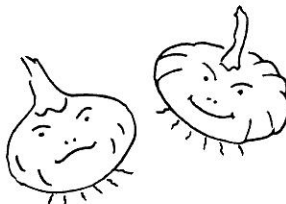
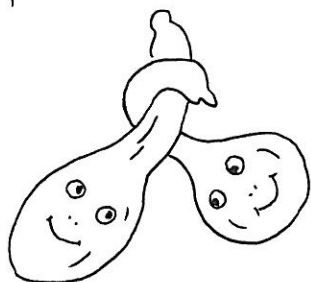




THE



SPECTRUM



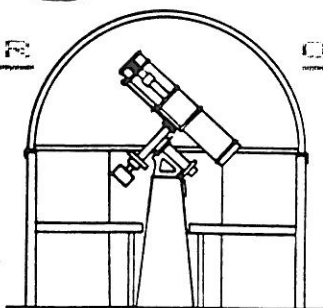
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SEPTEMBER

1 9

OCTOBER

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BUFFALO ASTRONOMICAL ASSOCIATION, Inc.

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Ken Biggie, President
Doris Koestler, Vice President
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Rowland Rupp - Claudia Bielinski, Membership - John Yerger,
Observatory Director - Darwin Christy, "SPECTRUM" Editor.

!! MEETING NOTICES !!

SEPTEMBER MEETING:- Our September 12th meeting will be held at BUFFALO STATE COLLEGE in the New Science Building beginning at 7:30 PM EDT. Unfortunately there is no speaker as of this date. Surely one will be forthcoming and announced at the meeting, this the President did assure me.

OCTOBER MEETING:- The October 10th meeting will also be held at BUFFALO STATE COLLEGE in the New Science Building. Same time, 7:30 PM EDT. We hope to have a speaker by the September meeting to be announced as none has been acquired at this time. Again our President has assured me that one would be found.

REMEMBER---the next four meetings will be at BUFFALO STATE COLLEGE.

PRESIDENT'S CORNER

I would like to cordially welcome everyone back from their summer activities, and may we all look forward to another enjoyable season of regular B.A.A. meetings and activities.

Thanks go out to Doris Koestler and Jack Empson for organizing this years star parties, and a special thanks for those members who sponsored these parties.

The B.A.A. Board of Directors had a meeting during the

summer and was hard at work with setting up speakers for this fall, but unfortunately, we were not able to pin down any names by the dead-line for publication for this "SPECTRUM" issue. So, therefore, the best I can do is announce that for September and October meetings; you will have to wait until September 12th to find out who our speakers will be. (sorry)

I would also like to remind you all that if anyone would like to make a mini-presentation at one of our regular meetings, please let me know and I will be happy to squeeze you in just about any time.

Also, if any member is prepared with a presentation that may take a half or even a whole meeting, please feel free to contact me at anytime so the Board can give it consideration and set up the schedule. We are always looking for speakers, so if you feel so inclined as to enrich us all with some of your astronomical knowledge, be it for a few brief moments or for up to an hour or more, your offer will be appreciated and I'm sure your effort will be rewarded.

One final note to all members---Please remember to offer your assistance sometime during the year for public nights at Beaver Meadow Observatory, Mall Shows when we have them and public nights at the Museum of Science, Christmas Party as well as the May Dinner Meeting, and for the many other B.A.A. activities. Help will always be welcome.

Ken Biggie, President

POLAR ALIGNMENT OF PORTABLE TELESCOPES

If an observer has good dark adaption and knows the constellations reasonably well, he can usually point his telescope at an object he desires to observe and readily find it, but if he is like me (my pupils do not dilate sufficiently), it is frustrating when you cannot see the constellations clearly, or if you do not know the skies very well, it is extremely difficult to locate the desired objects.

For such observers, setting circles can eliminate frustrations if they know how to use them. It is a delight to set the coordinates of some obscure celestial object on your telescope and then to look into the eyepiece and there it is!

To bring this about, it is necessary to have an accurate polar alignment of your equatorial mounting and one does not want to spend a sizeable percentage of his observing time aligning the telescope.

I have been using a technique which is fast and accurate, but in all the reading I have done on the subject, I have not seen it described anywhere. Perhaps it is "OLD HAT" to the seasoned observers, but as I am somewhat of a

novice, I wouldn't know.

The method I use is to set my declination and right ascension scales to the coordinates of Polaris (Dec. 89.26 R.A. 2hrs 32min.), and then adjust the telescope mount both azimuth and altitude until Polaris appears in the center of the field (an eyepiece with cross-hairs is helpful). If your setting circles are accurate you will now have a good polar alignment. There are further refinements possible using the star drift method but are not needed unless astrophotography is contemplated.

You should first obtain (or calculate) the local sidereal time and set a clock or watch to this value. If you are using a telescope that has a sidereal time scale such as the yoke mounted catadioptric scopes (Celestron or Meade Schmidt-Cassegrains, etc.) set the scale to the correct sidereal time, rotate the yoke until the R.A. scale reads 2 hrs. 32 min.--but first, with the clock scale and the R.A. scale both at zero, set the declination to 89.26 degrees (on the zenith side of the 90 degree mark), then set the R.A. to 2 hrs. 32 min. and you are ready to adjust the azimuth & latitude until Polaris is centered.

If you are using a telescope that does not have a sidereal time scale, subtract 2 hrs. 32 min. from the local sidereal time and set your telescope's R.A. scale to this value. With the popular German style equatorial mounts using the 0-6-0-6 R.A. scale, the procedure is a little more complicated. There are four 6 hour segments, and setting to the right one can be confusing. I have prepared a chart here which can help eliminate the confusion.

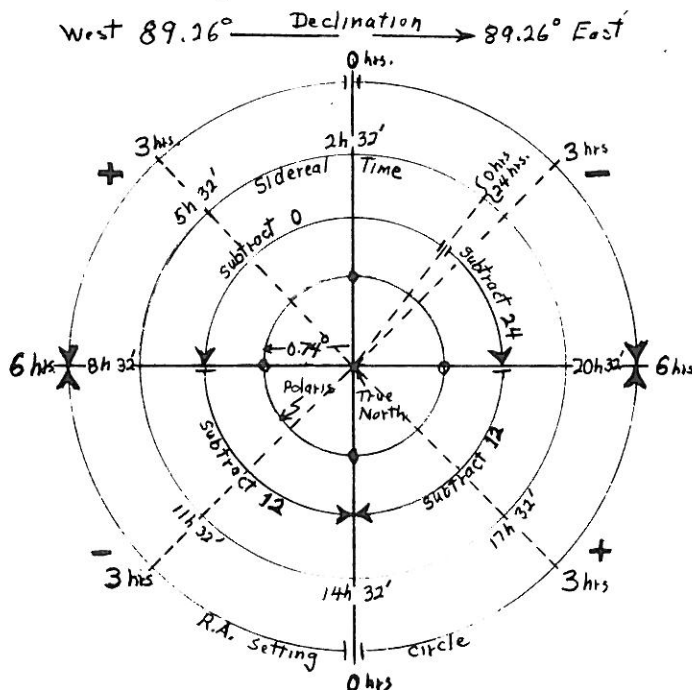


Chart for determining polar alignment settings for German style equatorial mounts using R.A. setting circle of the 0-6-0-6 type.

First note the local sidereal time. If it is between 0 hrs. and 14h 32m, set the declination to 89.26 degrees toward the WEST from the 90 degree mark (with the declination axis & counterweight pointing down toward the earth). If it is between 14h 32m & 24 hours, set the declination to 89.26 degrees toward the EAST from the 90 degree mark. Now subtract 2h 32m from the sidereal time to get the tentative R.A. setting which we will call R.A.*.

Note that the chart shows that between 0 hrs. and 8h 32m you subtract nothing from R.A.* to get the correct R.A. setting (this will fall on the negative segment of the scale).

If R.A.* is between 8h 32m and 14h 32m, the chart shows that you subtract 12 hrs from R.A.* to get the correct R.A. setting (this will fall on the negative segment of

the scale).

If R.A.* is between 14h 32m and 20h 32m, you also subtract 12 hrs. from R.A.* to get the correct R.A. setting (this will fall on the positive segment).

If R.A.* is between 20h 32m and 24 hrs., the chart shows that you subtract 24 hours from R.A.* to get the correct R.A. setting (this falls on the negative segment).

EXAMPLE #1:- Suppose the sidereal time is 12h 45m. Therefore the chart shows that the declination should be set 89.26° toward the WEST. Subtracting 2h 32m from 12h 45m equals 10h 13m and the chart shows that 12 hours should be subtracted. 10h 13m minus 12 hours equals 1h 47m which is set on the negative 6 hour segment of the R.A. scale.

EXAMPLE #2:- The sidereal time is 21h 50m. Therefore, the chart shows that the declination should be set 89.26° EAST of the 90° mark. Subtracting 2h 32m from 21h 50m equals 19h 18m and the chart shows that 24 hours should be subtracted. 19h 18m minus 24 hours equals 4h 42m which is set on the other negative segment of the R.A. scale.

Now when you have adjusted the altitude and azimuth until Polaris is centered in the field, the polar axis will be pointing quite accurately at the celestial pole and you are ready to put the setting circles to work to locate those elusive celestial objects.

USING the SETTING CIRCLES

With the telescopes that have a sidereal time scale, it is only necessary to set the R.A. dial to the R.A. coordinate of the celestial object, and the declination dial to the declination coordinate.

For the telescopes without the sidereal time scale, you must refer to your clock which you have set to local sidereal time, and subtract the R.A. of the celestial object from the local sidereal time to get the R.A. setting for your telescope.

For EXAMPLE, suppose you want to observe the Ring Nebula (R.A. 18h 54m - Decl. +33.03°) on June 25th. At 11PM EDT, the local sidereal time is 16h 1.5m. Then 16h 1.5m minus 18h 54m equals -2h 52.5m (a negative R.A. is EAST of the meridian). Set the telescope's R.A. dial to -2h 52.5m and the declination dial to the Nebula's declination value +33.03° (a positive declination is NORTH of the celestial equator, while a negative declination is SOUTH of the equator).

If you have been careful to align the telescope to the polar axis, and set your dials as accurately as possible, you will see the ring in the field. If not, a slight adjustment of either declination or R.A. will bring it into view.

It is useful to remember that if the local sidereal time minus the R.A. of the celestial object is less than ± 6 hours,

If it is greater than ± 6 hours but less than ± 18 hours the object is below the horizon (except some circumpolar objects). Also, if it is greater than ± 18 hours, subtract 24 hours to yield 0 to -6 (east of the meridian). If it is greater than - 18 hours, add + 24 to yield 0 to =6 hours. (west of the meridian).

HAPPY VIEWING!!!

Paul Noye

! ? WANTED ? !

One 10" reflecting telescope on Dobsonian Mount, similar to or and Odyssey. Contact Jim Robbins between 11 AM and 3 PM during the week and any time on weekends. 655 4008

SPECTRUM DEADLINE
FOR NOVEMBER-DECEMBER
OCTOBER 10th

ASTRONOMER FROM THE PAST

VICO, Francesco de, was an Italian astronomer, born in Macerata on May 19, 1805 and passed away November 15, 1848 in London, England. On deciding to become a Jesuit, he entered the Society of Jesus in 1823. There he studied and taught at the Roman College. In 1835 he was appointed assistant, and in 1839, chief of the Observatory in Rome. A work which he gained high reputation was a course of observations for the planet Venus upon its own axis. He subsequently turned all of his attention to the satellites and inner ring of Saturn. He also tended to observe and write reports on Nebulae.

When the Jesuits were driven out of Rome by the revolution of 1848, he went to England, then later to the United States. There he accepted a proposal to become the director of an observatory to be erected under his auspices in the State of New York. Upon returning to England to obtain the necessary instruments, he became ill and died there.

Darwin Christy

* * * * *

PIP SPT & TELL

Ken Biggie, Marilou Bebak, and former member, Warren Steinberg, gave a fine astronomical presentation to about 100 Brownies and Girl Scouts in the middle of July at a camp north of Medina. Ken gave a demonstration using his refractor, Marilou discussed the planets, and Warren showed slides of the constellations. The girls showed their appreciation by toasting marshmallows and singing songs for their visitors. All the way to Medina, Ken had a captive audience as the program members listened to his many stories.

Doris Koestler enjoyed the last week in July living alone in complete relaxation in the family trailer in Alexander near Attica. She spent much of her time reading novels and finding pleasure in nature.

Dave Sepulveda suffered through some pretty hot days during the summer working on gutters and fixing the roof of his home.

Al Kolodziejczak, after attending the Stellafane Convention, met his wife, Mary, and went on to visit New England and New York City.

Congratulations and best wishes to Derek Bill and his wife, the former Susan Collis, who were married June 28th. Technically Derek is in his junior year at Buff State. He is an art design major and works outside of school as a decorator at R & R Interiors. Susan works in home care out of the Medical Personnel Pool of Buffalo.

Ernst Both spent 10 days around the third week in July hunting mushrooms in the Adirondacks. Some he found to be very delicious.

Marilou Bebak has been employed in the Hamburg Recreation Department during June, July and August since 1972. This summer, as she ran the softball program, she spent a great deal of time running between raindrops. In September she will be back in the classroom teaching school.

Ken Biggie has been participating in boat races under the auspices of the Sandy Beach Yacht Club. On July 27th he got to fly his spinnaker for the first time. (A spinnaker is the large, colorful headsail used on some racing boats when running before the wind.)

Al Kolodziejczak still flies his mighty kites. He has a Parafoil with a 100 pound line and a Stunner with a 75 foot tail. He also has a 4-man, 8½ foot long inflatable raft which he pumps up with a small foot pump. He floats the raft on the canal, and he and Mary enjoy refreshments as they watch the birds along the bank.

Carl Milazzo, Al Kolodziejczak, Tristan DiLapo, and Beverly Botto were the only BAA members at Stellafane this year. Carl gave a tent talk entitled "The Biggest Collection of Amateur Built Telescopes." He concentrated on those in western New York.

Orrin Christy won a Silver Medal (2nd place) in the thousand meter K-4 race (4-man kayak) in the Empire State Games. The team was shown on Channel 7 on Friday and again on Sunday as they came into the finish.

On September 11-14 Darwin Christy will be in Colorado Springs for a gathering of the 70th Fighter Squadron of the 13th Airforce WWII. Ruth and Darwin will be traveling to Pennsylvania to celebrate their 43rd wedding anniversary on October 14th.

Mark Schmidt has invented an item dealing with the performance of an automobile engine, which he has been testing and working over for 6 months. General Motors has shown an interest in his invention.

Jerry and Adrienne Morris are the proud parents of a baby girl born July 25th.

Carl Milazzo and Dina Adimey attended a lecture about Halley's Comet given by Carl Sagan at Cornell University on July 30th. They met Dr. Sagan after the lecture, and Dina got his autograph. Carl took pictures during the talk.

Tristan and Debbie DiLapo moved into their new home in North Boston on August 6th.

Marilou Bebak reports that three good sunspots near the sun's south pole were seen on July 28th. The average number of spots for June was .8, the lowest since 1954. In July, 2000 visitors from 15 states and 7 countries enjoyed the Sun Shows at the museum. Countries represented were India, France, Great Britain, Poland, Columbia and Canada.

The Kellogg Observatory will be starting its usual fall programs the first Friday in September. There will be science fiction movies at 7:00 P.M. followed by viewing from the observatory.

Edith L. Geiger

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HAIL AND FAREWELL COMET HALLEY

Now that all the media hype is over, the preliminary scientific results examined, and the comet has faded from binocular view, it is time to take stock of what has been learned.

Because of the long lead-time of planning available, Comet Halley was - and will likely remain - the most-studied comet of the century. And while the numerous ground-based studies (many of which are still in progress) are yielding valuable scientific information, none is likely to be as spectacular as the close-up views afforded by the five spacecraft that flew by the comet as it crossed the Earth's orbital plane. The most difficult task facing the scientific community will not be deciding what were properties of Comet Halley, but is it "typical" and can the numerous results be extended to all such objects. Certainly, even the preliminary data show striking differences between some properties of Halley and Giacobini-Zinner (the other object probed by spacecraft). However, since both of these objects are periodic comets and have visited the vicinity of earth and sun many times, there is some concern that they may not be representative of the great majority of objects that are presumed to lie beyond the limits of the solar system. To achieve comparable results for a "new" comet requires a special spacecraft which given the impact of the Challenger disaster will not come, if at all, until the next century.

Spacecraft images over the last two decades have produced revolution after revolution in planetary science and the Halley probes, particularly the images taken by Giotto, are no exceptions. Thanks to the fact that Halley was much less dusty this time around than it was in 1910, a comet nucleus has been viewed at close range. Infrared observations of the comet at large distances from the sun when its gaseous activity was low had indicated the nucleus to be dark, irregular, and larger than Fred Whipple's dirty-ice model predicted, but at the time few investigators took that seriously. In analogy to many of the icy moons of the

Jovian planets, most speculation centered around a model with ice on the outside and a rocky core, if any, on the inside. This idea was so prevalent that both the Giotto and Vega spacecraft sensors were set to follow the brightest object in the field of view and in doing so nearly missed getting an image of the nucleus at all !

The Giotto view of the nucleus of Halley shows an extremely dark, oblong object, apparently covered with craters (not unlike the volcanic ones on Jupiter's moon Io) with jets spewing forth dust and gas mainly in a sunward direction. The nucleus spins with a 2.2 day period (not far from the period predicted by Sekinina and Larson based on analysis of 1910 photographs and visual observations) and this causes the whole gaseous atmosphere of the comet to also vary with this beat. The only objects in the solar system seen so far that are as dark as the Halley nucleus are the particles in the rings of Uranus. Infrared spectra of the comet seem to indicate that the dark material is rich in organic molecules - perhaps a form of sludge. And so where is all the ice ? Well, it appears that it is on the inside of the black crust ! The nucleus of Halley is a giant Thermos Bottle. The crust heats up on the outside, but only in those areas where the crust is thin - the pits and craters - is sufficient heat available to vaporize the ice. It is interesting to note that while the nucleus is some 15 kilometers long and 8 or 9 kilometers wide, the total emitting area is comparable to a sphere of ice of roughly 5 kilometer diameter - a number originally obtained from the dirty-ice model. For many purposes, the dirty-ice model is still appropriate and useful, but in detail it is not sufficient.

Cometary astronomy will never be the same. The mystique of Halley is gone. The show is over and public interest has now turned to other trinkets.
Hail and Farewell !!

Dr. David Meisel

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"A New Publication of Cambridge University Press"

Cambridge University Press has just accepted for publication a book entitled, "The MOON OBSERVER'S HANDBOOK". It should be out within a few months. This book is based on over twenty-five years of practical telescopic research and theoretical study. It will contain many line diagrams and drawings by the writer of the various lunar features. It will also contain a unique series of drawings of the Moon's phases as seen in the telescope from just after new to a day after full. Some photographs will also be featured in this newly published book.

As you may all know, the Cambridge University Press is the most prestigious in the world; so it is no small accomplishment to get a book published by them. In view of this, I know that you, as members of the B.A.A., will appreciate the fact that our own Dr. Fred W. Price has been so honored, as he is the author of this book.

I congratulate you Fred, and I know that goes for the rest of the membership of the B.A.A.

Darwin Christy

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ASTRONOMICAL HAPPENINGS

SOLAR- On September 23rd the sun will cross the equinox, thus giving us more night than day. On the 3rd of October there will be a partial eclipse which can be seen hereabouts. It should start near 14:00 hours (2:00 PM EDT).

LUNAR- A total eclipse of the moon will occur throughout the eastern countries but not here in the U.S.o.F.A. The moon's phases will be 'New' on September 4th & October

The Moon's phases will be as follows:-

NEW MOON - September 4th * October 3rd.

First Quarter MOON - September 11th & October 10th

FULL MOON - September 18th (the Harvest Moon)

October 17th (the Hunter's Moon)

Last Quarter MOON - September 25th & October 25th

LUNAR CONJUNCTIONS:-

Mercury - October 5th

Venus - September 7th & October 6th

Mars - September 13th & October 11th

Jupiter - September 17th & October 14th

Saturn - September 10th & October 7th

Uranus - September 11th & October 8th

Neptune - September 12th & October 9th

Antares - September 10th

PLANETARY CONJUNCTIONS:-

Mercury & Venus - October 18th

Mercury & Spica - September 29th

Venus' greatest brilliancy - October 1st

METEOR SHOWER FOR SEPTEMBER IS 'AURIGIDS' which occur on the first. They are not a good shower but one to gain any data observers can give. They radiate from Right Ascension 5 hours 40 minutes at Declination +42 degrees. It is an irregular shower with a duration of about 24 hours. They appear white at about 4th magnitude with an hourly rate of 5 or 10.

METEOR SHOWER FOR OCTOBER IS 'QUADRANTIDS' occurring on the 2nd. This shower is related to the January 3rd shower in another plain of the earth's orbit. They radiate from Right Ascension 15 hours at Declination +52 degrees. It is an annual show with long, slow, white streaks of 3rd magnitude lasting about 6 hours only. 100 can be counted in a single hour although they will, this year, occur at about 4:00 AM to 10:00 AM, not making it a very good shower for the year.

Other Meteors for September and October include:-

Beta Lacertids - September 1st

Epsilon Perseids - September 11th

Southern Piscids - September 20th

Kappa Aquarids - September 21st

Alpha Aurigids - September 22nd

Sextantids (daytime) - September 29th

Andromedes - October 3rd

Giacobini-Zinner Comet - 1985 - October 8th

Draconids (a fine shower) - October 9th

Northern Piscids - October 12th

Epsilon Arietids - October 17th

Epsilon Geminids - October 19th

Orionids (a fine shower) - October 21st

Leo Minorids - October 24th

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THE TROUPE REPORT

The last meeting of the past season was held on June 20th with 5 members and 2 guests present. Brian Fallon brought in the club's loaner telescope. We checked the collimation on this and another scope. We then scanned some celestial test objects and enjoyed some rare (in these parts) observing. It was nice to see Saturn coming around again.

Bob Hughes has pointed out that all the planets are in the evening skies this summer. So if you are alert and are able to catch Mercury and happen to have a scope capable of picking up Pluto you may be able to make the "Grand Tour", seeing all the planets in one observing session. It would probably be a long tour of duty but it would be a real achievement.

If all goes well, the first meeting of the new season will be held in September. We hope Doug Snyder will have a lot of rough grinding done on his new 8 inch. And that John Malona will have made progress on a Dobsonian mount for his big square tube job. There are a number of mirrors in the group which are in various stages of figuring. Maybe we will have a good testing session.

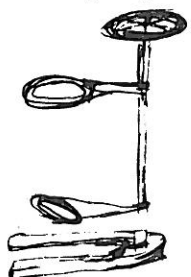
Ed Lindberg

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DUES ARE DUE

SOUTHERN CONSTELLATION

MICROSCOPIUM, The Microscope is an inconspicuous constellation lying between Capricornus on the north; Telescopium on the south; Grus & Piscis Australis on the east; and Sagittarius on the west. The brightest star is perhaps about 4.5 magnitude which is Gamma. Not much can be found



about 4.5 magnitude which is Gamma. Not much can be found in Microscopium, but what there is follows:-

Galaxies include I, 5105 and NGC's 6923, 6925 & 6958.

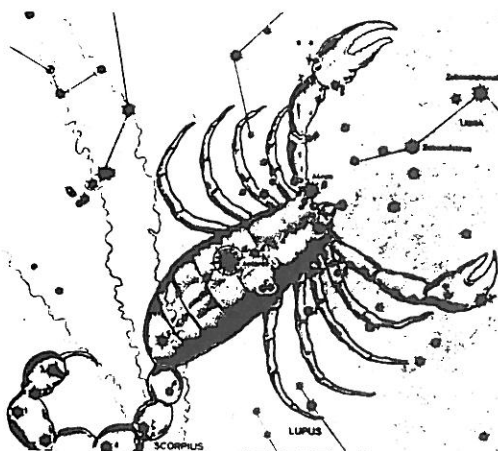
Variable Stars are "U" & "S".

Double Stars are Iota, Theta² & Alpha.

Four stars within its border belong to Piscis Australis which are Gamma, 2, 3 & Epsilon.

ZODIACAL CONSTELLATION

SCORPIUS, The Scorpion, also referred to as Scorpio is one of the signs of the zodiac. From 'Ovid' we hear, "There is a place above where Scorpio bent -- In tail and arms surround a vast extent...."



This Constellation is mentioned by all of the early writers of astronomy, and is supposed to have gotten its name from the fact that when the sun entered this great sign in the times of the ancients, sickness was prevalent in Egypt.

Old myths concerning Scorpius connected it with Orion.

The creature is said to have come out of the earth on command of 'Juno', who, incensed at Orion's conceit, ordered the Scorpion to attack him. Orion was thus stung by this creature to death. From this, they were both honored with a place among the stars, though were so placed that they never appear in the heavens at the same time.

The star Antares, that brilliant star in Scorpius, was so given as the 'Rival of Mars'. In Persia, 3000 years B. C., Antares was one of the so-called "Royal Stars" and in China it was known as the "Fire Star".

Scorpius is bordered by Ophiuchus & Libra on the north; Norma & Ara on the south; Libra & Lupus on the west; and Corona Australis & Sagittarius on the east.

Many fine objects are found in Scorpius which follow:-

Though there are no Galaxies there are Open Clusters - NGC's 6124, 6178, 6192, 6222, 6227, 6231, 6242, 6259, 6281, 6318, 6322, 6383, 6400, 6404, 6405 (m-6), 6416, 6425, 6451 & 6475 (M-7); also H-12, H-14, H-16, H-17 & H-18.

Diffuse Nebulae include NGC's 6334, 6335 & 6357; also I, 4591 - I, 4592 - I, 4601 - I, 4605 & I, 4628.

Planetary Nebulae are NGC's 6072, 6153, 6302 (the BUG NEBULA), 6337 & I, 4663.

Globular Clusters include NGC's 6093 (M-80), 6121 (M-4) 6139, 6144, 6380, 6388, 6441, 6453 & 6496.

Nova can be found in Scorpius as follows- 1860, 1941, 1944, 1950, 1862 & 1963

Double Stars are- AH, Alpha, BM, FV, Mu¹, RR, RS, RT, RU, RV, RY, RZ, SS, SU, SV, T, TX & U. Variable Stars are- 11, 12, 22, Upsilon, Beta, Xi¹, Xi², Pi, Alpha, Rho, also U, RZ, T, RR, SS, RV, SU, RU, RT, SV, FV, AH & BM as well

as V453, V449, V760, V636, V393, V697, V720, B825, V727 & V703.....Enjoy your summer observing.

Darwin Christy

NEW MEMBERS

We have two new members added to our rolls:- Peter Rosokoff and Deborah Nallos. Welcome! And we hope you will enjoy the activities afforded by the B.A.A.....

"WHAT WAS IT?"

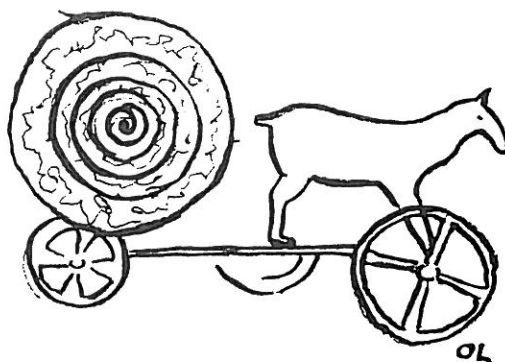
At about 10:00 PM EDT, on August 12th, I spotted a gaseous cloud traveling at a very slow rate of speed from the south-west towards the south-east. It was approximately 35 or 40 degrees above the horizon, and appeared at first to resemble a nebulous cloud, but with binoculars, a stellar object seemed to be leading it as if to be towed. As it passed over, the cloud seemed to change shape from a spiral structure to becoming an elliptical shape, then as it still proceeded further away, began to take on the shape of a boomerang until it finally disappeared from sight. All of the while, the stellar object seemed to change in color from orangish to bluish and back again; at the same time its magnitude changed from about 5th down to 10th and then up to 5th again. These pulsations last about 45 seconds, minimum to minimum. The whole time of passage, from my vantage point, was about 10 minutes.

Darwin Christy

The above observation has since been recorded in two local newspapers; the Buffalo News and the Tonawanda News. In the Buffalo News, it was reported as having been seen from the David Dunlop Observatory on Richmond Hill, north of Toronto, Ontario, Canada. It was seen by Karl Kamper, an astronomer at that observatory. From the Tonawanda News as reported by the Associated Press, was seen by members of the Syracuse Astronomical Society, Denise Sabatini, Vice President of the group so reported. Our own Ernst Both also had reported of the Perseid Meteors but not about this phenomena in the same article. He only described what the Perseids were probably formed from and what they experienced while entering the earth's atmosphere. This phenomena was seen from Michigan to Maine as described and was probably seen even further west and east...UFO??? - What was it?

D.P.C.

The SUN CHARIOT (Circa 1000B.C.)



A partially broken bronze relic found in Trunaholm, Denmark, represents the solar disk drawn by a horse. Dating from a very early epoch it was doubtless a cult object and used for ritual purposes. The ancients worshipped the sun as a source of all light. The disk is partially covered with a thin gold leaf and some authorities believe it was made about 1000 years before Christ. The spiral patterns inscribed on the solar disk symbolize the source of life -- the sun. This priceless relic is now in the National Museum in Copenhagen.

Olga Lindberg

PREDICTING the INCIDENCE of FOG at BEAVER MEADOW

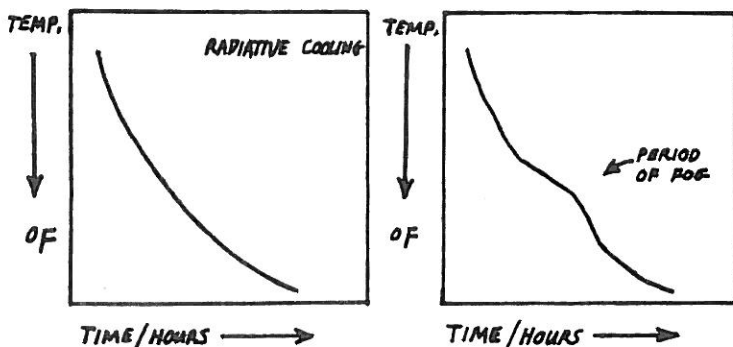
Frequent visitors to Beaver Meadow are liable to occasionally experience a night of fog rather than one of starry skies. This occasional incidence of fog is of some importance to the active observer for when it occurs it can quickly bring an end to most forms of critical observation.

Being curious as to just how frequent such fog incursions are I have monitored its occurrences over a three year period. As a result I have devised a fairly consistent means of predicting its occurrence, but first a little background information.

The atmosphere above any given site on earth contains a certain percentage of water vapor. In regards to fog, or dew for that matter, it is the relative humidity of the vertical air mass that concerns us. The higher the ambient air temperature the greater its moisture retentive capabilities, conversely, the lower the ambient air temperature the lower its water vapor retention and the higher the relative humidity. Thus for a given atmospheric water vapor "load" the relative humidity is dependent on the ambient air temperature. Should the mean air temperature fall to such an extent that the dew point is reached the relative humidity approaches 100% and both fog and dew can occur. Thus it can be seen that nights possessed with a steep hourly thermal gradient will tend to rapidly attain the saturation point. Dewing of the telescope optics can easily be avoided but at a given observing site, unfortunately, the fog cannot.

It is this temperature versus relative humidity linkage that provides us with a simple means of fog prediction. By accurately monitoring the temperature throughout dozens of nights one can correlate the mean hourly thermal gradient (the average drop in temperature averaged over the entire night) with the incidence of fog. Although this ignores the initial relative humidity consistency appears good provided purely radiative cooling is in force.

Diagrammed graphically a night experiencing purely radiative cooling plots out a parabolic curve. Should periods of intermittent fog occur a retardation of the thermal gradient is detected. Plotted graphically such temporary fog incursions appear as "bumps" of lesser slope upon the other wise parabolic slope of the radiative thermal gradient. Apparently the fog acts as a "thermal blanket" which retards heat loss.



Having monitored the night time thermal gradient at Beaver Meadow via an electronic digital thermometer, the following shown in table form has become evident:

MEAN HOURLY DROP TEMPERATURE OF	INCIDENCE/ FOG	COMMENT
1.8°F/HOUR	NO INCIDENCE OF FOG	VERY GOOD SEEING
2.0°F/HOUR	NO INCIDENCE OF FOG	EXCELLENT TRANSPARENCY GOOD SEEING
2.2°F/HOUR	SLIGHT INTERMITTENT FOG	TRANSPARENCY REDUCED GOOD SEEING
2.4°F/HOUR	INTERMITTENT MODERATE FOG	FAIR SEEING
2.7°F/HOUR	INTERMITTENT HEAVY FOG	FAIR SEEING
3.0°F/HOUR	DENSE FOG/NIGHT TERMINAL	SEEING POOR

During the months of June, July, August and September, there is an 80 - 90% probability of this table's accuracy as per Beaver Meadow provided little or no breeze is

present. This is so because to a certain extent fog formation is not indigenous to Beaver Meadow but is "so to speak" imported on the wind.

Put in even simpler terms, in most cases the incidence of fog can be predicted by noting the initial temperature drop occurring during the first hour of evening twilight. Should the temperature, during this critical hour, fall on the order of 7° during this interval, then likely considerable fog will form. Even so until such fog occurs, transparency will be on the whole exceptional, seeing conditions will, of course, suffer.

In conclusion, Beaver Meadow as an observing site is usually free of observationally prohibitive fog. Only about 1 in 10 nights on average during the summer months actually experiences gross fogging. Clearly Beaver Meadow is not nearly as foggy a site as many people seem to believe but when it does occur it often is quite extensive. In this regard Beaver Meadow is a fairly typical Wyoming County observing site.

Michael Idem

PI P QUIE PIP

In this puzzle you are given a graph of 48 letters which you will need to spell out 8 astronomical words. Each letter has a numerical value, determined by adding the numbers in a column and row where the letter is found. For example:- "X" is in the 3rd column and 5th row of the graph and therefore has a value of 8; one of the "A's" is found in column 6 and row 4 with a value of 10 (there are other A's which have different numerical values). Below the graph are series' of numbers which represent words. The numbers are in correct order, so that when properly substituted, a word is formed. To solve the puzzle, you have to try out the various letter possibilities for that number in the graph. Cross off each letter as it is used so that when you get to the last word it will be easily found.

Solution next issue of the "SPECTRUM"...

	1	2	3	4	5	6	7	8
1-	A	G	A	R	F	E	N	A
2-	T	A	R	U	O	I	E	L
3-	M	L	P	N	E	L	S	E
4-	B	N	L	A	N	A	T	A
5-	T	R	X	E	U	E	Y	M
6-	L	S	A	T	C	E	T	Y

1-	6	7	4	9	11	10
2-	3	8	9	4	8	14
3-	9	7	8	6	2	5
4-	10	12	8	3	11	13
5-	6	7	5	10	7	9
6-	4	8	6	12	7	12
7-	11	5	10	13	9	5
8-	6	8	10	11	9	7

** OBSERVATIONS **

M17, the Omega or Swan nebula was seen with the 26 inch Dobsonian scope on August 3rd, with a UHC nebula filter. The nebula was a fountain of patches, both bright and dark, large and small. The dark patches were more prominent than ever before silhouetted in front of the main irregular HII region, with a sharp dark edge on one side.

A reddish minus 3rd magnitude meteor was observed from Boston, N. Y. at 2:38 AM EDT on August 12th. It traveled 20 degrees from Delphinus to Alpha Capricornus in 1½ seconds and left a glowing train visible to the naked eye for 5 seconds.

Also the same night the Crescent nebula (NGC 6888) in Cygnus, which is thought to be either Wolf-Rayet nebula or a Super Nova remnant, was seen. It looked like M57 cut in half down the long axis, and like a miniature Veil nebula. Its curved edge looked as if a bicycle chain was wrapped

around and containing bright knots. In its hollow was a pale glow and about half a dozen small bright patches with one large one.

And finally, M33, the Pinwheel galaxy in Triangulum, which has a very bright nucleus in the center of it's hub was observed. Two long and bright spiral arm curved more than 180 degrees, and there were two other arms that are pale and short protruding from the hub. Strung along the arm was about a dozen bright knots and patches, one as bright as the nucleus of the galaxy. There are HII region and open cluster in the galaxy, and the arms were surrounded by a faint glow all over.

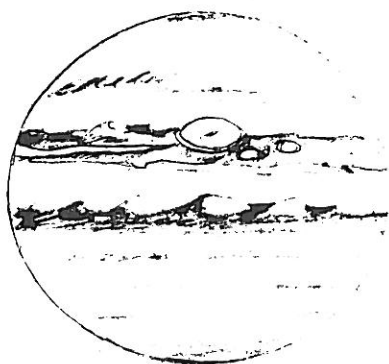
Carl Milazzo

On August 12th between 1:00 and 3:00 AM EDT, I observed 56 Perseid meteors. They ranged from an orange hew to yellow-white with a magnitude range of 5th to 2nd as seen from my observatory site. They appeared as long slow streaks of the varying magnitudes and colors and were a sight to see. Too bad that I fell asleep before the sun started to appear above the horizon.

Darwin Christy

Planetary Observation - After a night of socializing and photographing at Dan Marcus' place (August 9/10), myself and three othersclub members were treated to an unusual

SOUTH



AUGUST 10th ~ 2:00 EDT
12.5" f/5 REFLECTOR
@ 228X

preceding the GRS. Two large white spots (about 1/3 the size of the GRS) were visible following the GRS. The South Temperate Belt also showed considerable activity on the form of swells, garlands and knots. The North Equatorial Belt (NEB) was very active with numerous garlands, bars and swella visible along the antire length.

Richard Jakiel

From the Toronto Centre's newsletter, "SCOPE" comes a very good article on MARS.

A PLANETARY EXTRAVAGANZA

Now that all the Halley hubbub is receding with the comet, we can turn our thoughts, and telescopes, to other rewarding and exciting targets. For example, "MARS". The red planet reaches opposition on July 10 and will be closer to Earth (60 million km) than at any time since 1971. It will therefore present a large bright target. If you have grown tired of driving away from the dity in order to spot fuzzy celestial snowballs, then Mars is for you. At better than magnitude -2 through most of July and August, locating the planet, even in light-polluted skies will be no problem.

While its low southern declination will be a hindrance, numerous studies may still be undertaken. Keep in mind that Mars is the only planet whose actual surface can be clearly

seen and profitably studied from Earth. We can watch for shifting cloud and haze patterns, dust storms and changing albedo features. The south polar cap is tipped toward us so we can witness it shrinking as Martian spring progresses. This season begins June 1 in Mars' southern hemisphere so the pre-opposition period sholud reveal a prominent cap.

A giant instrument is not required to enjoy the changing face of Mars. Achieving a maximum disk diameter of 23.2 seconds, the planet has something in store for almost any aperature. Indeed, with a moderate-size telescope, useful observations can be carried out through the entire year. To enhance these observations, the use of filters is recommended. For example, an orange or red filter will increase contrast of surface details while a violet filter can often dramatically highlight high-altitude clouds. Sequential use of the proper filters allows you to construct a cross-section of the Martian environment from ground level to the upper-most atmosphere. A drawing in each colour will provide a permanent record of the evening's work while the table on page 111 of the "Observer's Handbook" allows you to determine what hemisphere of Mars has been under study. It is always exciting to compare a drawing with a topographic map of Mars to see if, for example, the cloudes recorded by the observer in green light were associated with one of the great Martian volcanoes.

Being large and bright, Mars will be relatively easy to photograph using eyepiece projection. Kodak TP 2415 (black-and-white) or Ektachrome 100 colour film give very good results and are certainly woth a try.

Don't have a 'scope? Not to worry. Mars is the most interesting planet to watch with the naked eye. It travels rapidly among the stars and this summer performs a nice loop in Sagittarius. This can be easily recorded on film by simply using a tripod-mounted camera; take a series of 30-second or one minute exposures every week or so from June to September. (because of the latenees of this article, it could go nearly into October. Ed.)

Having passed opposition on May 28, Saturn is also well placed for observing this summer. The north face of the rings has opened some 25 degrees as seen from the Earth and will provide one of the most glorious sights in the heavens. Even if you don't study the planet systematically, share it with a friend and wait for the reaction! The per-sistant observer, on the other hand, may be rewarded with phenomena not unlike the type found on Jupiter. While not as pronounced, Saturn does have belts and zones in its clouds. These differ inherently in colour and intensity over time and may be affected by the changing tilt of the planet with respect to the Earth and Sun. Vague mottlings and spots have been reported in the clouds but further observations are desperately needed. Again, try various filters. When finished with the planet, try the rings. After all, multiple subdivisions, and perhaps spokes, were seen from Earth (before Voyager) using modest aperatures. Don't forget too, that more moons can be seen around Saturn than around Jupiter.

I discussed Jupiter in the July-August 1985 'SCOPE and won't mention it further except to say that it too will yield its secrets if studied carefully. Jupiter reaches opposition on September 10 and this year will be closer to the Earth than at any time since 1975.

Serious planet watchers may wish to join the Association of Lunar and Planetary Observers (c/o Dr. John Westfall, P.O. Box 16131, San Francisco, California, 94116, U.S.A.). This organization collects and collates data on solar system bodies submitted by its members. Observations of Mars may be used for statistical studies of surface features and for predicting the Martian weather. Such information my be helpful in support of future missions, including manned, to MARS.

Phil Mozel,
member - R.A.S.C. Toronto Centre

*** MARS ***

Using a 12.5" f:6 Newtonian reflector fitted with a 12.5 mm Orthoscopic eyepiece and 2X Barlow lens, I drew the following observation of Mars.



Darwin Christy

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* THE SPECTRUM *

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