

** JULY - AUGUST **
** 1981 **

? QUIZ ?

- 1) At our meeting in March this year, does anyone know what anniversary should have been celebrated that day?
- 2) Who compiled the early star catalog called Almagest?
- 3) Who discovered the red spot on Jupiter?
- 4) How many recognized constellations are there?
- 5) What is an asterism?
- 6) What is a tachyon?

Answers will be elsewhere in the Spectrum.....

"Those who can do those who can't teach!"

----- SUMMER ASTRONOMICAL EVENTS -----

Lockport Astronomy Ass'n has their Public Nights on each Wednesday evening at the Remick Observatory near the Lockport Senior High School on Lincoln St. off Rte 78 in Lockport, N. Y. They have a 12" Cassegrain telescope.

The Stallafane Telescope Makers Convention will take place near Springfield, Vt. at a place called Breezy Hill off Rte 11(Vt). This year it will be July 31, Aug. 1 & 2. Talks will be: The Making of a REBEL by David Hibner of Colchester, Conn. - Sub-Diameter tools: No Small Matter by Paul Valleli from Burlington, Mass. - A Conic Null Test by Tom Waineco of Chelmsford, Mass. - Panel of Experts by the Stellafane Judging Committee. The evening program will hear from John Spina of Eastman Kodak Co. telling about the NASA Space Telescope. There are many other activities which take place and is a very worthwhile meeting of amateurs from all over the US and Canada.

Syracuse is having their Seminar at Vesper, N. Y., south of Syracuse, June 26, 27 and 28th. They are equipped for camping on the hill. They provide talks and programs of various astronomical events as well as the use of their two observatories. (It is a small Stellafane).

There are other star nights and public nights provided by the other groups of the NFCAAA. To find out about them contact Ed Lindberg, who can supply you with those club star nights.

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Did you know? Black holes are often defined as areas from which nothing, not even light, can escape.

Buffalo Astronomical
Association, Inc.
Darwin Christy, Editor

SUMMER STAR PARTIES *

The traditional summer star parties are scheduled for each Friday night during the months of July and August. In the event of inclement weather, Saturday will become the designated evening. All star parties begin at sunset and end at ????. Whatever the date and wherever the location, bring your binoculars and/or your portable telescopes. It will be advantageous to you as well as for those who do not have astronomical equipment.

We hope the skies will provide us with some extraordinary GOOD weather, also GOOD viewing of the heavens.

July 3rd & 4th there will be NO star party due to the Holiday, celebrating our independence.

July 11th, with NO rain date, beginning at 3:00 PM at Miro Catapovic's cottage on East River Road, Grand Island, N. Y., the star party will take the place of the picnic we have had in the past. There will be boat rides, water skiing and other activities until dusk. Star gazing will begin when the stars appear and last until you are tired and ready for snooze-land. For reservations, please call Miro at 694 6194 OR 695 1131.

July 18th ONLY from 12:00 noon to 2:00 PM at the Buffalo Science Museum, (rain or shine) Ernst Both will provide us with a solar show.

July 24th (rain date July 25th) we will be hosted by Larry Carlino at his observing site in Colden, N. Y. He will have his 17.8" f4.5 Dobsonian reflecting telescope for observing

July 31st (rain date August 1st) we will meet at the club's observatory in Beaver Meadow, Java.

August 7th (rain date August 8th) Steve Desmond will host the star party at his home in Orchard Park. If you have a portable telescope, please bring it.

August 14th (rain date August 15th) is to be held at Ken Biggie's estate in West Seneca. Please bring your telescopes or binoculars.

August 21, 22, 23, the University of Rochester's Mees Observatory will provide observing through their 24 inch Cassegrain Telescope. It is located about 25 miles south of Rochester. RAIN or SHINE come for a few hours in the evening, stay an entire night or for the whole week-end. Next to the observatory is a four bedroom dormitory for ten people and there is facilities to camp. You will have to supply your own provisions, food and bedding. For reservations call Carl Milazzo at 688 7620. In the dorm there is an astronomy library and around the area there are other things to do to pass the time till evening sets in. Hiking and Wineries and Carl can fill you in on many others.

August 28th (rain date August 29th) Larry Hazel would like to host a star night at his 'roll-off-roof' observatory near Youngstown, N. Y. He owns a 12" f3.8 Newtonian Telescope which he does his 'double-star' work with.

LET'S MAKE THESE STAR PARTIES A SUCCESS----

COME ONE - COME ALL

+ From the President +

The summer season is rapidly approaching and star parties are right around the corner! Like most astronomers in this climate, I look forward to clearer skies, warmer temperatures and BAA star parties. If you are a new member or a member who has never attended a star party, I would like to take a moment to extol their virtues.

Star parties are social events arranged by the Board of Directors with the purpose of collecting BAA members, observing equipment and dark skies all in the same place every Friday (and/or Saturday) in the months of July and August. The parties are an opportunity to learn about constellations, deep sky objects, double stars, observing techniques and much, much more. They are also an opportunity to try out different eyepieces, telescopes, binoculars and see a variety of members' observatories or favorite observation locations. I can think of no better way to decide whether or not to buy a particular telescope, ocular, atlas, etc. than to try out the prospective item at a star party and talk to someone who owns one. So---go to the star parties and immerse yourself in summer skies and good fellowship.

As the 1980-81 BAA season winds down I would like to thank everyone who was involved in making it such a successful one. Of course, I want to thank the officers and board members. The board does much work and worrying behind the scenes at 5 meetings a season. In particular, I would like to thank Ken Kimble for his faithful minutes of both general meetings and board meetings, his formidable task of all the official BAA typing, his organizing of an astronomy course at U. B., his helping to teach a course at the science museum, his presentation of his solar observatory at our January meeting, his coordinating of the study group, his helping out during the May public night at the science museum, his service on the nominating committee, and for his willingness to offer advice whenever it was sought. I would also like to give special thanks to Roland Rupp for his excellent and willing advice, participation on the board, his organizing an astronomy course at the science museum, his helping to teach a course at U. B., his research on the Malls for a possible astronomy day display, and his March presentation on double stars.

Fearing I may forget someone or some activity someone was involved in, I must publicly thank:-

Darwin Christy for:

- 1) His excellent job on the "Spectrum."
- 2) His Christmas slide presentation.
- 3) His board participation.
- 4) His March "Triple Conjunction" presentation.

Jack Mack for:

- 1) His October presentation on the "3^o Background Radiation."
- 2) His NFCAAA presentation.
- 3) His board participation.

Ed Lindberg for:

- 1) His class at the science museum intescope making.
- 2) His coordination of the instrument section.
- 3) His participation on the board.
- 4) His organization of the NFCAAA meeting.

Bob Mayer for:

- 1) Fixing the Beaver Meadow crosshairs on the 4".
- 2) His board participation

Allan Mohn for:

- 1) His board participation.
- 2) His outstanding job on the time consuming task of observatory co-director.

Jim Russel for:

- 1) His board participation.
- 2) An outstanding job on the time consuming task of observatory co-director.

Carl Milazzo for:

- 1) His many ideas.
- 2) His organization of this summer's star party schedule.

- 3) His tours to various observatories.
- 4) His never ending information on various aspects of our hobby.

Edith Geiger for:

- 1) Her faithful purchasing of donuts each month.
- 2) Her efficient and friendly service as membership chairperson.
- 3) Her Christmas slide show.
- 4) Her teaching at the U. B. and science museum astronomy course.

Adrienne Kimble for:

- 1) Her steady and sure service as refreshment coordinator for our meetings every month.
- 2) The NFCAAA coffee hour.
- 3) The science museum course party.

Fred Price for:

- 1) His March presentation on "Lunar Craters."
- 2) His handling of the paper work at Buff State for the use of their facilities.
- 3) His help in the NFCAAA planning.

Gene Witkowski for:

- 1) Sending his 14" telescope to the NFCAAA planners.
- 2) His generous loan at the NFCAAA meeting.

John Riggs for lending his famous observing chair to the NFCAAA planners.

Gilbert Brink for his November presentation on "Outer Stellar Medium."

Ernst Both for his February presentation on "Galaxies."

Carroll Geiger for his thoughtful encouragement throughout the year.

Kurt Mancuso for his March presentation on his Westinghouse research project.

Bill Kirst for his service on the nominating committee.

Dennis Jewell for volunteering to serve on the audit committee.

David Junkin for his patience with us through our campouts and observatory director changeover and his advice.

I hope I have remembered to mention all the major contributors. Congratulations to a great job! See you at the STAR PARTIES!

Alphonse Kolodziejczak
President.

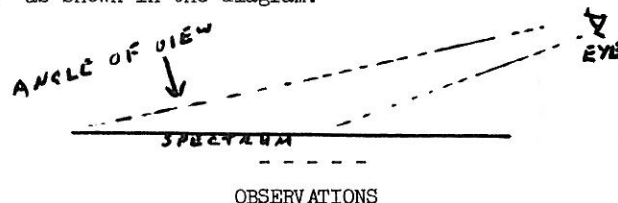
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+ For Sale +

Celestron 8, wedge, tripod, special 8x50 right-angle finder, full aperture Tuthill solar filter, piggyback camera mount, star diagonal and two eyepieces - all in good condition! Asking \$ 825 - Contact Larry Carlino, 453 Niagara Falls Blvd., Buffalo, N. Y. 14226 - phone 716 832 0491

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If you wonder how to read the 'title' of the newsletter - simply tip the "SPECTRUM" to an angle of about 20° as shown in the diagram.



Steven Desmond reported that he has observed the Galilean moons of Jupiter in his unfinished, unsilvered telescope as well as two belts of Jupiter. Saturn also proved to be defined well in the telescope.

Yours truly has been observing the Great Conjunction when the clouds open up.

+ BAA ANNALS +

5 years ago - July and August of 1976 were star party months as they are now. Only two parties were scheduled at members homes and the typical Friday night star parties at Beaver Meadow filled the rest of the summer. The 'Spectrum' contained a little anecdote about a young visitor being more impressed with the observatories roll off roof than the telescope.

10 years ago - The July and August months of 1971 were filled with star parties, seven hosted by members to be exact. They were distributed around the area from, to as far south as Camp Sprucelands near Java Center. The 'Spectrum' was taken up almost entirely by maps directing members to star parties.

In the records I have there are no 'Spectrums' for July and August back 15 years and farther. Could it be that the editor took a summer break then too(?) or are the files incomplete? Could some knowledgeable person (with a memory) enlighten me.....

Ken Kimble

+ STUDY GROUP +

The study group did not meet in May as this was the month we were to assist the museum on public nights. I think that the attendance at a June study group session would not warrant having one so unless something comes up there will not be one. For next season we are considering using the study group meetings to conduct the basic astronomy course that several of our members teach at various places in the area. It will be a good chance for members to brush up and for the people teaching to polish up their delivery and spot weak areas.

Ken Kimble

+ SPY and TELL +

Jack and Jayne Mack and daughter, Alice, will be visiting in England in July and August and will be staying with Jayne's sister. While there, a special treat for little Alice will be learning how to ride a pony.

Fred Price will also be in England, spending the summer at his home. He will be coming back to Buffalo earlier this year, missing the Royal Wedding by one week, thereby cancelling his chances of becoming 'Best Man'. By the way, Fred is at work on another book following the success of his first book.

Bob Mayer has made a filar micrometer for measuring star distances. It is, as usual, an elegant piece of workmanship.

Later this summer, Walt and Gertrude Whyman will be traveling in Ohio and northern Kentucky in search of more covered bridges. Walt has photographed 711 authentic covered bridges and 60 or 70 non-authentic. He often gives talks on the subject, illustrated with his many fine slides.

Ken Burke finds working in the yard and caring for his flower gardens to be very time consuming, but most enjoyable.

Irv and Esther Goetz flew to New York in May to see son, Peter Michael Goetz, in the play "Ned and Jack," in which Peter plays the part of John Barrymore.

Ken and Adrienne Kimble and the children are making a family pilgrimage to Stellafane this year.

Bob Dietrich, who is employed by Bell Aerospace, is a very busy electronic engineer. He is working on extremely sophisticated inertial instruments that will go in the spacelab in the cargo bay in the space shuttle. Many of the instruments that he works on go into earth orbiting satellites, with prelaunch checks taking him

to such places as Vandenburg Air Force Base, Cape Canaveral and Goddard Space Center.

Did you know(?) that Darwin Christy, our 'Spectrum' editor, is a sleepwalker? In the middle of a warmer but damp night in late March, this year, so the story goes, Darwin, in one of his sleepwalking jaunts, headed out to his observatory with nothing on but his undershorts. Walking with bare feet on the damp ground didn't waken him. It was only when he tried to reach for a pocket that would hold the key to the observatory door that the frustration of not finding it, or the key, woke him up.

He has also been known to go sleepwalking into the kitchen for a middle of the night snack, and nor remembering it in the morning.

If any of you are sleepwalkers and have interesting escapades to report, I'll be waiting to hear from you.

Edith Geiger

Fred Price and Ernst Both are both working on a project together involving closely related species of fungi of which Fred will use a biochemical 'finger printing' technic to help tell the closely related species apart.

New members

Thomas Kawa

Claudia Bielinski

Michael Thomas

What is wrong with this picture?



+ OBSERVATIONS ON OBSERVING +

Have you ever tried to explain why you observe? Its difficult to do and be convincing about it. If the listener isn't interested in astronomy himself, he is likely to be unimpressed and may well counter with the almost unanswerable question: "Why don't you get a photograph taken at a big observatory and look at that instead?"

Sometimes we do just that but many of us still feel unsatisfied unless we "see for ourselves" at the eyepiece of a telescope. Even then, we may disagree with one another about what aspect of observing compels us to do it.

For the big splashy objects like the planets, the moon, some of the prominent deep sky objects and a few special binary stars, we will agree that aesthetics motivates us to observe. Saturn, the Orion Nebula and Albi-reo always deserve a glance whenever they are out, no matter what observation program we may have planned.

But what about less spectacular objects? We may search out an asteroid and take considerable time doing it. For What? It's only a point of star-like light. The same goes for most double stars and variable stars. And what about those countless dim deep sky objects? Our reward for a lengthy search and difficult identification is just an obscure smudge in the eyepiece--nothing like what we could see in a decent photograph. Perhaps only the lunar and planetary viewers with their precious moments of fine seeing can claim an improvement over a professional photograph.

So way do we subject ourselves to long, cold winter nights, or not quite so long summer nights fighting dew and mosquitos, to "see for ourselves?" It depends on whom we ask. For some, it's the challenge of the search. Of being able to find an object by an interaction of the intellect, the hand and the eye. To hop from bright star to dim star to the target in a series of planned sweeps of the telescope. Even if the object is an uninspired dot of

light, the observer can still record the success of his search in his notebook or memory, whichever suits his style.

For others, it's the more esoteric appeal of "seeing". To view an object whose light originates in a distance corner of the galaxy or raises a stimulating concept. Or to see light radiated far back in time---millions or even billions of years ago. Think of your eye intercepting light a billion years in coming, light starting its journey before creatures emerged from Earth's seas. These observers are content never to find an object for themselves and have little appreciation for the satisfaction obtained by those who do. They seek a relationship between themselves and what they see.

Still others observe for more scientifically acceptable reasons. Not necessarily to be original, but at least to confirm or to participate in some way in the work of professional astronomers. Sketching the moon or a planet, measuring a binary pair, counting sunspots or creating stellar spectra calls for a disciplined approach to observation and, often, a quantitative appreciation that appeals to gain a personal insight into the heavens, on their own and in their own way.

A few in this group seek true scientific involvement by contributing their observations to organizations that combine results from other amateurs to develop statistically sound data. Fewer still may hope for original discovery. Some search for comets, or asteroids or novae. They rarely succeed, but what marvelous gratification they must anticipate if they ever should.

So we view the heavens for a variety of reasons--some not completely understood by our fellow observers. I suppose the spirit of amateur astronomy has been personal observation, and we continue it today. Sadly, we are the last practitioners of that tradition, for in a few decades light pollution will sweep the heavens clean of those mysterious and compelling specks of light.

Rowland A. Rupp

* JULY CONSTELLATION *

The ancient constellation "SCEPTRE & HAND of JUSTICE" commemorating his king, Louis XIV; and a century later Bode substituted the "Frederici Honores," in honor of his sovereign Frederick the Great: but LACERTA has held its place, while Royer's figure has been entirely forgotten, and Bode's nearly so.

* AUGUST CONSTELLATION *

During the summer months there is what is called the summer triangle, of which, one of the stars is in this constellation. Vega adorns the constellation "LYRA" the Lyre or Harp. In ancient times this constellation was representing a musical instrument shaped like a turtle and played like a harp. It was invented by Hermes and given to his half-brother Apollo. He in turn transferred it to his son Orpheus, the musician of the Argonauts, of whom Shakespeare wrote,

Everything that heard him play,
Even the billows of the sea,
Hung their heads, and then lay by.

It has been written up by many of the ancient astronomers and many names have been given it.

LYRA is bordered by Draco on the north; Hercules on the west and south; Vulpecula on the south and east; and Cygnus on the east. Even though it is a small constellation, it does contain many objects for all sizes of telescopes to be observed.

Alpha, VEGA, is 0.3 magnitude coloured a pale sapphire. Beta, Shelyak, is very white and a binary which goes from 3.4 to 4.5 magnitude. The changes in its brilliancy has been investigated and is now concluded to change in a period of 12 days, 21 hours, 45 minutes. Gamma, Sulafat, is bright yellow and of magnitude 3.3.

The 'double-double', Epsilon Lyrae is made up of 1 & 2. 1 being yellow and red, of magnitude 4.6 and 6.3 M while 2 are both white and of magnitude 4.9 and 5.2.

The famous 'Ring Nebula' is placed between the stars Beta and Gamma and known as M-57. Not far away is another Messier object, M-56 which is a 'globular cluster.'

Hidden among the faint stars in Lyra is a variable star, RR Lyrae. This is an intrinsic variable star, pulsating with a period of less than one day between maximum and minimum. It is the prototype of untold millions of stars scattered through the farthest reaches of our galaxy. This star can give us a most accurate measurement of distances of other star groups like clusters and galaxies.

Building the Beaver Meadow Observatory; Some Reflections and Reminiscences (part 2) by Ken Biggie

In part 1 of this article I wrote mainly about how the need for a new BAA observing facility developed during the early and mid 1970's, the decision to build a new facility at Beaver Meadow, and how we resolved some of the problems associated with construction and financing. In this part I will concentrate more on the actual construction of the building during the summer and fall of 1975.

The new observatory is located at the Beaver Meadow Education and Environmental Center, a nature center owned by the Buffalo Audubon Society, on Walsh Road just off Rte 77 in North Java. It is a rectangular frame structure approximately 16' wide by 24' long with a truss constructed gable roof which slides off the main building on a double rail and caster system.

The basic design plans and drawings were for the most part provided by Mr. Tom Dessert, one of our most active members in recent years. I'm sure he received assistance many other members, but since I couldn't begin to recall everyone who was involved I won't mention any other names. The basic construction of the building was completed by my brother Tim and myself; also with assistance from others too numerous to mention. Once the basic building was up, painting, panelling, decorating and other such finishing was done by those mentioned above and by many evening and weekend volunteers who ended up doing a real fine job.

After selecting a general site, a small rise on the Beaver Meadow grounds about half way between the Walsh Rd. parking lot and the Fred Hall T. building, or the Fred T. Hall building as most call it, the area was surveyed to lay out the specific location of the foundation. It was decided to have the building on a north/south axis so utilizing the transit, which Tom Dessert provided, and the application of some basic geometry, the foundation was staked out and a local contractor with a backhoe tractor was hired to excavate the approximately 4 foot deep trenches needed for foundation and pier footings.

Once the machine excavated to the proper depth below the frost line it was necessary to hand pick and dig a foot wide shallow trench which was then filled with concrete to provide a flat level footing upon which the brick-layer would place the concrete block foundation to just above ground level. This concrete block foundation would then support the building itself with the telescope pier and the rail support post piers having their own separate block and cement footings.

The support pier for the telescope was made extra deep and extra massive, about the size of Warren Steinberg (an exmember who was helping us at the time) which by the way, makes me ask has anyone seen Warren lately? Anyway, the extra size if the pier was to help insure a solid secure base for the telescope. Along with the extra deep footing and the concrete blocks, we used extra steel reinforcement rods and even filled the concrete block cavities with cement. The pier is at least 8 feet deep in length from top to bottom and is very sturdy.

The most unique feature in the design of the new

Beaver Meadow Observatory is the roof which is actually a separate structure from the rest of the building. Resting on several large, heavy duty, metal casters the roof is movable to the front (north) along two heavy duty angle iron tracks attached to the top plates of the side walls and extending another 16 feet atop several 4" x 4" wood support posts. An electric motor, cable, and pulley system is actuated at the push of a button inside the observation deck to move the entire roof off the main building walls about 15 feet to the front so as to expose the observation deck to the sky. It is sometimes necessary in the winter months to have to remove ice and snow accumulations on the rail tracks to insure that the roof will roll along smoothly. This doesn't happen very often as the winter weather down there keeps the sky cloudy and prevents observations most of the time anyway.

The observatory building is composed of two separate rooms. In the front or north section is the observers warming room which is approximately 8' by 16'. This room provides a little heat and light on a cold night and is used by club members for providing refreshments, displaying astrophotographs and drawings, keeping supplies and just about anything one would want to do while not observing. (Well - most anything!)

In the rear or south section is the 16 by 16 foot observation deck separated from the heat and light of the warming room by a wall which is insulated. The building was placed on an almost true north/south axis with the roof sliding away to the north. The south end was selected for the placement of the observation deck and telescope because of better viewing in that direction from this latitude and also because the Beaver Meadow site has a much better natural southern horizon. There are many trees to the north. Since it was not practical to construct the building so that the roof could slide far enough away so as not to obstruct the viewers sky it was better to keep it to the north anyway.

The original design placed the building floor within 12 inches of the outside ground level. This was fine for the warming room floor, but when the observation deck was put on and the walls raised it became obvious quite soon that when the telescope was properly mounted at a height off the floor enough to insure viewing of the sky down to the horizon an observer would have to be over 8 feet tall on order to reach the eyepiece. A quick review of the of the BAA (secret) membership vital statistics list (available from Rowland Rupp) indicated that although several members were overweight and even a few had really big heads, none were really tall enough to be able to use the telescope without the aid of stilts. Carl Milazzo recommended contacting the Buffalo Braves (professional basketball team) Players Association to solicit new BAA members who could then use the new observatory but they were all getting ready to leave for San Diego.

Reason and common sense as well as many short members dictated changes in the design of the building to correct this problem. Two things were done; first, about 35 inches of the top of the rear (south) wall were amputated and placed on hinges which would allow this section to be lowered when observing and raised when the building was shut down. This allowed a good unobstructed view of the south horizon, but it did not solve the problem of difficult viewing toward the east and west and especially the north which was also obstructed by the peak of the roof itself even when rolled all the way back on the rails. Second, it was decided to raise the observation deck floor itself up approximately two feet. (Warren Steinberg, a past member, who was working with us at the time, suggested that we lower the floor, but that would have cost another 15 or 20 thousand dollars and BAS naturalist Dave Bigelow objected to the idea of leveling off the hill atop which the building sits and using the discarded soil to fill in

the beaver pond.) Anyway, with the observation deck raised another 2 feet and the telescope mount located at the proper height this problem was solved.

Ken Biggie

To be continued????

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METEOR SHOWERS

June 15th - LYRIDS *****
 June 20th - Ophiuchids *
 June 28th - Draconids ***
 June 30th - Beta Taurids (Daytime) *
 July 6th - Sagittariids *
 July 14th - Alpha Cygnids *
 July 16th - Omicron Capricornids *
 July 23rd - Capricornids ***
 July 27th - Alpha-Beta Perseids **
 July 29th - Delta Aquarids ****
 July 30th - Pisces Australids *
 August 1st - Alpha Capricornids **
 August 6th - Iota Aquarids *
 August 11th - Epsilon Pegasids (New)
 August 12th - Perseids *****
 August 20th - Kappa Cygnids (Fire balls) **
 August 22nd - Omicron Draconids *
 August 26th - Zeta Draconids **
 September 1st - Beta Lacertids (New) **
 September 11th - Epsilon Perseids *
 September 22nd - Alpha Aurigids ***

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PLANETARY

The third and final conjunction between Jupiter and Saturn during the Triple Conjunction will occur on July 23rd.

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SOLAR

The Sun will start its journey to the south on June 21st (Summer Solstice). The days will start to become shorter and the nights will become longer.

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+ CELESTIAL ICEBERGS +

Comets are basically a small solid nucleus of ice and dust, that move around the Sun in very long elliptical orbits. As a comet nears the sun, it's icy surface begins to melt, evaporate and boil - about when it crosses the orbit of Jupiter. These vapors form a moist, dusty rarified atmosphere, which is known as the coma. Soon after that, the solar wind blows away some of the cometary matter to form a long, thin tail which is of a very low density.

The solid surface of a comet is called the nucleus, which ranges in size from 1 to 10 miles in diameter. It is made up of 75% ice, and is mingled with about 25% dust grains. The ices are of mainly water, methane, ammonia and dry ice. The dust consists of silicon, carbon, sodium, calcium, sulfur, potassium, iron, nickel and chromium.

The spin rates for 42 comets are now known (a day length on a comet) ranging from 5 days to as short as 4.6 hours. If it were to spin faster than 3 hours, it would break up from the centrifugal force, because ice is fairly fragile material.

The rarified atmosphere of a comet, known as the coma, range in size from zero to 800,000 miles in diameter, depending on how far from the sun it is. As a comet nears the sun, it's surface ices start to vaporize and release its dust, which expands upwards as concentric shells. Surface hot spots are produced from the sunny side of a hill on its surface, which causes fountains and jets, that spiral upwards and expand.

Because they have such a low mass, their surface gravity is near zero, so its quite easy for the dust and gas to escape and form a long tail. But not all of it escapes, some of the material is moving too slowly, and falls back to form layered deposits.

Comet tails always point away from the sun because of the solar wind and from the pressure of sunlight, and it is those very same forces that make solar sails move. The density inside the tail is much lower than in a vacuum tube, and their lengths range from zero to 500 million miles. Even though the tail is huge, the total matter could be packed into a suitcase because of its ultra low density. Each comet actually has two tails, a bright one made of dust which is wide and slightly curved due to the sun's gravity, and is yellow in color. The other is fainter and blue due to gas that fluoresce from the sun's ultraviolet light that ionizes it and it is straight in shape.

There are 100 trillion comets within the gravitational influence of our sun and have a total mass that equals 100 Earths. Their orbital periods are as short as 3 years or as long as 25 million years and their orbits are tilted at all angles. Most have extremely elliptical orbits and range as far out, halfway to Alpha Centauri to just above the surface of the sun.

The sun determines their temperature and orbital velocity. They can range from 10,000 degrees, moving over 250 miles per second to -450 degrees, moving less than one mile per second.

Comets were formed 4.6 billion years ago between the orbits of Uranus and Neptune; but because of their gravitational tugging, they were scattered all over the solarsystem.

There are many kinds of deaths for comets and usually it is a combination of them over their lifetime. Such as disintegrating into meteors and zodiacal dust or by colliding with other worlds in our solar system. In 1770 Earth came within 1.2 million miles of comet Lexell which is astronomically a near miss. Thousands of years ago a small fragment of comet Encke broke off and collided in Siberia in June 1908, flattening trees within a radius of 30 miles. Yet no crater was formed because ice has a low density and it simply vaporized. Often when a comet approaches the sun it breaks up from thermal and centrifugal stress and from outgassing upon the weak structured icy comets. When the sun finally evaporates all of a comet's volatiles, it's core becomes an asteroid of the Apollo/Amor class.

Comets are discovered on an average of about once a month and half are found by amateur astronomers and are named after the discoverer with two exceptions - comet Halley and Encke. Those two were the first to have their orbital periods calculated and were named after to two astronomers who determined their orbits. Today it is quite common for a comet to have two or three names because now so many people are searching for them.

The brightest comet of all time was seen in 372 BC which was as bright as the Full Moon. In May 1910, Comet Halley was magnitude -2 but in 1985-86 it will be +3.5 magnitude.

In 1985 Russia, Japan and the Europeans will each send probes to Halley's comet, unfortunately their data will be poor. The only chance for high quality information about active comets this century will be if the American people decide the US should probe also.

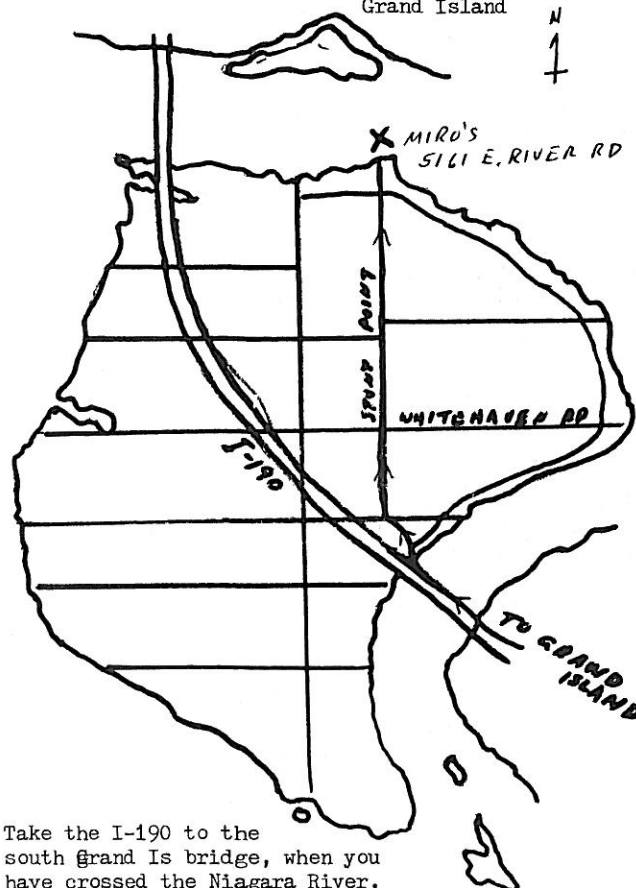
Carl Milazzo

Did you know?---The third moon of Neptune has just been discovered by an astronomer from the University of Arizona. It is 100 miles in diameter and of the 21st magnitude. The last time a moon was found around Neptune was 32 years ago.

cm

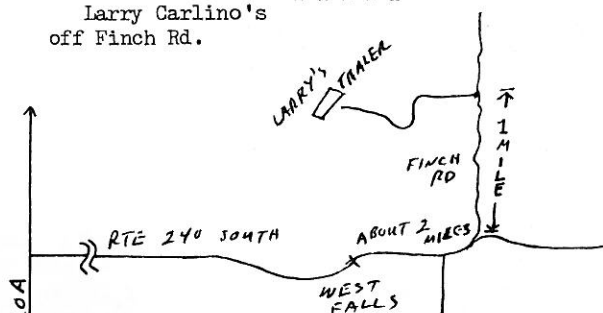
+ MAPS & DIRECTIONS +
TO THE STAR PARTIES ==

Miro Catapovic's - 5161 E. River Rd.
Grand Island



Take the I-190 to the south Grand Is bridge, when you have crossed the Niagara River, take the first exit on the right to Stony Point Rd to the end. Miro will have signs!

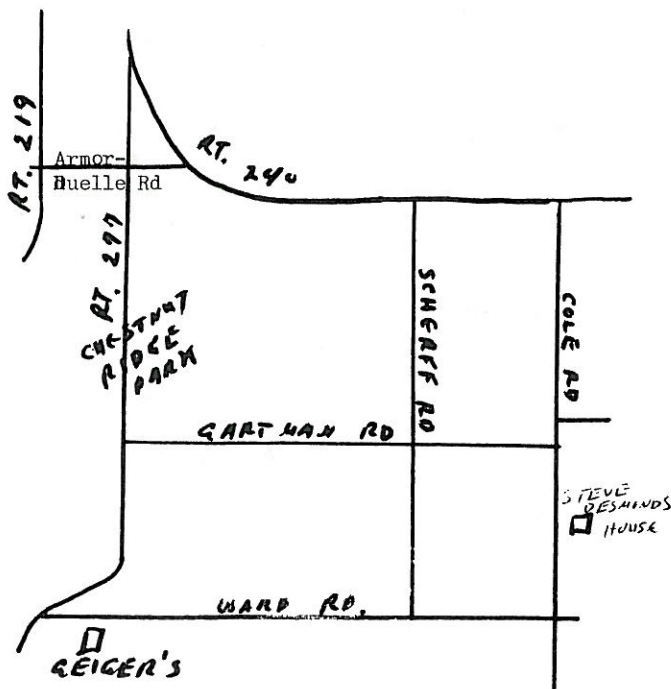
Larry Carlino's
off Finch Rd.



Take Rt 240 to Finch Rd. -(it is a steep gravel/dirt road) There are several houses on the left of Finch Rd that you will pass while ascending.

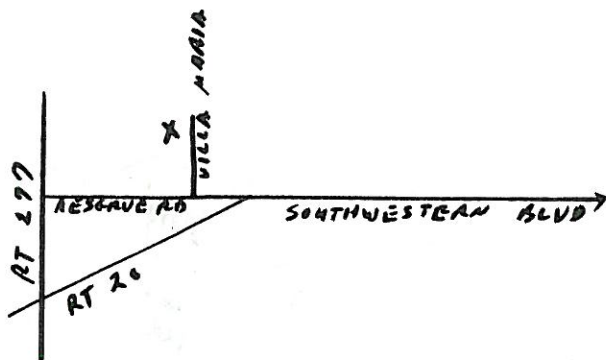
About one mile up the road you'll see two new houses; there is a right-of-way between the houses that snakes back past a cabin to my land and trailer. Parking is available on Finch Rd. or on the right-of-way. SEEYOU!

Steven Desmond's - 6717 Cole Rd.
Orchard Park, N. Y.



It is the third house on the east side of the road coming in from either Ward Rd. or Gartman Rd. A large red barn is almost across from the house.

Ken Biggie's Estate - 37 Villa Maria St.
West Seneca, N. Y.



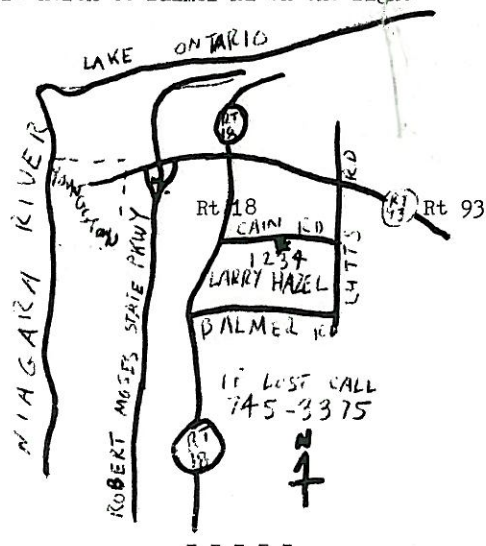
***** CREDITS GO TO *****

Carl Milazzo
Al Kolodziejczak
Steven Desmond
Ken Kimble
Edith Geiger
Rowland Rupp
Ken Biggie

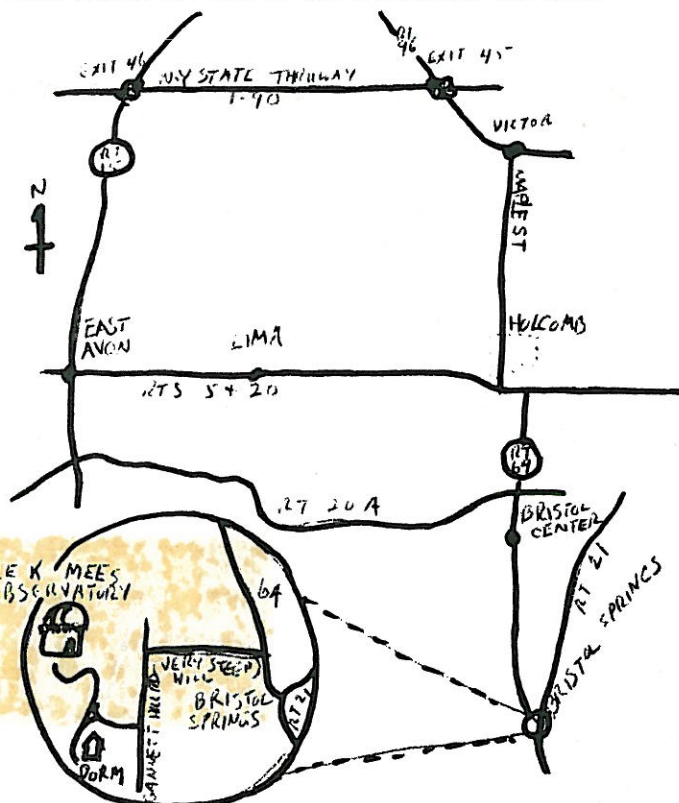
Your editor THANKS YOU VERY MUCH for helping with the short, fat, skinny and long articles he received for this "SPECTRUM".....

Larry Hazel - 1234 Balmer Rd.
Youngstown, N. Y.

Take the Robert Moses Pkwy to Rt 93 - turn right to Rt 18, about one mile - turn right to Balmer Rd
OR
Take Rt 18 north to Balmer Rd on the right



University of Rochester's MEES Observatory near Bristol Springs, N. Y. By use of a New York State map you can find Bristol Springs and when you arrive you can ask a towns person the rest of the directions. God luck!



Did anyone ever think of the music world in terms of what names were given to 'songs'? Think about it you music lovers. Some examples are: MOON River - Blue MOON - East of the SUN - The STARLIT Hour - STAR DUST - Cabin in the SKY - STARS in Your Eyes - and many many more.
Ed.

? ANSWERS TO QUIZ ?

- 1) It was the 200th anniversary of the discovery by Sir William Herschel of the planet Uranus.
- 2) Claudius Ptolemy
- 3) Giovanni Domenico Cassini in 1665
- 4) 88
- 5) A group of stars which are not in the accepted 88 constellations.
- 6) A hypothetical particle travelling faster than the speed of light. If they exist they would slow down only by gaining energy. They might even travel backward in time.

A few dots here & a few dots there; can you figure out which constellations the following dots represent???

Answers will be in the next "SPECTRUM".

-8-

The Buffalo Astronomical Ass'n. Inc.
"The SPECTRUM"
% Darwin Christy, Editor
216 Kohler St.
Tonawanda, N. Y. 14150

