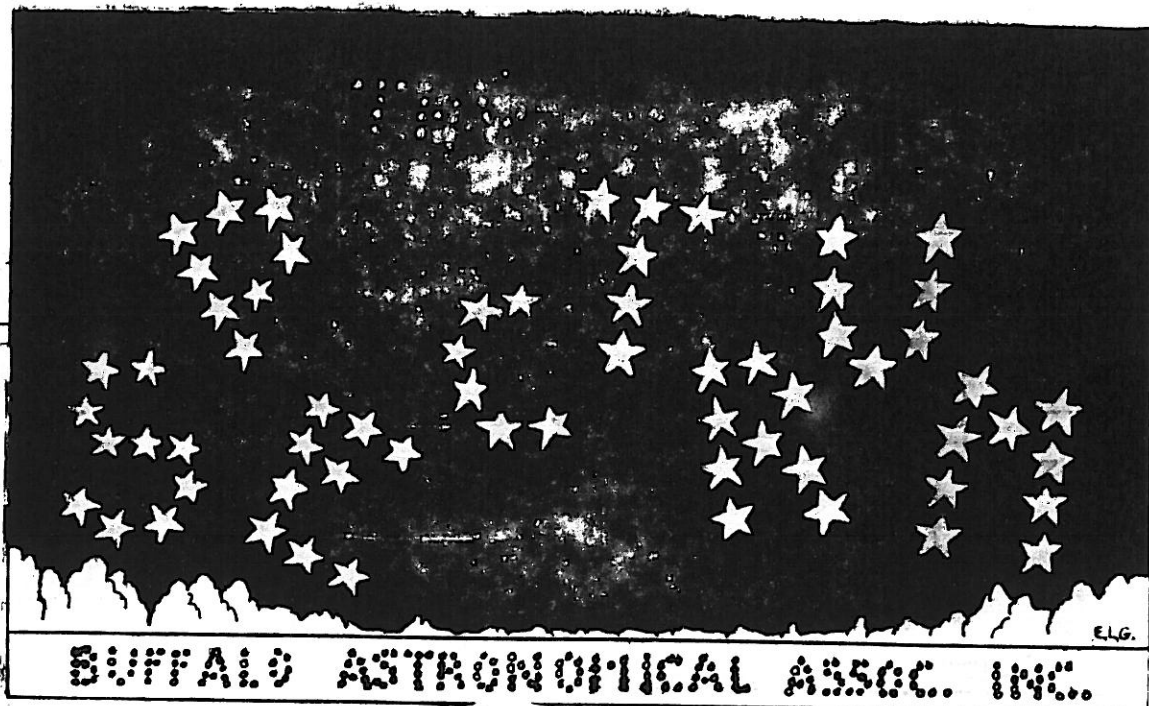


 ** SUMMER ISSUE **
 ** JULY AUGUST **
 ** 1983 **

Rowland Rupp, Pres.
 Ken Biggle, V. Pres.
 Ken Kimble, Secy.
 Edith Geiger, Treas.
 Darwin Christy, Ed.



BUFFALO ASTRONOMICAL ASSOC. INC.

The SUMMER STAR PARTIES, which are a tradition, are scheduled for each Friday and/or Saturday night during the months of July and August. All star parties start at sunset and can last into the 'wee-hours-of-the-morning'. Whatever the date and wherever the location, bring your binoculars and/or your portable telescope - cameras also. These summer star nights are our get-to-togethers in the summer and provide fun for all as well as learning what others may own in equipment and/or what they have in their heads of information - you have to ask to get the answers!

We always hope for the best as far as the weather can give us, NO CLOUDS, NO MOSQUITOS, NO COLD WEATHER; just exceptionally GOOD WEATHER with CLEAR SKIES!

Maps to find your way to the various star party sites will be found elsewhere in the 'Spectrum'.

JULY 2nd ONLY, rain or shine, beginning at 2 P.M. at Petro Catapovic's cottage at 5161 E. River Rd., Grand Island, N. Y. There will be boat rides, water skiing, swimming, lots of food, star gazing (with his C-8 on a home-made tripod, and finally up river the North Tonawanda fireworks display. You may also want to bring your lawn-chair.

JULY 8th ONLY at Steve Desmond's House, 6717 Cole Rd. Orchard Park, N. Y. He has a homebuilt 8" f17 Newtonian Reflector, Edmund Astroscan and slides of the astronomical events of the last couple years. The skies are quite dark, so bring your own scopes and/or other equipment you may have.

JULY 9th ONLY, if clear, starting about sunset at Patricia Loebel's, 216 Three Rod Rd., Alden, N. Y. Pat has 11 x 80 binoculars mounted on a tripod and also has dark country skies.

JULY 15th if clear, if not come the next night rain or shine, starting around sunset at Triston Dilapo's nightclub named TNT COCO's at 41 Virginia Place, Buffalo, N. Y. He has a 13-inch Dobsonian telescope and we can gather on the sidewalk like the astronomers of San Francisco do, or inside, or even on the roof. This is a good opportunity to test and tryout the many different types of nebula filters, so everybody bring theirs along.

JULY 29th if clear, otherwise come the following evening, rain or shine, starting near sunset to Claudia Bielinski's at 5450 Clin on St. (route 354) Elma, N. Y. Claudia has a 6-inch reflector, dark skies and excellent horizons; especially in the south with only one degree obstruction.

AUGUST 5th or 6th, ONLY IF CLEAR. Beaver Meadow Observatory which is located at the Buffalo Audubon's natural sanctuary, 1610 Welch Rd., North Java, N. Y. In the Observatory, your club houses a home-made 12-inch f:6.8 reflector. The location is surrounded by dark skies.

Stellafane near Springfield, Nt. has their telescope makers convention on the above dates. You have, perhaps, heard of this convention through information passed on by some of our members or seen it in Sky & Telescope magazine. Many ideas of telescopes can be obtained by attending it. Many talks are given on Friday evening as well as talks in the afternoon on Saturday and also in the evening is the main lecture. Viewing follows on both evenings with well darkened skies

AUGUST 13th ONLY, rain or shine beginning at 2 P.M. at Martin Lots number 316 cottage of Rowland Rupp's on Lime Lake, where swimming, fishing and boating is allowed. Bring your own meat (a grill will be available) and a dish to pass. The Rupp's will supply drinks, condiments and utensils. If you can bring a lawn chair and some kind of table, that would be nice. About an hour before sunset we will all convoy 8 miles to Larry Carlino's observing cabin on a hill. There he has an 18-inch Dobsonian telescope with pitch-black skies and a perfect southern horizon. It is a great place to observe the Perseid Meteors.

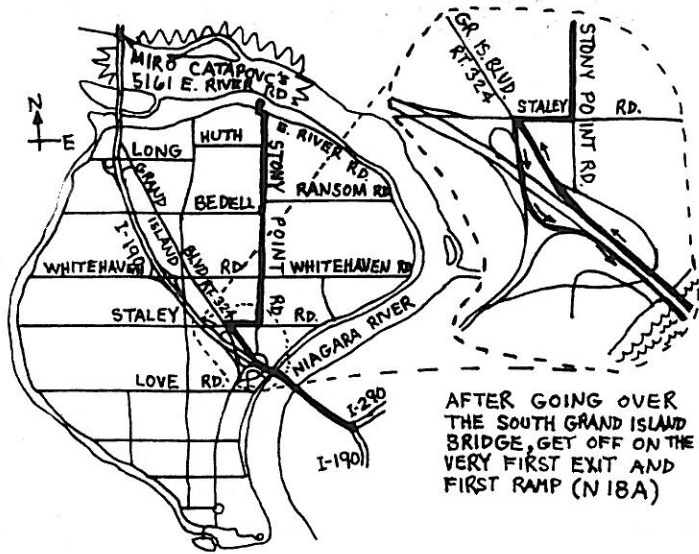
AUGUST 19th if clear otherwise come the next evening rain or shine to John Yerger's at S 4597 Kenison Pkwy., Hamburg, N. Y. John has a 4-inch refractor and a 12-inch Dobsonian reflector. He is an active artist with much on display at home. Come a little bit earlier and you can go swimming in his pool or watch a sun-set on Lake Erie.

AUGUST 27th ONLY rain or shine from noon to 3 P.M. A solar show will be given by Marilou Bebak at the Kellogg Observatory at the Buffalo Museum of Science. If it is cloudy, Marilou will put on a slide show or movie about the sun. Also we can all inspect the newly opened Hall of Space.

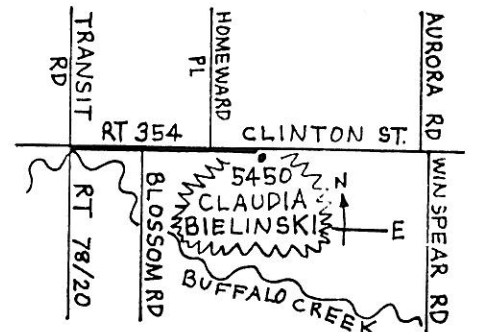
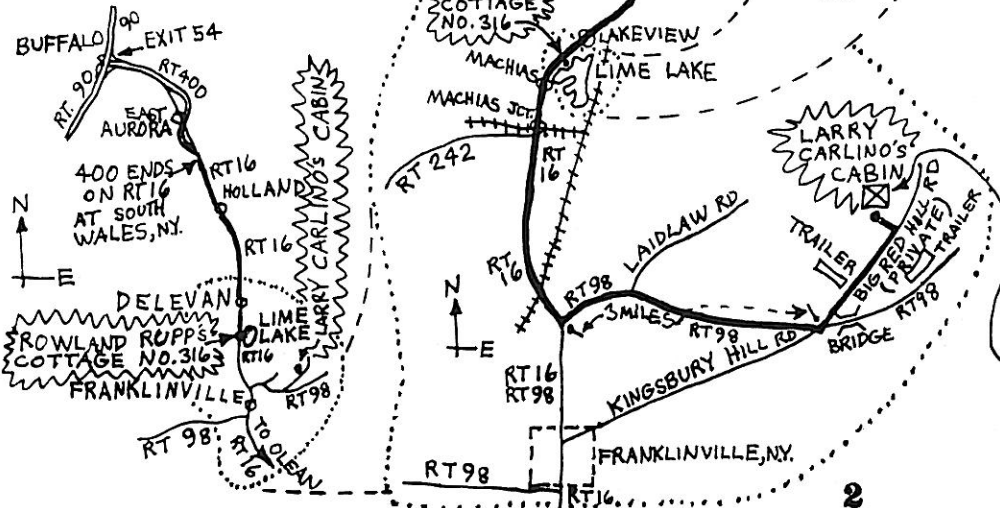
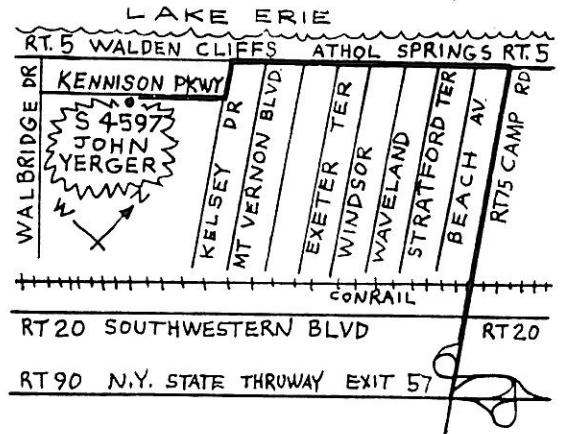
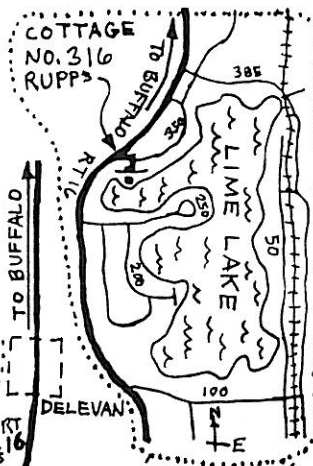
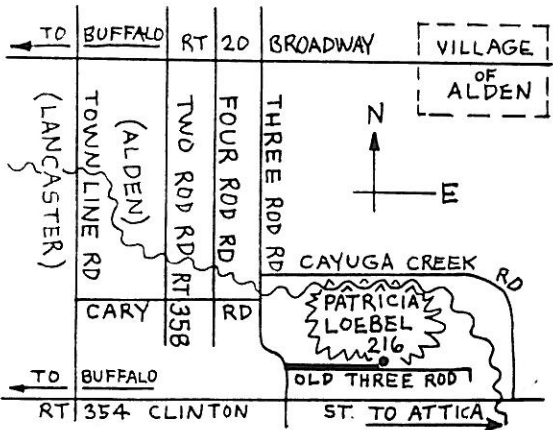
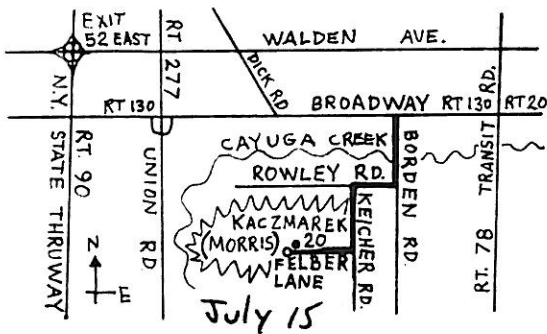
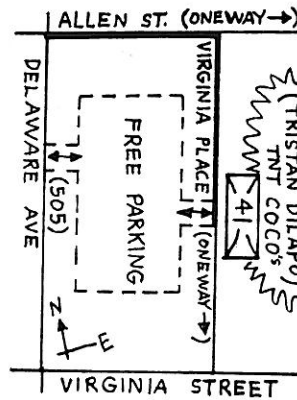
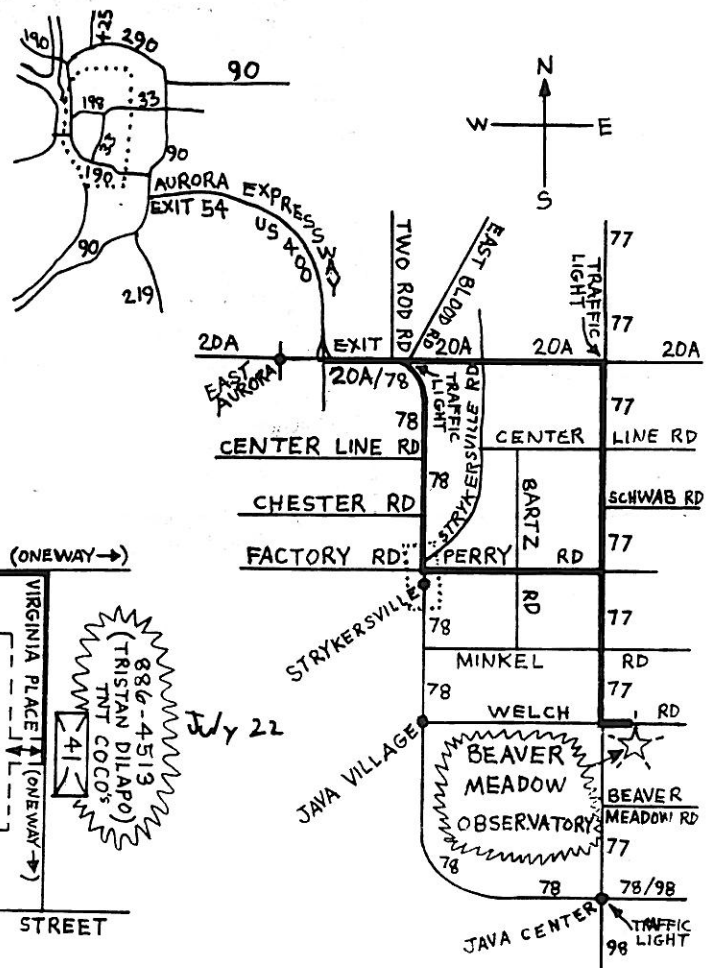
Star Parties are a good place to find out who is going to Stellafane, and perhaps form a car pool. Hopefully all the star parties this year will have clear skies. Last year all of the parties were clear; probably for the first time ever.

Carl Milazzo

The only Messier Object that isn't in the NGC catalogue is the open cluster M-25 in Sagittarius which is listed as I.C. 4725.



AFTER GOING OVER THE SOUTH GRAND ISLAND BRIDGE, GET OFF ON THE VERY FIRST EXIT AND FIRST RAMP (N 18A)

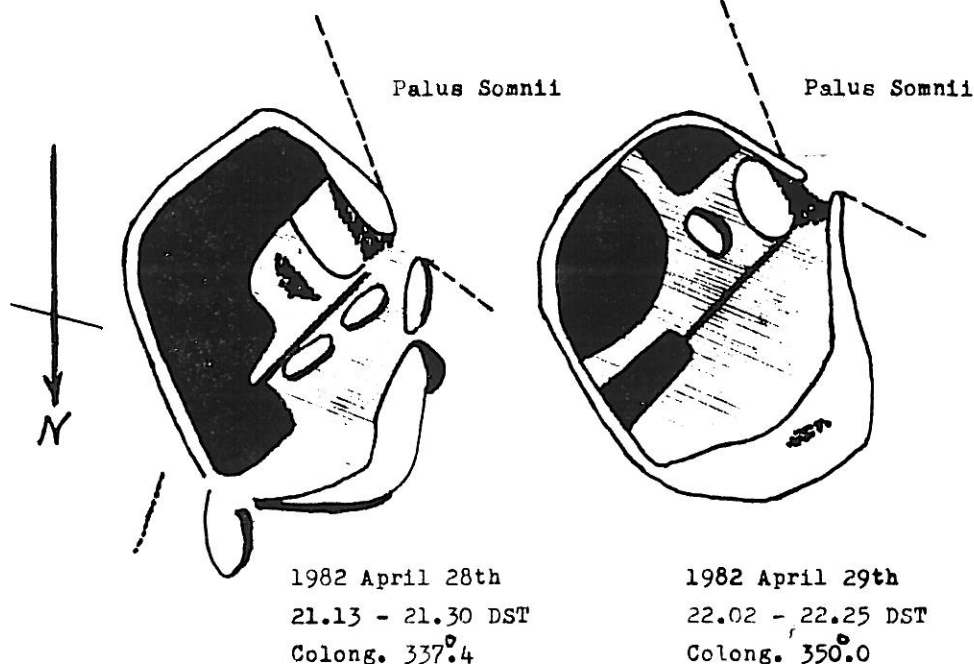


LARRY CARLINO'S OBSERVING CABIN IS ABOUT 1/2 MILE UP BIG RED HILL RD (PRIVATE) WHICH IS A STEEP DIRT ROAD. GO PAST TWO TRAILERS AND THE CABIN IS ON THE LEFT.

Every observer of the moon knows the 'Straight Wall', the 60-mile long cliff running in a roughly north-south direction on the west (classical) side of the Mare Nubium between the craters Birt and Thebit. It is really a fault, the lunar surface on the east side being 800 feet lower than that on the west. The 'cliff' therefore casts a strong shadow under morning illumination and the formation is a prominent object in even small telescopes. Under evening illumination, no shadow is cast but the east-facing cliff wall is illuminated by the sun and appears as a bright white line against the dark background of the Mare floor. So far as I know, there appears to be no other formation on the moon's surface comparable to the Straight Wall but some observations of the interior of the crater Proclus that I made during April 1982 suggest to me that there may be a miniature version of the Straight Wall on the floor of this crater. Proclus lies just to the east of Mare Crisium. It is quite small, only 18 miles across, but prominent because it is very brilliant under high illumination and is the centre of a small bright ray system.

PROCLUS 8" REFL.
X224, X269.

F.W.PRICE.



In the early evening of April 28th 1982, I was observing the waxing crescent moon under fine seeing conditions with my 8-inch reflector using powers of 224x and 269x. I turned my attention to Proclus whose floor was still half filled with shadow. Stretching across the illuminated part of the floor in a south-east to north-west direction was a delicate dusky straight linear feature bordered on one side by two low elevations. I had never seen this object before. On the following evening the floor shadows had receded further and the dusky line was still visible (see accompanying observational drawings). The next few evenings were cloudy so I did not observe the effect of the rising sun on the visibility of the dusky lines. I have seen it only once since then. I have also observed Proclus under evening illumination (just after full moon). Under these conditions its interior is white and bright and I have never seen the dusky line at this phase of the moon.

A possible interpretation of these appearances is that the dark line seen under morning illumination is the shadow of a fault on the floor of Proclus, a miniature 'Straight Wall'. Under evening illumination the sun's light comes from the opposite direction, no shadow is cast and the side of the cliff is lit by the sun. The floor of Proclus, unlike that of the Mare Nubium, is bright and so the illuminated fault wall cannot be seen owing to lack of

This object on the floor of Proclus is not mentioned by Neison, Elger or Wilkins & Moore. Goodacre says that Schmidt's map shows 'a longitudinal cleft' at the center of Proclus. This is undoubtedly the feature I have described above but I think that it may be a fault rather than a cleft. On the other hand a shadow-filled cleft might be very difficult to see on the bright floor of Proclus under evening illumination due to the glare. The precise nature of the feature - cleft or fault - cannot therefore be regarded as having been certainly established.

The dark line is easily seen under the right lighting conditions in an 8-inch telescope, and probably in a 6-inch, provided that the 'seeing' is very steady. It is plainly visible on two of the plates of the Consolidated Lunar Atlas (C4 and D5).

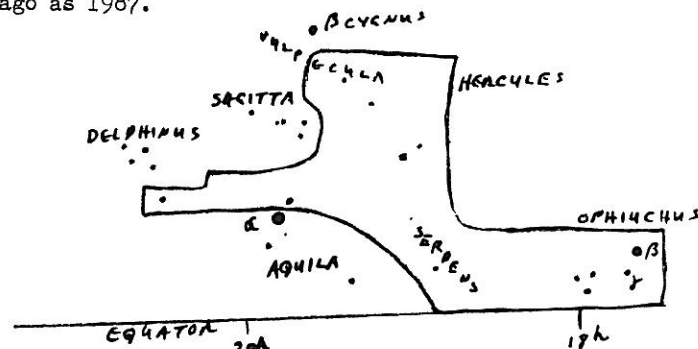
It might be a worthwhile project for lunar observers to search for similar faults on other parts of the moon's surface. This would entail prolonged observation of selected areas under good seeing conditions and several different solar illumination angles over many lunations. Faults running in an east-west direction would probably not be detectable. Such a project is an example of the type of earth-based telescopic lunar observation that is still worth doing since such prolonged observation from an orbiting space craft would not be feasible and no such mission is planned for the foreseeable future.

Postscript. Regarding whether there is a central elevation in Proclus, Neison and Elger were doubtful but -- Watson, Wilkins and Moore claim to have seen one. There are some irregularities on the crater floor and it is possible that the more centrally placed of the two low elevations flanking the dark fault shadow I saw on April 28th may qualify as the central elevation. If so it is certainly not as prominent as the central elevations of most other lunar craters that possess one.

F. W. Price.

ANCIENT CONSTELLATION

TAURUS PONIATOVII, Poniatowski's Bull, has many other names which were interpreted by the French, Italians, Chinese and others. According to Smyth, it was made up of unformed stars of Ophiuchus. It lies within or on the boundaries of Ophiuchus, Serpens Cauda, Aquila, Delphinus, Sagitta, Vulpecula and Hercules. A true picture I do not have but from all of the information I could gather, below shows the approximate boundaries of the constellation. It was, in 1777, placed among the stars in the Heavens to honor the King of Poland, Stanislaus Poniatowski. It has since disappeared as a constellation by modern astronomers as long ago as 1987.



New Members:- Michael T. Senker
Robert A. & Karen Falkner
Adrienne Morris

* * * * *

OBSERVATIONS

On May 8th at 11:45 P.M., Comet 1983d (IRAS-Araki-Alcock) was seen from my home with binoculars between cloud breaks. It had a 4th magnitude, $\frac{1}{2}$ degree coma and was located near the head of Draco. At 4:20 A.M. on the 9th I observed it with a 5-inch f:4.2 refractor at 21x which showed a 9th magnitude star-like nucleus off-center. It was about three quarters towards the comet's edge which was much sharper in appearance. The other side was actually a tail that was short and wide and of low surface magnitude. Also on the 9th, Comet 1983d merged with Beta Ursa Minor and almost became invisible because of the intense light of the second magnitude star.

It was a three ring circus on May 11th a bright and active aurora, the comet and a -7 blue meteor through Camelopardalis. The meteor was seen 36 miles from Beaver Meadow at the Remick Observatory in Lockport. From Lockport it was near the zenith in northern Bootes at 10:35 P.M. and triangulation determined that the meteor was 26 miles above Earth's surface. That night the comet was 3° from the Beehive Cluster (M-44) in Cancer, moving about 2 degrees per hour or 42 degrees a day. Its coma was $2\frac{1}{4}$ degrees in diameter and magnitude +1.7, at 2.9 million miles from earth. It was the second closest comet to pass near the earth; Comet Lexell passed by at a distance of 1.4 million miles in 1770. Also that night the Centaurus-A radio galaxy was seen 3° above the southern horizon. Although it is 7.2 magnitude and 8 arc-minutes in size, it looked like a fuzzy blob because of the extremely low altitude. In Scorpius there was a 6th magnitude open cluster which looked like the Pleiades, catalogued NGC-6231. It is 15 arc-minutes wide and contains over 100 blue stars, 5th to 13th magnitude.

Comet 1983d was seen May 12th 3° south of the open cluster M-48 in Hydra. At dusk it was 15° above the southwest horizon, and at first, M-48 appeared to look like a piece broken off of the comet. That night the seeing was very good and at 248x, showed Saturn rock steady with the 12-inch telescope at Beaver Meadow. A ragged golden equatorial belt was bright and the polar clouds were a light tan. Most of Saturn was a pale yellow except for a thin gray belt.

Three galaxies 400 million light years distant were seen which belong to the Coma Berenices super cluster of galaxies. They were NGC 4889, 4874 & 4872 which are about 13.5 magnitude and of one arc-minute in size.

Comet 1983e, Sugano-Siagusa-Fujikawa, was seen from home at 4:10 A.M. on May 25th with a 13.1-inch; it was 3° east of M-31 in Andromeda. It had a low surface brightness $\frac{1}{4}$ ° coma of 8.1 magnitude with no nucleus or tail. It was discovered on May 7th by three Japanese amateurs. It is the third closest ever for a comet to pass earth. On June 11th it was 5.6 million miles from earth and was predicted to be 4.9 magnitude in Delphinus. It reached perihelion on May 1st at a distance of 44 million miles; its orbit is inclined by 96°. On June 18th it is predicted to be too far south to be seen at our latitude.

Carl Milazzo

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April 12-13 : For those who like to hunt down really faint objects, try this one. - Using the 212x eyepiece on a 13.1" reflector, observe quasar TON 153. This star-like object was just barely perceptible at the visual threshold (Magnitude 15.3). Think of it, at a projected distance of 8 billion lightyears this quasar light has been traveling through space longer than the earth's span of existence, yet here it was in the eyepiece! (13h 19m 56.2s - +27° 28' 09", see April Sky & Telescope)

April 16-17 : Early this night traveled to Beaver Meadow but found no one else there. This was a pity for

unlike partly cloudy Buffalo the sky was beautifully clear. In fact variable star R Leonis, then at about magnitude 6, was plainly visible to the naked eye. Fortunately I had brought my 10 x 50 binoculars, though not the optimum instrument, some two dozen Messier Objects plus a few accessible NGC Objects were observed. So too, it was an active night for sporadic meteor sighting.

April 22-23 : Finally I observed something I have tried unsuccessfully to view for several years, the central star of the Ring Nebula (M-57). Employed the 372x eyepiece in order to dim the per unit area surface brightness of the nebula but even so it remained plenty bright. The central star to be sure is indeed very faint and elusive but it was definitely seen. Positive results can be attributed to the application of a slightly larger telescope aperture and most importantly excellent seeing conditions.

Michael Idem

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Spy and Tell

Ernst Both was the mastermind and inspirational force behind the new Edward G. Gibson Hall of Space at the Buffalo Museum of Science. He is to be congratulated on the excellence of the Hall and the successful conclusion of this monumental task.

Bob Mayer has returned from a trip to the National Radio Astronomy Observatory in Green Bank, West Virginia.

A page devoted to renown actor, Peter Michael Goetz, son of Irv and Esther Goetz, appeared in the Sunday Buffalo News, page E-4, on May 8th, entitled, "Broadway 'raves' for Buffalo actor." A picture of Irv and Esther was included in this fine article. Congratulations Peter, Irv and Esther!

Former member, Phil Cizdziel, received his Master's Degree in astronomy from the University of Hawaii and is now eligible to work for his doctorate.

From May 30 to June 4 he used the 150 in. infrared telescope; the largest telescope on Mauna Kea. He also worked at the convention of the Astronomy Society of the Pacific held in Hawaii on June 12.

Darwin Christy was an active juror in May, serving in both Tonawanda and Buffalo.

Carl Milazzo and Shaun Hardy placed a notice about comet IRAS-Araki-Alcock in the Lockport Union Sun and Journal, and the Niagara Gazette, resulting in an attendance of 150 people at Remick Observatory to view the comet. The usual public night showing brings about 25 people to the observatory.

Jayne Mack went home to California at the end of June to attend her high school class reunion.

Shaun Hardy spoke to the geology club at Brock University in St. Catharines on June 17. His talk was on meteors.

Congratulations and best wishes to Adrienne and Evan Morris who were married at St. James Church, Depew, on May 28.

Edith L. Geiger

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BAA ANNALS

5 YEARS AGO- The BAA 5 years ago was getting ready for summer star parties as it is now. The star parties in 1978 were all held at pub-

lic places except for Tom Desserts. The July-August issue of the Spectrum was full of maps telling members how to get to the star parties just as this issue is. That same newsletter had a profile on Ed Lindberg and a performance report on the 12½ in. Cave telescope by Larry Carlino.

10 YEARS AGO- The July-August 1973 issue was about the same as the 1978. Lists of star parties and maps and directions. There was a deep sky observing article by John Riggs written just for summer observing. Aside from these articles there were not many things I could dig through to get any juicy tidbits.

I could not find any issues for previous years for July and August. Perhaps the Spectrum editors took a break for the summer too! Does anyone know?

Ken Kimble

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) ANSWERS to March-April QUIZ (

- 1) 1774
- 2) 800000
- 3) 318
- 4) 299792500
- 5) 45
- 6) Your guess is as good as mine. I found each to be true from three different sources.....ed.

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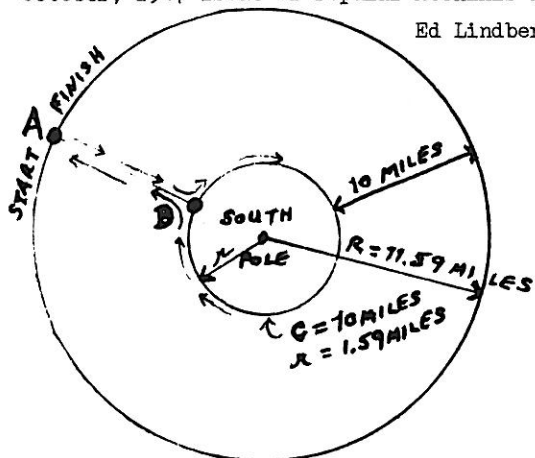
The solution to the puzzle in the March-April issue is as follows:- You were asked to find a place, other than the North Pole, from which you could proceed 10 miles south, then 10 miles east and then 10 miles north, arriving back at your starting point.

First, find a friendly pilot who will fly you to the South Pole. Put on your cold weather gear and get your surveying equipment in shape. Draw a circle in the ice with its center at the pole and having a radius of 1.59 miles. This will be a circle of latitude with a circumference of 10 miles.

Draw another circle with its center at the pole and with a radius of 10 miles greater than the smaller one, or 11.59 miles. Start your 30 mile trek from any point, such as 'A' on the larger circle, and proceed due south for 10 miles to point 'B' which will be on the smaller circle. Go east, following the smaller circle, for 10 miles. This will bring you back to point 'B'. Go north from point 'B' for 10 miles, thus arriving at your starting point 'A'.

This puzzle was by Rex Taylor and appeared in the October, 1947 issue of Popular Mechanics magazine.

Ed Lindberg



NEEDED!!! A donation of an old step ladder (at least 3' tall) for the 8-inch, Robert Kartyas Memorial Telescope at Beaver Meadow Observatory.

Learn BASIC programming with the aid of a private tutor. Call 692 4440 and ask for Steve. Mini-courses in Visicalc, Scripsit and Profile also being offered.

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FOR SALE

Telescope Comparison Program for TRS-80 Model 1, TRS-80 Model III and Vic 20.

This program compares three telescopes simultaneously and gives the following results: Objective Focal Length, Resolving Power, Maximum and Minimum Magnification, Visual Equalization Magnification, Optimum Eyepiece, Light Gathering Power, Faintest Star Magnitude. For each of your eyepieces, it gives the Magnification, Real Field, Exit Pupil and Image Brightness.

Call 692 4440 and ask for Steve.

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Computer by APF; can expand to 64K, has 23K-14K(RAM) 9K(RAM) - 32 Char X 16 line - 8 colours, sound syns, built in tape deck - 2 Hex pads - hand cont - 2 Modes Graphics 128 x 192, 256 x 192 - Tech manual, BASIC tutor on tape with dictionary - Selling for \$300.00 firm. Also PVC Tubing - 2 pieces - 7' 7" - \$80.00 and 6' 4" - \$68.00; it goes for \$23.17 per foot. It is 12" in diameter and 3/4" thick. Call David Jauch 836 2048

Dear Tungin B. Cheek,

Sorry if we said anything that you might have interpreted as meaning that something could have covered 24 billion light years in 3 billion years. It sounds as if you may have been confused by an explanation of how it is possible to see back in time to events shortly after the "Big Bang".

First of all lets consider the radius of the universe and not the diameter. Lets assume that the universe is 15 billion years old. If the expanding shell is traveling at or near the speed of light, which we believe to be the case, then the information contained in the light takes almost 15 billion years to reach us. Thus, if we could see the edge of the universe, we would be looking at events which occurred 15 billion years ago.

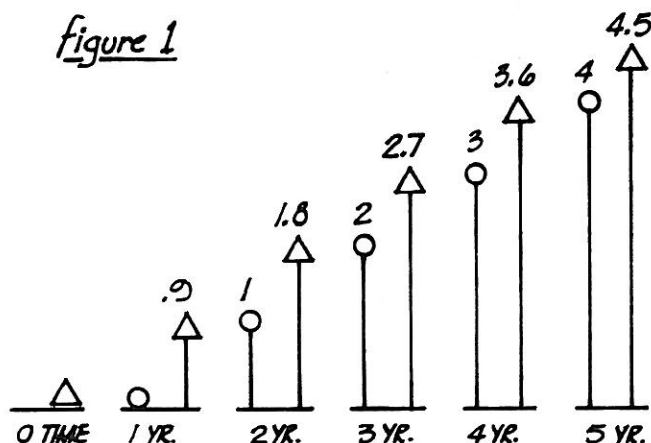
Lets look at something you are familiar with first to help understand. You have probably at some time or another seen a carpenter working at some distance, perhaps a ¼ mile, away. You can see the carpenter swing his hammer but you don't hear the sound for several seconds. Since the sound travels at a much slower speed than light, the audible information from the hammer blow arrives long after the actual swing. The carpenter may be preparing the next nail before you know the first has been driven. We could complicate matters by having the carpenter work on the back of a truck moving away from us at near the speed of sound. Beginning to get the picture?

Expanding on this a little, the picture we get by observing the Sun is that of events 8 minutes into the past. The Andromeda galaxy through a telescope shows us light from 2.4 million years ago. These two objects are not moving relative to us either for all practical purposes.

Back to the universe now! If an event had occurred 3 billion years after the universe formed, it would appear closer to us since it had occurred in more recent history. This is where a lot of Quasars seem to be, about 12 billion light years distant.

Take a look at figure 1. The image information is traveling at the speed of light. You can follow along the time scale at the bottom and see that the image is gaining on the object. This is an extreme example, but by the time the image catches the object an extremely long time will have elapsed. The image will still only represent an event that occurred back at year number one.

figure 1



△ - OBJECT MOVING AWAY FROM BASE-LINE AT 90% SPEED OF LIGHT.

○ - IMAGE OF AN EVENT OCCURRING AT THE BASELINE.

The 24 billion light years you spoke of is because we can look toward the edge of the universe in either direction. Don't let that make you think we assume we are at the center of anything (as we've done before). A peculiarity of the universe is that all objects seem to be moving away from each other as in the old raisin bread analogy. A two dimensional analogy I like is shown in fig. 2

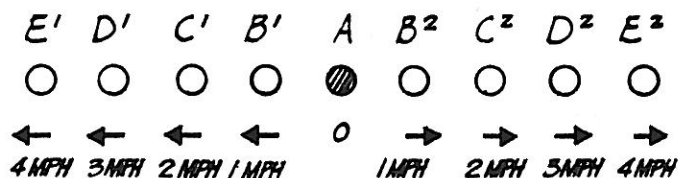


figure 2

If you are at "A", all the other letters appear to be moving away at speeds increasing with their distance. However, if you place yourself at "C1", "B1" appears to be moving away to the right at 1 mph, "A" at 2 mph relative to you and so on, while "D1" is moving away to the left at 1 mph. This is not a literal picture of things but it illustrates how you can be fooled into thinking you are at the center of things.

Next would probably follow a discussion of "Redshift" and the Hubble Constant but space doesn't permit. Hope I've answered the question to your satisfaction. If not let me know.

Sincerely,
Ken Kimble

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STUDY GROUP

The May study group had as its topic "The Use of Computers and Calculators in Astronomy" The meeting was well attended but it seemed that the topic was too overwhelming. It seems that the people present had reports that were so diversified that no one segment could be given the attention it deserved. Oh well, I guess everyone had a good time anyway.

There will be no study group meeting for June. I can't make it and the response did not seem all that great. Watch the next issue of the Spectrum for the topic of the Sept. meeting. See you then.

KEN KIMBLE

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INSTRUMENT NOTES

The Instrument Section still carries on its miscellaneous gadgeteering. Jim Michowski brought in a pair of 20 x 50 binoculars which had been dropped. The injuries proved catastrophic. Bob Mayer said he couldn't collimate them, "and, anyway, binocs of that combination aren't good". We checked Michael Senker's commercial scope for collimation. Mike was glad that the prognosis was more favorable than for the binoculars. The collimation was very good.

There are often some interesting gadgets brought in for inspection and discussion. We have seen mirrors and mirror cells and complete telescopes. All of these have been in home made or commercial versions. Some of the commercial units have been good ones but some have been inferior to our "crafted" instruments. There have also been numerous mechanical, optical and electronic devices to solve particular problems.

At our last meeting Paul Wurtz brought in a mystery optical device made by Carl Zeiss-Jena. This dates back to about the turn of the last century. It appeared to be a precision goniometer for measuring angles of prism faces or crystal surfaces. Paul took the device all apart with his tiny screwdriver and we were treated to some beautifully precise machine work. There was a brass ring graduated with 360 fine lines marking the individual degrees of the circle. A vernier permitted dividing each degree into 600 parts, or 6 seconds of arc. Each line was labeled with an engraved number so small as to be invisible to average eyesight. Such instrumentation is a pleasure to examine and admire.

Conversation at our meetings covers many fields of enlightenment, with sometimes several separate conversations going on simultaneously. Of course, many topics in telesoptics and astronomy have been ridden hard. But we frequently venture deeply into various peripheral fields. Such subjects have included amateur radio, computers, space telescopes, cable TV, pattern making, firearms, adhesives, satellite communication and methods of funding telescopes and observatories.

The latter topic has taken several turns. John Dlugos manufactures stoves in his welding shop to finance his big new 16-inch Springfield telescope. Steve Noworyta proposes to establish the Noworyta Floating Point Fund to finance his observatory. Anyone having an abiding interest in seeing a big new observatory in Steve's back yard can contribute. The amount is optional - hence the floating decimal point. Steve will accept cash or checks. Major or

or minor credit cards will be honored, except ARCO cards (which are now defunct).

Ed Lindberg

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OBSERVATORY NOTES

July - August 1983 - The clouds over western New York finally gave way to a glorious period of clear weather which lasted the entire second week in May. The clear spell could not have been better timed for the appearance of Comet IRAS-Araki-Alcock. From the 9th to the 11th, the Comet was easily visible to the naked eye from Beaver Meadow. The Comet was an especially striking sight on the evening of the 11th when it was directly south of the Praesepe Star Cluster in Cancer. With just a casual glance at the sky one could easily mistake the Comet's glow for the Star Cluster. A second look however, quickly revealed two hazy patches side by side - the Comet noticeably brighter. The Comet's motion was really remarkable. Its movement could be detected with the telescope from moment to moment as it passed by small asterisms of stars. A truly "stellar" performance!

In addition to all of the Comet activity, some interesting eruptive variable stars were active during the first two weeks in May. Beautiful outbursts of Z Camelopardalis, X Leonis and UU Aquilae were monitored at Beaver Meadow. The real highlight though, was a rare outburst of TT Bootis which was seen on the evening of the 5th. Also of note was the very faint maximum of the long period variable R Cygni. One of the faintest on record for this year.

The first clear Public Night of the season took place on Saturday, May 21. John Yerger estimated that a total of 75 people came out to the Observatory that evening. Some of these people came from as far away as Niagara Falls! Don't forget that Public Nights during July and August will be held every clear Saturday night from 9-12 P.M. Check the "GUSTO" section of the Friday, Buffalo News for details.

John Riggs

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FOR YOU KNOW WHO

She writes a column
called "Spy & Tell"
and knows who is sick
and knows who is well,
where they are from
and where they are going.
I would be shattered
with all that knowing.
At Christmas time
her candid slides
expose the members
worst flip sides,
Not a one
who runs for cover
quite escapes
this camera lover.

Sorry about that. '83
E. L. G.

* * * * *

ASTRONOMICAL HAPPENINGS

SOLAR - The Sun passes from Cancer to Leo in July and from Leo to Virgo in August. On July 6th the Earth will be at aphelion, a distance of 152103000km (94512000miles) from the Sun.

LUNAR - A partial eclipse will occur on June 25th, entering the penumbra at 05h 43.0m; the umbra at 07h 14.4m; mid-eclipse will be at 08h 22.3m; leaving the umbra at 09h 30.1m; and finally leaving the penumbra at 11h 01.6m. The times are all listed as U.T.

Phases of the Moon are - Last Quarter Moon - July 3rd, August 1st & 31st. New Moon - July 10th & August 8th. Last Quarter Moon - July 16th & August 15th. Full Moon - July 24th (Buck) & August 23rd (Sturgeon)

Occultations - Jupiter will be occulted on September 12th and is to be visible in the north-eastern part of North America, Greenland, North Africa and Europe. Looks like camera time for those interested in lunar and planetary work.

Conjunctions - Venus - July 13th
Saturn - July 17th
Jupiter - July 19th
Uranus - July 20th
Neptune - July 22nd

Mars - August 7th

Venus - August 10th and about 10 minutes later

Mercury - August 10th

Saturn - August 13th

Jupiter - August 16th and about 7 minutes later

Uranus - August 16th

Neptune - August 18th

Mars - September 5th and about 12 minutes later

Venus - August 5th

Mercury - August 7th

Saturn - August 10th

PLANETS - Venus will be at its greatest brilliance on July 19th

Stellar Conjunctions - Venus & Regulus - July 9th

Mercury & Regulus - August 1st

Mars & Pollux - August 4th

Planet Conjunctions - Mercury & Venus - August 6th

METEOR SHOWERS - June 20th - Ophiuchids

June 26th - Corvids

June 28th - Bootids

June 28th - Draconids *

June 30th - Beta Taurids (D)

July 6th - Sagittariids

July 14th - Alpha Cygnids

July 14th - Phoenicids

July 16th - Omicron Capricornids

July 23rd - Capricornids

July 27th - Alpha-Beta Perseids

July 29th - Delta Aquarids

July 30th - Alpha Capricornids *

July 30th - Piscis Austrinids

August 1st - Alpha Capricornids

August 6th - Iota Aquarids

August 11th - Epsilon Pegasids

August 12th - Perseids *

August 12th Delta Aquarids (Northern) *

August 20th - Kappa Cygnids *

August 20th - Iota Aquarids (Southern) *

August 22nd - Omicron Draconids

August 26th - Zeta Draconids

September 1st - Beta Lacertids

September 1st - Aurigids

September 11th - Epsilon Perseids

Many of the above are showers which I researched in many books and brochures. The ones which are familiar have an asterisk after it. ed.

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DID YOU KNOW

Discoverer XXVI was launched on July 7, 1961?

1st transatlantic TV was transmitted by satellite on July 11, 1962?

Apollo-Soyez Space link-up occurred July 17, 1975?

1st man landed on the Moon July 20, 1969?

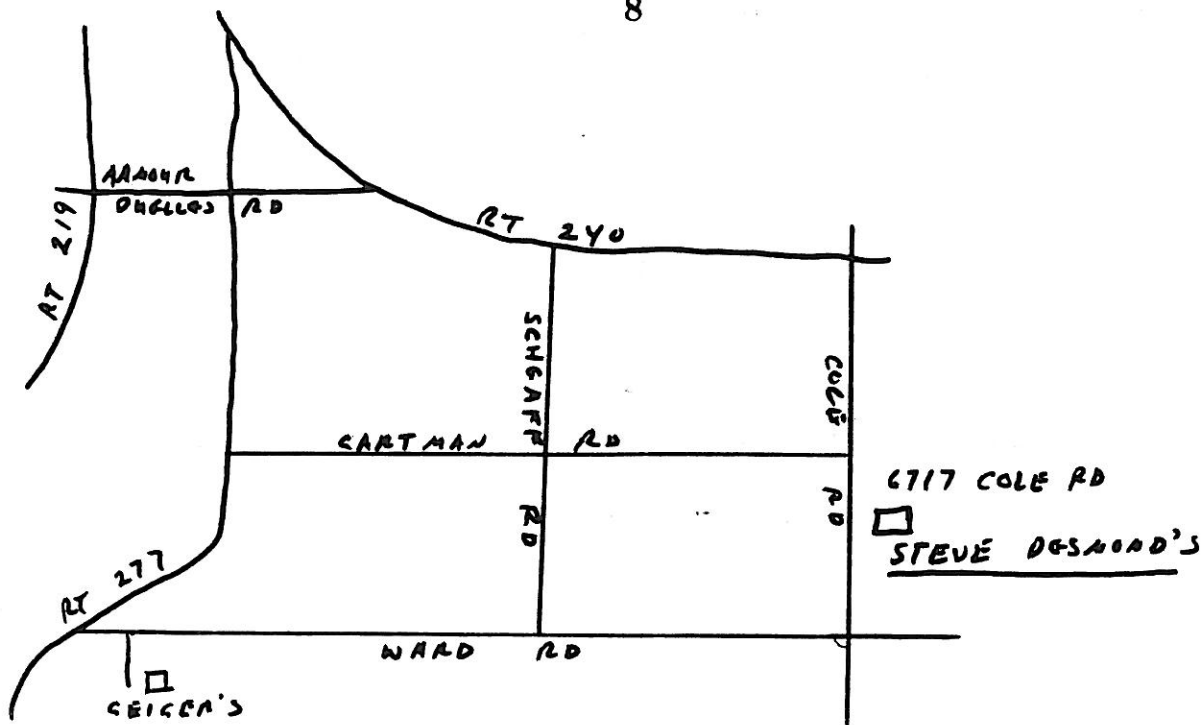
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SPECTRUM deadline is August 25th

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(SPECTRUM deadline is August 25th)

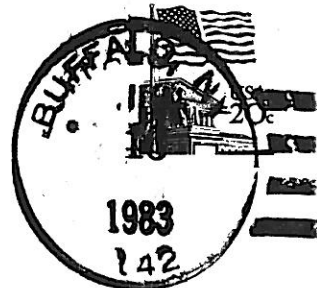
Darwin Christy, I also wish to express my thanks to all of you who have given me articles and whatever through the year. It makes it a lot easier to edit this newsletter, "The SPECTRUM". dc.

"the SPECTRUM"

Darwin Christy, Editor

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