group Meeting	—	—
Sept 12	—	Open Date	7:31 PM	Last Qtr

MEMBERSHIP CORNER

Joe Opatkowski

Another year has come and gone at the BAA and so I thought I would throw out a few membership numbers for you to ponder. Our total currently stands at 121 thanks to a nice spurt in new memberships in May and June. We had 11 new members join us during these two months while only 1 joined during the months of March and April. Attendance at our monthly meetings is also up, but only slightly. According to the sheets you check at each meeting, our attendance rose from about 31.0 per meeting last year to an average of 32.1 this past year. Let's hope the trend continues.

1998 MEMBERSHIP DIRECTORIES

The 1998 Membership Directories were recently distributed to our members. If you have not received your copy, please call me at 839-9109 and I'll get one right out to you. Also, if you've noticed any mistakes or omissions in your directory entry, please let me know and I will make the necessary corrections or additions. To keep your directory current, the following list of new members should be added:

Paul Curtin,
206 Lexington Ave #4, Buffalo NY 14222
885-1541, cm519@freenet.buffalo.com

Mark Doerr,
41 Kathryn Dr, Orchard Park NY 14127
662-1463, mdoerr@buffnet.net

Warren Dubuke,
303 Drake Dr., N Tonawanda NY 14120
692-6641, warrenk2sm@aol.com

Alan Friedman,
200 Lancaster Ave, Buffalo NY 14222
881-4310, grtarow@aol.com

Frederick Gordon Jr.,
180 Morris Ave, Buffalo NY 14214
837-3031

Roger Leyonmark & Family,
3476 S Creek Rd, Hamburg NY 14075
648-0335

Ann MacGill,
204 Newell Ave, Tonawanda NY 14150
693-6389

Brian Parfitt,
4607 Morgan Pkwy, Hamburg NY 14075
627-3744, brian_parfitt@praxair.com

Scott & Rachelle Smith,
PO Box 512, Grand Island NY 14072
773-5302, scottsmith@sprintmail.com

Terry Radder,
360 Seneca Pl, Lancaster NY 14086
683-4532

James Whitlock,
21 Crescent Ave, Buffalo NY 14214
832-1721, whitlock@acsu.buffalo.edu

On behalf of the rest of us, I'd like to welcome you all to the BAA. I hope that you've already benefitted in some small way from your membership but, if you're looking for something more, I suggest that you stop by the Beaver Meadow Observatory on a public night or come join us at a star party this summer (watch the Spectrum for dates and locations). By the way, a kook at this list certainly shows how "the times they are a changin'". Seven of these eleven new members provided e-mail addresses.

STARFEST CONVENTION

It looks like the BAA will again be well represented at the Starfest Convention up in Ontario. It looks like 8-12 members, including my wife and I, plan on attending. If you're not sure what Starfest is all about, give me a call and I'll give you some of the particulars. And if you'd like to go but are afraid to go it alone, perhaps we can make arrangements for you to be included in the BAA contingent. New members are welcome to join us; I and others will be more than happy to walk you through some astronomy basics.

That's all for now. Have a great summer. Hope to see you at BMO or at a star party.

STARFEST is HIGHLY recommended. If you only go to one convention in 10 years, go to this one. I am!
— editor

IF YOU WERE A BABYLONIAN--

Did you ever stop to think what you would know about astronomy if you lived in the past? One thing is certain—you would know far less than you do now. For another, even what you think is important to know would be very different. Suppose you were a Babylonian living in the first or second millennia BC. What would you know then?

For one thing, you would have to relearn arithmetic. The Babylonians are regarded as numerical astronomers who made predictions of lunar and planetary positions based on observation and tabulation. They had tables of numbers for multiplication, squaring and other functions, and apparently even developed a form of algebra based on numerical methods. However, they used the sexagesimal system. Where our number system is based on ten, theirs was based on sixty. Today, we still use part of that system when we reckon hours and angles in minutes and seconds.

For another, you would have to learn a new calendar—a lunar calendar. Like many Semitic people, the Babylonians were concerned with the motions of the moon, and used it as their primary timepiece. It's phases are a practical clock, and the period of repeatability is a lot more convenient than a whole year. The phase of the moon chosen by the Babylonians as the start of the month seems to be somewhat uncertain. It may have been new moon or the first sighting of the crescent in the evening. The former is impossible to observe, the latter is extremely difficult to predict. Here, their numerical approach served them well.

Their method was to watch for the first sighting of the waxing crescent and to tabulate the time it occurred, then project recurrences into the future. Like the Egyptians, the Babylonians faced the problem that each lunation contains a fractional number of days, about 29.5 of them. Thus, some of their months contained 29 days, others contained 30 days. Moreover, there are more than twelve lunations in a year. Some years had 12 months and others had 13. Using these methods, the Babylonians almost certainly discovered the Metonic cycle in which 235 lunations occur in almost exactly 19 years. If one took 12 years each with 12 months, and 7 years each with 13 months, one came out right. Other equivalences between months and years, extending up to 810 years, have been uncovered in ancient records.

This numerical success with the position of the moon led to similar computations for the planets, particularly Venus. Tables dating from the sixteenth century BC give the time in terms of days, months and years of the first and last appearances of Venus both in the evening and in the morning, extending over a 21 year period. From these data, Babylonian astronomers discovered that Venus repeats her apparitions nearly exactly five times in an eight year period. Similar, but longer duration, relationships were uncovered for the other planets.

Establishing the position of Venus held special importance because Venus was a source of omens for the Babylonians, the equivalent of their astrology. If the Babylonians practiced horoscopic astrology, based on the time of birth or other events, as we know it today, it wasn't until around the fifth century BC. Even then they probably borrowed the idea from the Greeks. They went on to divide the ecliptic into twelve signs corresponding to the constellations—pretty much the twelve signs of the zodiac used now. Each sign covered thirty degrees of the ecliptic, just as it does in modern astrology. Unaware of precession, they must have watched with some dismay as the signs and the constellations after which they were named gradually drew apart. Nonetheless, astrologers and astronomers alike, the Greeks especially, were the benefactors of the extensive mathematical and conceptual astronomy invented by the Babylonians.

Several centuries earlier a set of constellations different from those found on the ecliptic was used. Since the moon was so important to Middle East astronomy, eighteen constellations that lay in its path were noted. Since the moon's path is similar to the sun's path, this early set of constellations contained those in the zodiac.

The date of heliacal rising of stars (when they are first seen before sunrise) was important to these astronomers because it measured the time of year, just as it did for the Egyptians. They went a step further by correlating these risings with the culmination and the setting of other stars. This enabled them to determine time even when the eastern horizon was obscured.

(Continued on page 6)

If you were a Babylonian continued from page 5

The Babylonians also emulated the Egyptians in that they probably divided both day and night into twelve hours regardless of the season of the year. Since the Babylonians also had water clocks, they realized that all hours were not equal, and developed a method to reconcile the difference. Other evidence suggests that Babylonian astronomers used an alternate time system in which the entire day was divided into twelve hours. Each of these double hours would be equivalent to two of our hours. They also made use of the gnomon, a vertical rod that casts a shadow like a sundial, to tell time during the day. Tables that enable the observer to account for changing shadow lengths at different seasons of the year have been uncovered.

What else did you do if you were a Babylonian astronomer? For one thing you observed eclipses. Although, it appears that they could not predict solar eclipses, they were able to conclude when a new moon could not result in an eclipse. Some records contain sequences of solar and lunar eclipses over eighteen year intervals, in accord with the more modern idea of the period of the saros. Apparently they did much better predicting lunar eclipses. Records dating back to the eighth century BC note observations of lunar eclipses that were so partial that it is believed they would have passed entirely unnoticed if one didn't anticipate them. We also find records of observations of occultations of stars, and even planets, by the moon. Conjunctions of planets and stars, as well as close approaches, were recorded as well.

By measuring the time taken for the sun to rise, its diameter in terms of the circle of the sky was determined. Here lies some confusion. Babylonian records show that sunrise took 1/30th of an hour. Using a day of twenty-four hours, one concludes that the sun's diameter is one-half degree—right on. However, as noted earlier, Babylonian astronomers used a double hour. Assuming this is the hour referenced, the sun's diameter would be a whole degree, twice the right answer.

We find similarities between Egyptian astronomy and Babylonian astronomy. We also find differences. A mathematical approach is what sets the latter apart. Ultimately, the Greeks borrowed much from the Babylonians, yet theirs was largely a geometrical astronomy. Babylonians weren't concerned with the paths of the sun, moon and planets; they were concerned about their positions, and the repeatability of those positions. Consequently, cosmology was not an important facet to their astronomy. But they did pass down a legacy to us. From the hours of the day, the division of time and angle in a sexagesimal system, to the division of the zodiac are all vestiges of these ancient Middle East astronomers, who studied their subject diligently for more than two millennia.

- Leslie Martin

THIS IS ONLY A TEST

Here is a little test. I didn't invent it, I just found it.

Identify where on the surface of the Earth you can walk ten miles south, then ten miles east, then ten miles north and wind up where you started. That doesn't sound too hard, does it? Oh, I forgot to tell you—there are two answers. You get 25 points for the first correct answer, and 75 points for the second one—80 is passing.

- Rowland A. Rupp

New Officers

Elected to start in September for the next two years are:

President: Gene Witkoski

Vice President: Bob Hughes

Secretary: Steve Kramer

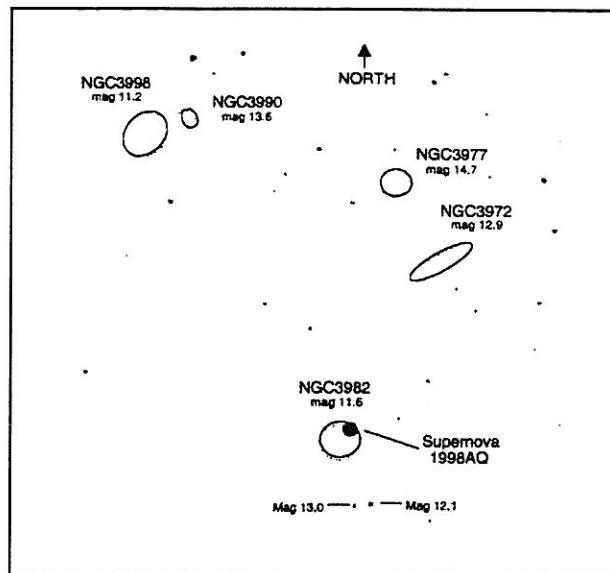
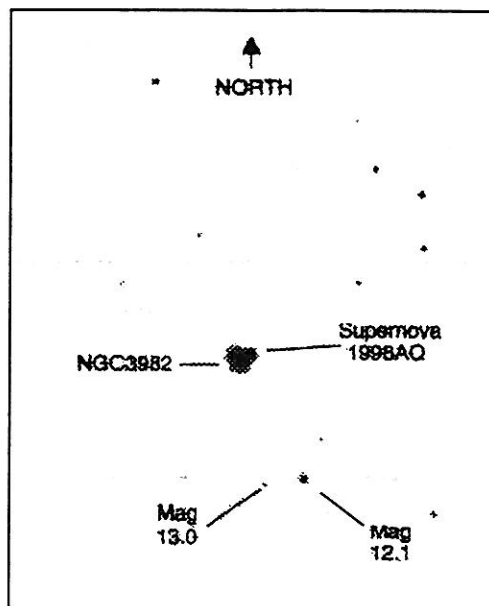
Treasurer: Bev Orzechowski (continuing)

Observation report

On April 26 at 10:15pm using the 20" dobsonian at Beaver Meadow we observed Supernova 1998AQ in Ursa Major under good to very good conditions.

Supernova 1998AQ was discovered on April 13th, 1998 in the magnitude 11.6 spiral galaxy NGC3982. The supernova appeared as a star-like point of light towards the edge of the galaxy at roughly the 1 o'clock

position with north up. We estimated its brightness at mag 12.3 by comparing it with mag 12.1 and 13.0 stars which lie just to the south of the galaxy. By using a 35mm eyepiece, our field of view was wide enough to also observe four nearby galaxies, an added treat. The finder chart was printed with the planetarium program "Deepspace" and the magnitude information is from the Hubble guide star catalog. The image was downloaded from the Sky & Telescope website then labeled for clarity.



Tim McIntyre, Don Knecht, Dennis Hohman, Tim Leary, Bill Aquino, Maurice Melaney

They need your input to in order to get the job done (and make it easier). Also thanks to the outgoing officers:

President: Bob Hughes

Vice President: Gene Witkoski

Secretary: Lynn Sigurdson

Treasurer: Bev Orzechowski

-editors

25 Easy To Find Lunar Highlights.... A Month's Worth Of Fun For Lunatics

By: Don Fox (from AOL)

1. Naked eye, binos, or telescope for the first or second day Moon.... not much detail visible due to the low altitude above the horizon, but catch the earthshine effect, especially on Day 2

2. On day three, Mare Crisium steals the show. It measures approx 280 miles N to S and 350 miles E to W (it doesn't appear that way due to foreshortening, however in fact, it looks just the reverse ... i.e., longer from N to S). This is probably the best example of a lunar object that will teach someone what the effect of foreshortening is like. Most of the interesting detail in Mare Crisium is nestled along the western portion, where there are some nice craterlets and mountains.

3. A nice large crater (about 100 miles in diameter) on day 3 and 4 is Petavius, located south of Mare Crisium. There are some great example of rilles on the floor of the crater.

4. Day 5 reveals Posidonius, another fine crater nestled up on the west shore of Mare Serenitatis.

5. Throughout the first 7 days of the lunation, closely observe the floor of all the Mare for signs of the ribbon-like wrinkle ridges. They have their best appearance when near the terminator.

6. Theophilus, on the NW shore of Mare Nectaris, is almost a perfect crater. It measure 65 miles across. it has multiple central peaks that are very interesting, and good detail can be observed inside the crater rim.

Many great objects come into play on days 8 - 10:

7. The prominent trio of craters Arzachel, Alphonuss, and Ptolemaeus, stretching adjacent to each other from south to north, respectively. it is most interesting to note the differences in structure and apparent age of the three craters.

POETRY CORNER:

Cygnus

*Long past sunset while I split green wood
the trumpeter swan left our shallow lake.
We had not seen its mate all summer.
Four times it circled overhead before
turning toward a darkening mountain pass.
A man at Trapper Creek once told me
old-timers called them swamp-turkeys.
It was late October and he wore
a hat made from the head of a wolf.
I watched that swan until it disappeared.
Now the absence of its beating wings
sounds a sadness nesting in my heart:
soon only that far constellation will
recall what was once so wonderful and wild.*

— Tom Sexton

8. The mighty crater Clavius, located to the extreme south. Try to count the number of interior craters/craterlets you can observe

9. Tycho, just north of Clavius. Observe it near the terminator for detail of the crater itself, and then watch the ray system unveil itself during subsequent nights.

10. Aristoteles and Exodus, a pair of craters that serve as the gateway towards the prominent crater Plato.

11. The Valles Aples ... just west of Aristoteles, and perhaps the best example of a valley on the moon.

12. Plato. Great example of a dark floored crater. Try to observe the very small craterlets on the floor (my experience is that they are easiest to see under higher lighting, not the day when the crater is closest to the terminator).

13. The Appenine mountains, the best mountain range on the Moon for observation.

14. Eratosthenes, which lies directly at the west tip of the Appenines.

15. The great crater Copernicus, just WSW of Eratosthenes. the classic lunar crater. Don't miss the multitude of craterlets surrounding Copernicus.

16. Sinus Iridium, encircled by the Jura mountains. On day 10, the mountain ring stands out alone past the terminator like a huge coat hanger.

17. Archimedes, south of Plato. Great light and dark streaks on the floor.

18. Timocharis ... a smaller crater west of Archimedes that is worth high power viewing.

Moving on to the final four days of the waxing moon....

19. Aristarchus ... brightest crater on the Moon. Look for the bright radial markings on the interior walls.

20. Schroters Valley, a winding complex system directly adjacent to Aristarchus.

21. Crater Kepler, just west of Copernicus. Another very bright ray source, but a smaller crater. Worth high power examination.

22. Crater Gassendi, on the north shore of Mare Humorum. One of my favorites. Study the interior closely, and observe the fractures rim.

23. If the seeing and transparency is good, return to Copernicus under high illumination to study the ray system. It is chock full of details and rich in texture.

24. Throughout the lunation, study the lunar limb. Note the mountains in their profile view. Also, observe craters near the limb, as they will appear like you are looking at them more from a surface elevation. It is an interesting effect.

25. And finally, if the libration is favorable, try to observe Mare Orientale on the western limb at Full Moon. That's my top 25. Hope this helps you get into observing, rather than always cursing, our closest celestial neighbor!

Martz club member's CCD images

The Marshall Martz club is located in Jamestown, NY with an observatory in Frewsburg. Club member, Ron Kohl, has been taking CCD images through a 20-inch scope for several years. Many of these pictures may be seen at:

<http://www.netsync.net/users/ronccd/>

SMALL SCOPE RICH FIELD TARGETS!

by Tom Bemus

This is a list of objects I've seen in my 4" refractor, Astroscan or 10x50 bins. Those objects listed together are either in the same low power field of view or are very close. Many of these objects are less than 2 degrees apart, but some are much wider associations only viewable with telescopes or bins with fields of view of 4 degrees or more. Most of these objects are beautiful in small telescopes at low power. While most of the groups of objects reveal far less detail in the individual objects, when viewed this way, it is often the beauty of the group of objects that is most impressive. I hope you'll enjoy this list and use it to impress people with what a small telescope can do. Feel free to add to the list and let me know about your additions.

OBJECT	TYPE	CONSTELLATION
Stock 2	Open cluster	Cassiopeia
Mel 15 / NGC1027	Open cluster	Cassiopeia
NGC281	Nebula	Cassiopeia
Kemble's Cascade / NGC1502	Starchain / open cluster	Cassiopeia/Camelopardalis
NGC7789	Open cluster	Cassiopeia
NGC457	Open cluster	Cassiopeia (ET or Owl Cluster)
Mel 20	Open cluster	Perseus
NGC1528 / 1545	Open cluster	Perseus
NGC669 / 884	Open cluster	Perseus (Double Cluster)
NGC1499	Nebula	Perseus (Calif. Neb)
M34	Open cluster	Perseus
NGC7331 / Stephen's Quintet	Galaxy	Pegasus
M33	Galaxy	Triangulum
M31 / 32 / 110	Galaxy	Andromeda
NGC752	Open cluster	Andromeda
M36 / 37 / 38	Open cluster	Auriga
M44	Open cluster	Cancer (Beehive)
M67	Open cluster	Cancer
M41	Open cluster	Canis Major
Cr 140	Open cluster	Canis Major
M35	Open cluster	Gemini
M48	Open cluster	Hydra
NGC2232	Open cluster	Monoceros
NGC2244 / 2246 / 2237-39	Open cluster/ nebula	Monoceros (Rosette)
NGC2264 / 2259 / 2261	Open cluster/ nebula	Monoceros (Christmas Tree)
Cr 70	Open cluster	Orion (Belt of Orion)
M42 / 43	Nebula	Orion (Orion Neb)
NGC2451 / 2477	Open cluster	Puppis
NGC2451 / 2477 / 2546 / 2568	Open cluster	Puppis
NGC2451 / 2477	Open cluster	Puppis
M46 / 47 / NGC2438 / 2423	Open cluster/ pl neb	Puppis
NGC2451	Open cluster	Puppis
Mel 111	Open cluster	Coma Ber (Berenice's Hair)
M101	Galaxy	Ursa Major
M81 / 82	Galaxy	Ursa Major

OBJECT	TYPE	CONSTELLATION
M106	Galaxy	Canes Venatici
M51 / NGC5195	Galaxy	Canes Venatici
M65 / 66 / NGC-3628	Galaxy	Leo
M8 / 20	Open cluster/ nebula	Sag (Lagoon & Trifid Neb)
M17 / 16	Open cluster/ nebula	Sag/Ser (Swan & Eagle Neb)
M24	Open cluster	Sag (Sagittarius Star Cloud)
M23	Open cluster	Sagittarius
M25	Open cluster	Sagittarius
M22 / 28	Globular cluster	Sagittarius
NGC6124	Open cluster	Scorpius
M4	Globular cluster	Scorpius
M62 / 19	Globular cluster	Scorpius
M6 / 7	Open cluster	Scorpius
NGC6124	Open cluster	Scorpius (Jewel Box)
NGC7293	Planetary nebula	Aquarius
M71	Globular cluster?	Sagitta
Cr 399	Open cluster	Vulpecula (Coat Hanger)
NGC6979 / 6960 / 6992-95	Nebula	Cygnus (Veil Nebula)
M39	Open cluster	Cygnus
NGC6888	Nebula	Cygnus (Crescent Neb)
NGC-6871	Open cluster	Cygnus (Cygnus Star Chain)
NGC7000 / IC5067-70	Nebula	Cygnus (N Amer / Pelican Neb)
Pipe Nebula	Dark nebula	Ophiuchus
IC 4665 / 6426	Open cluster	Ophiuchus
M10 / 12	Globular cluster	Ophiuchus
B 72	Dark nebula	Ophiuchus (S-Nebula)
M11 / 26 / Scutum Star Cloud	Open cluster	Scutum
NGC253 / 288	Galaxy / globular cl	Sculptor
Mel 26	Open cluster	Taurus (Hyades)
NGC1746 / 1647	Open cluster	Taurus
IC 1396	Nebula / open cluster	Cephus
IC4756 / NGC6633	Open cluster	SerCau/Oph (S-O Dbl Cluster)
B 143	Dark nebula	Aquila
IC486 / NGC2359 / 2374	Open cluster/ nebula	Canis Major (Thor's Helmet)

REGIONAL ASTRONOMY CONVENTIONS

RECOMMENDED THIS SUMMER

STELLAFANE

On July 24th weekend, the outdoor astronomy convention named Stellafane will be held near Springfield, Vermont. It is the oldest (1926) and largest, attracting almost 2000 amateurs from nearly every state and Canada. Talks and activities are mainly geared towards telescope making. This year there should be about 1000 scopes to look through; most of them are home-made; the largest is likely to be a 36 inch Dobsonian. There are also two observatories in the camping area, and another in town. There is also a 1000 foot long table loaded with bargains, used astronomy related items, and scope making parts. The bad side of Stellafane is that it is crowded, conditions are primitive, and the event involves a lot of walking. For more information write: Stellafane, P.O. Box 50, Belmont, MA 02178.

STARFEST

On Aug 20th weekend, the outdoor astronomy convention named Starfest will be held at a campground 1 1/2 hours north of Hamilton, Ontario Canada. About 1000 amateurs will attend; about 10 percent will be from the U.S. About 500 scopes will be there - the largest is likely to be a 25 inch. There is plenty of room, a heated swimming pool, hot showers, and a playground for the kids.

At Starfest, there will be over 20 different speakers, among them the chief editor of Sky and Telescope magazine and author Terry Dickenson. 15 different topics will include: CCD's, Autoguiders, Getting Started in Astronomy, Image Processing Your Prints and Slides, Observing and Sketching the Sun, The Mars Rover, City Observing, Telescope Making, Solar Eclipse, Astrophotography, Meteor Showers, Variable Stars, Asteroids, Amateur-Pro Collaboration and an Amateur Open Session.

Starfest will also include a workshop on making a barndoor tracker, commercial dealers selling their astro-products, and a swaptable. Over a dozen of our club members will be going; for more information write: Starfest, 26 Chryessa Ave, Toronto, Canada M6N 4T5. For those who don't like camping, the Starfest and the Stellafane brochures both have lists of motels and bed & breakfast homes that are nearby.

- Carl Milazzo

OBSERVATORY ACTIVITIES

Mr. Perseus' Neighborhood

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

Northeast Astronomy Forum

This convention and BIG TOY SALE took place in early May in Suffern, NY. 7 talks from the likes of Astronomy magazine's David Eicher, NASA's Fred Espenak and well-known author Terence Dickenson made it hard to find time to go through the largest collection of vendors east of the Mississippi. Many NEW items not yet in catalogs were on display.

A sale highlight was TeleVue's half-off prices on Naglers, Panoptics and Wide Fields. Standard Plossels were up to 75% off. Should have brought more cash. For info contact Don Urban at DONALDURBAN@JUNO.COM

-Bill Smith

***Watch this column:
special events, items to note,
volunteer opportunities!***

WANTED: SPEAKERS

The BAA's Speakers Committee is looking for lecturers, orators and just plain speakers to help fill our 1998-1999 schedule. If you have an area of interest that you would like to share with other club members please consider giving a talk at one of our monthly meetings. Your topic does not have to be on the cutting edge of astronomical research and it doesn't have to be long. A short presentation (10 to 15 minutes) about one or more observations you've made, an observing technique you've found to be useful, or a project you've completed or are currently working on would all make great talks. We are also willing to help out if you need presentation materials, e.g., slides or handouts. If you can help us out this year or if you have any questions, please call Bob Hughes at 833-2407, Carl Milazzo at 688-4869, Bev or Joe Orzechowski at 839-9109, or Bob Titran at 774-2742.

AURORA PHONE-LIST

If you would like your name put on our club's Aurora phone-tree list, call Carl Milazzo at 688-4869. Leave a message on the answering machine - your name, telephone number, and latest time of day to call.

ARMAGEDDON Wants You

Regal Cinema on Transit Road near Wehrle Drive invited our club members to promote the BAA at initial showings of the movie "Deep Impact" last month. Several of our members brought equipment, answered moviegoer questions about comets and let them look through a telescope. We gained some new members and received free movie passes.

Club members are invited to promote the BAA again starting July 1 at initial showings of the asteroid movie called "Armageddon. If you are willing to help out, call the theater manager at 633-8918.

- Carl Milazzo

It's been fun!

We like to thank all our various and many submitters, steadfast columnists and those who've read the SPECTRUM. We've had a great time doing this the last 3 years. Keep those submissions coming to Tim!

- Bill & Bev

MEMBERSHIP SERVICES

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

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

NEW SPECTRUM EDITOR

Tim McIntyre is taking over the SPECTRUM starting with the Sept-Oct 1998 issue.

Send all submissions to Tim at 157 Dartwood Dr., Cheektowaga, NY 14227.

You may send them via e-mail to:

<http://TMcint9320@aol.com>

- the retiring editors (Bill & Bev)

General Meetings Ideas

We need help in two areas:

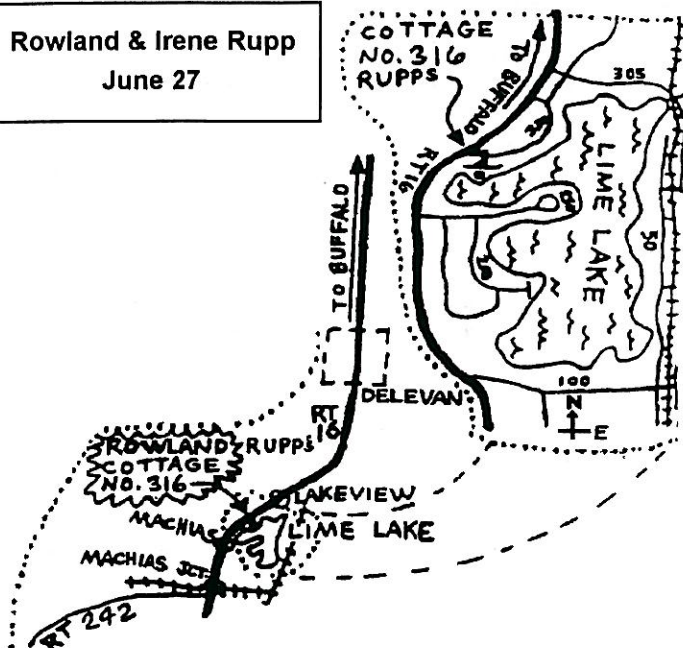
1) Make more meaningful and efficient meetings. What should be covered during the business portion; is there a need for a break between the business portion and the main speaker ...

2) Main meeting topic and speaker ideas. Do you know someone who would like to address our group. Perhaps that is you. Short (5-15 minute) talks are also needed.

Contact any board member with your thoughts.

Rowland & Irene Rupp

June 27



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The SPECTRUM

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