

LAS OFFICERS AND BOARD MEMBERS FOR 1987

President - John D. Sabia	Vice President - Jo-Ann Kamichitis
Secretary - Glenn Jacobs	Treasurer - Diane Musewicz
Junior Vice President - Tom Holeva	
At-Large Members - Esther Friedmann/Steve Gedrich/Ed Sidorski	

LAS CALENDAR

<u>DATE</u>	<u>ACTIVITY</u>	<u>PLACE</u>	<u>TIME</u>
Jan 3, 4 Sat, Sun	Quadrantid Meteor Watch Peak is 2:00AM. <u>Dress Warmly!</u> <u>Bring Blankets and</u> <u>lawn chairs.</u>	KJC/LASO, Fleetville	10:00PM and on
Jan 6 Tuesday	Annual Meeting	Junior Achievement Bldg 1007 Calouse Ave. Scranton, PA	7:30 PM

<u>DATE</u>	<u>ACTIVITY</u>	<u>PLACE</u>	<u>TIME</u>
Jan 10 Saturday	Official club observing night	LAS/KJCO, Fleetville	9:00 PM if clear
Jan 13 Tuesday	Board of Directors meeting	Home of J.D. Sabia (see John for directions)	8:00 PM
Feb 3 Tuesday	Regular monthly meeting	Junior Achievement Bldg Scranton, PA	7:30 PM
Feb 7 Saturday	Official club observing night	LAS/KJCO, Fleetville	9:00 PM if clear
Feb 10 Tuesday	Board of Directors meeting	home of J.D. Sabia	8:00 PM
March 3 Tuesday	Regular monthly meeting	Junior Achievement Bldg Scranton, PA	7:30 PM
March 7 Saturday	Official club observing night	LAS/KJCO, Fleetville	9:00 PM if clear
March 10 Tuesday	Board of Directors Meeting	home of J.D. Sabia	8:00 PM

Sometime in March, KJCO public nights will resume on Wednesdays.

On all clear official club nights, a keyholder to KJC/LASO will be present (either John Sabia or Jo-Ann Kamichitis.) Even on club nights, if you must travel any great distance to get to KJCO, please call J. Kamichitis to be certain of the sky conditions and availability of a keyholder. Also, if the weather is at all iffy, call first to make the arrangements definite. On other clear weekend nights, contact J. Kamichitis (343-4006) to see if the place will be unlocked or whether you will have to bring your own 'scopes and warm up in your car. KJC Observatory's phone number is 945-3665, but people are not always near to the phone to hear it. KJC/LASO is on Route 107 about halfway from Exit 61 of I81, as you head towards Fleetville Corners. You take a left on Hack Road.

LAS ACTIVITIES

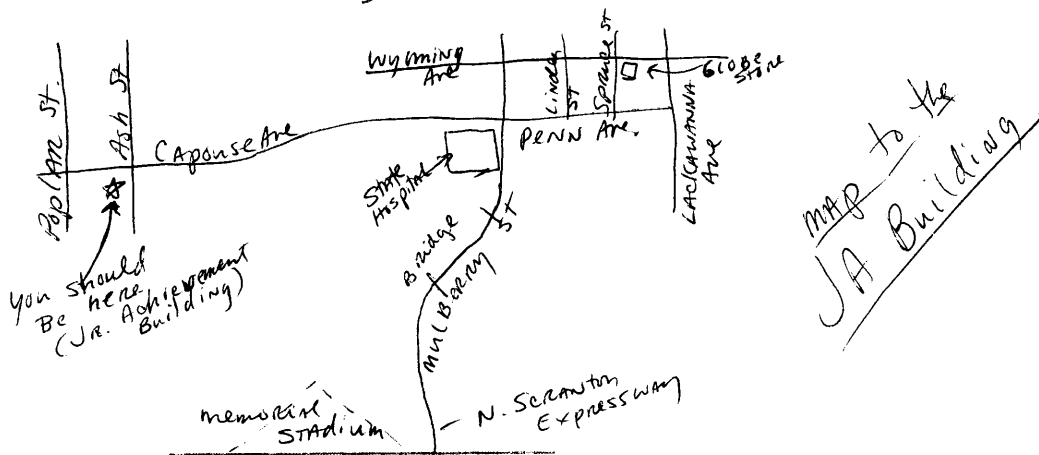
Join us for the Quadrantid meteors. This may be the most favorable moon phase situation for a good meteor shower all year! You can't call yourself a meteor watcher if all you've ever done is roll around during the August Perseid displays. You have to suffer in the cold for meteor watching to really count. By the way, if you thought it was cold last August during the Perseids, double your clothing and blanket layers for this display. You will really get a chance to experience January's cold. You'll develop true respect for all those people who lived in the days before central heating. You'll finally develop real empathy for the Pilgrim's first winter, and the men at Valley Forge! In other words, come prepared. We'll have coffee and donuts available, maybe even tea!

Coming attractions: "Constellation Closeups", Tom Holeva's excursion into "Figgyback Astrophotography", "How to build a Dobsonian Mount", "Up-coming Events", "Galaxies with active nuclei", "Spotlight on the Planets", "How to". There may even be a movie at some meeting! Plan to participate by bringing in your own equipment, photos, slides, etc. and share your astronomical triumphs and problems.

We are pleased to report that the plans for the February mid-winter cocktail have been cancelled due to an inexplicable attack of common sense.

See you at the meetings.

Jo-Ann Kamichitis
Vice President



DUES ARE DUE

Enclosed you will find a dues slip. If you have already paid up at the Christmas party, (By the way, those of you who were scared off by the weather predictions missed a good time, good food, and good company,) then ignore that form. The rest of you are asked to remit your dues as soon as possible so you will not miss out on your newsletter and the club's activities. We are planning on another active and interesting year; we need you to make things work. #5⁰⁰ under 18; #8⁰⁰ Adult, #12⁰⁰ family

Dues go to : Diane Musewicz, 431 Palm Street, Scranton, PA 18505

From December 1985 issue of Celestial Horizons, newsletter of the Ventura County Astronomical Society Inc., Simi Valley, California.

SOME WINTER DEEP SKY OBJECTS FOR BINOCULARS AND SMALL TELESCOPES
by Hal Jandorf

The night sky in early winter holds many spectacular open star clusters. In a small telescope or a pair of binoculars, these clusters have the appearance of sparkling jewels contrasted against the velvet blackness of the sky on a cold December evening. Take some time to locate the objects listed here and you're sure to enjoy your next observing session. The chart will also help you become familiar with the constellations of Perseus, Auriga, and Taurus. These star groups are near the meridian at 9 PM in mid-December.

OBJECTS FOR OBSERVATION

Double Cluster in Persus-NGC 369 and 384: RA 2h19m, Dec +56.8 a beautiful pair of clusters, best seen at low power where both are visible in the same eyepiece field. A ruby red star is centered in one of the clusters. Some of the brightest stars in this cluster shine with the brightness of 60,000 suns. If our own sun were placed at the distance of these clusters (7000 light years), it would appear as a meager 17th magnitude star! The double cluster can be located without optical aid between Perseus and Cassiopeia.

M-34 in Perseus: RA 2h38m, Dec +42.5 a very loose and wide field star cluster. As with most clusters, a low power (20x to 60x) should be used. This is a good binocular object. This cluster is about 1500 light years distant and age estimates place it at slightly over 100 million years old.

M-36 in Auriga: RA 5h33m, Dec +34.2 an open star cluster nearly centered between theta (θ) Aurigae and beta (β) Tauri. Visible in binoculars as a small fuzzy spot, this congregation of about 60 stars below 6th magnitude is 4000 light years away. The cluster spans about 14 light years.

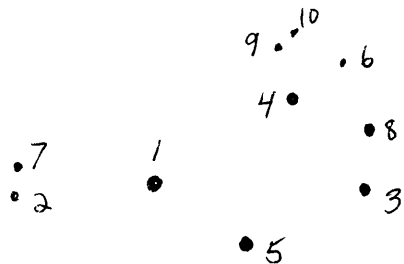
M-37 in Auriga: RA 5h50m, Dec +32.5 this open cluster forms the east apex of an isosceles triangle with β Tauri and θ Aurigae. About 150 stars of similar faint magnitude are very closely packed and make a spectacular effect in any telescope. The cluster is about 4600 light years from us. I think this is the prettiest cluster of the three in Auriga.

M-38 in Auriga: RA 5h27m, Dec +35.7 nearly centered in the pentagon of Auriga between Capella and β Tauri is this loose open cluster of some 100 stars. The stars form a cross shape when viewed with a small telescope. This cluster is about 4200 light years distant.

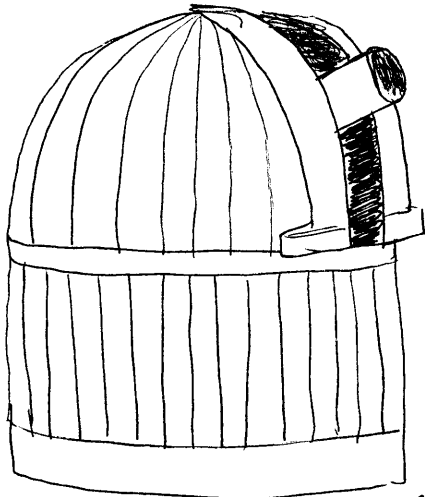
M-1 in Taurus: RA 5h33m, Dec +22 the first object on Charles Messier's list is the famous Crab Nebula, the supernova remnant from a star that was seen to explode in the year 1054 by Chinese astronomers. Just 1.5" northeast of zeta Tauri, this faint nebula appears kidney shaped in a small telescope. It can be found by using a pair of 11x80 binoculars on a dark, moonless night. M-1 is about 6000 light years away. Astronomers have discovered a Pulsar at the center of this supernova remnant.

M-45 in Taurus: RA 3h44m, Dec +24 the famous Pleiades or "Seven Sisters" star cluster is easily seen by everyone. Most people see six or seven stars with the unaided eye, in binoculars dozens are brought into view. This is possibly the best binocular objects in the sky -- in my 20x80s it is breathtaking! The cluster is surrounded by a haze of nebulosity left over from star formation, as the stars in the Pleiades are young, only about 20 million years old! The nebulosity can be seen only when the sky is very dark and clear. M-45 is 400 light years distant and the brightest stars are concentrated in an area about 7 light years in diameter. The brightest star is Alcyone, a giant blue star 10 times bigger than our sun and 1000 times brighter.

(For map see page 1 of the "Ecliptic")



*PLEIADES IDENTIFICATION SKETCH



(The 9" with Walt Bennett's Dew cap Added)

STAR	NAME	MAGNITUDE
1	Alcyone	2.86
2	Atlas	3.62
3	Electra	3.70
4	Maia	3.86
5	Merope	4.17
6	Taygeta	4.29
7	Pleione	5.09
8	Celaeno	5.44
9&10	Asterosepe	5.64; 6.41

*From Burnham's Celestial Handbook

PHOTOMETRY PROJECT

My current project with photometry is an attempt to do two things. First and foremost I am calibrating the 9" Clark refractor for photometric use with our photometer. This part of the project entails making numerous readings on about 40 Johnson stars and/or other standard stars. The results of measurements made on these stars will be plotted against known values for these same stars. As a result I will have determined what might be called a correction or offset factor. This correction factor when determined will allow us to make B-V and possibly U-B reading on stars with only one night's work at the telescope. In order to complete this part of the project and keep an accuracy of at least ± 0.033 magnitude, I will have to make in excess of 2000 observations resulting in a minimum of 12,000 calculations. Thus far I have completed 95% of this work, and it looks as if my accuracy will be within ± 0.015 and ± 0.033 magnitudes for B-V measurements.

The second part of my project will entail testing the above system on the Pleiades cluster. In other words, I will measure the B and V magnitudes of about 75 stars in the Pleiades, and then determine B-V values for each of them. These B-V values will then be plotted against "V" values for the same stars. This plot will in effect be an "H-R" diagram of the stars in the cluster. If I am successful, I should be able to show the turn-off point in the diagram. This will depend on the final resolution of my measurements. This part of the project will require another 2000 observations and about 8,000 calculations. I have completed about 90% of this second phase.

Walt Bennett

WORD SEARCH PUZZLE
by Delores Sabia

F D E U D A R C T U I P Y I
R A N N A R S E Y X A L A G
C M C V S A S U N A R U W T
E L R E T I P U J E I H Y O
R A U U V P O W I S A S E Y
T A R S C A E B U Z E R L C
G N E T F R C K Y I T A I L
E U D I H E E C C K E T M E
L S G O C Y R F C O N S E Y

1. clear
2. cluster
3. comet
4. earth
5. galaxy
6. hazy
7. Io
8. Jupiter
9. Lem
10. Mars
11. Mercury
12. Milky Way
13. moons
14. Nebula
15. Neptune
16. Pluto
17. Rigel
18. Saturn
19. Sky
20. stars
21. sun
22. tail
23. Vega
24. Venus

Reprinted from VCAAS newsletter, "Celestial Horizons" March 1986 issue.

FACTS, LEGENDS, AND MYTHS

The constellations of Ursa Major (The Great Bear or Big Dipper) and of Ursa Minor (The Lesser Bear, or Little Dipper) are intimately tied together in legend. It is a mistake, sometimes made by the unknowledgeable, to believe that the Big Dipper is all there is to the constellation, Ursa Major. In fact, Ursa Major contains the Big Dipper but also contains many more stars.

According to Greek mythology Zeus, the king of the gods, fell in love with a beautiful young woman named Callisto. Callisto was a very good hunter and spent much of her time in the mountains of Arcadia in search of game. Hera, Zeus's wife, upon finding out about Zeus's new love became jealous to the point of anger. Since she could do nothing to Zeus because he was much more powerful, she set out to punish Callisto. Upon finding Callisto, Hera left Callisto with all of her human feelings and fears. Callisto was, in effect, destined to roam the forests in constant fear of the other wild animals as well as the hunters. Hera had taken her beauty and changed her into a bear.

One day, Callisto came upon a very handsome young hunter whom she recognized as her son, Arcas. She was so over-powered by her love for him that she reached out to embrace him. Arcas thought that this bear was about to attack him, so he tried to defend himself. He raised his spear and was about to throw it and kill his mother when Zeus intervened. Zeus turned Arcas into a bear also and then grasped each of the two bears by the tail and pulled them all the way into the heavens, with Callisto as Ursa Major and Arcas as Ursa Minor. (It is because Zeus took the two bears in two by their tails that they have such long tails in the heavens.)

Hera, being the loving wife that she was and having the keen sense of fairness that she had, felt that Callisto and Arcas should not have an honored place in the heavens let alone the one they had. She went to see Oceanus, the god of the oceans, and Tethys, his wife. She complained of her feelings of being displaced as Queen of Heavens by the two, Ursa Major and Ursa Minor. She struck a bargain with Oceanus and asked that he keep these two penned up. This he did by preventing their ability to roam. They were not allowed to bathe in the waters of the oceans and were restricted to traveling in a tight circle about the pole.

It is interesting to note, at this point, that so many supposedly disconnected cultures share a common mythical bond with regard to these two constellations. We have many examples of American Indians who rarely set the stars into constellation type patterns, having set these stars of the

Ursa Major and Minor constellations apart, also as bears. This presents to us a complex question...was there a root for the above myth that goes back to where these people and the people of Greece and many other cultures share a common bond. It seems much too far beyond chance for these cultures to have developed these myths and used basically the same stars to depict these constellations. It leaves too many unanswered questions to propose a parallel development. This, then, leaves us with the thesis that they have a root origin, but given a conservative establishment of time the American Indians have been here for from 15-50 thousand years or more. The connection must go back a long way. If this is so, then it gives us a feel for how long man has been looking to the skies, trying to make sense of and create an order for what he sees there. If these root origins do go back that far then we can see that man has been drawn to the skies with an interest in astronomy since before he could write.

The Big Dipper of Ursa Major has basically changed shape over the past 50 thousand years and in another 50 thousand years will barely resemble the Dipper at all. This is because these stars are moving toward us at different rates of speed. There are several double and several binary stars as well as a couple of Messier objects to be found in Ursa Major.

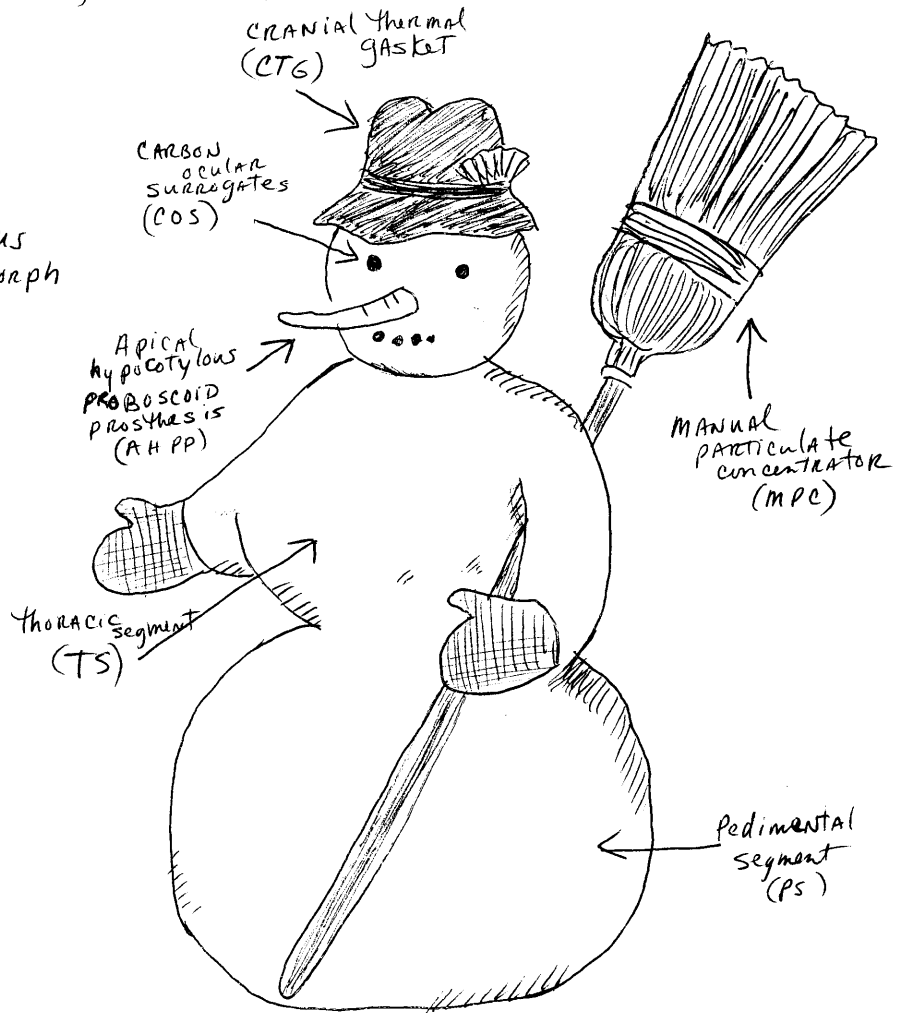
Ursa Minor bases its claim to fame on the fact that Polaris is the end star in the tail of this constellation. Of the two constellations, it is Ursa Major that draws the most interest whether it be scientific or non-scientific.

C. D. Koenig

The official
ACAH of the LAS sends our greetings to you!

ACCRETED CRYSTALLINE ANTHROPOID HOMOLOGUE

(ACAH is a solar-recyclable Aqueous TRANSITIONAL-state hominid isomorph Assembled as a juvenile peer-bonding mechanism)



The "Ecliptic" is the bimonthly newsletter of the Lackawanna Astronomical Society. A subscription to the "Ecliptic" is one of the benefits of membership in the LAS. No permission is needed for nonprofit use of any material published in the "Ecliptic" provided it is properly credited.

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