

NEWSLETTER of
 The LACKAWANNA
 ASTRONOMICAL SOCIETY
 SCRANTON, PENNSYLVANIA

June-July-August 1982
 Vol. 2 No. 3+4

LAS OFFICERS AND BOARD MEMBERS FOR 1982

President - Joe Kamichitis Vice President/Historian - Jo-Ann Pluciennik
 Secretary - Diane Musewicz Treasurer - John D. Sabia
 Members-at-Large - Scott Bailey/Bob Maleninsky/Bill Mecca

CALENDAR DATES OF INTEREST

<u>DATE</u>	<u>EVENT</u>	<u>LOCATION & TIME</u>
July 5-6	Lunar Eclipse (see article)	KJC Observatory
July 5 & 7	First talk of the summer lecture series (see article)	8 PM KJC Observatory
July 10	LAS cookout-meeting-observing session	5 PM on, KJC-LASO
July 12 & 14 19 & 21 26 & 28	KJC Summer lecture series	8 PM KJC Observatory
July 20	Board of Directors Meeting	8 PM J. Pluciennik home
Aug. 7	LAS cookout-meeting-observing session	5 PM on, KJC-LASO
Aug. 12-13	Perseid Meteor Shower (Runs from July 25-Aug 18; peak is either 8 AM or 3PM EDST this night according to "Ottwell")	Best after midnight KJC Observatory
Aug. 17	Board of Directors Meeting	8 PM J. Pluciennik home

LAS SUMMER MEETINGS

The club's mid-summer meetings are scheduled to be held at the observatory on Saturday, July 10th and on Saturday, August 7th. These are traditionally picnic-style, cookout, casual, great-fun get-togethers and this year is no exception.

Come up around 5 or 6 in the afternoon. Bring some food, bring some beverages, bring some bug repellent, bring your frisbee, bring your telescope. (It would be nice if members known to have some good instruments would bring them up to let other members view through them.) A grill or two will be set up. There's always a chance of a rocket launching and the LAS's rumored frisbee expert may be around to show his stuff.

Around 8 PM we may or may not have brief business meetings, but we will have programs. Movies are in the works for the meetings as well as constellation talks. With some luck and fast processing, we may have lunar eclipse photographs, too.

See you there.

Joe Kamichitis
President

FREE OFFERS

Offer #1 The LAS member packet is now ready for distribution to all dues payers. The packet includes a list of recommended books and atlases, LAS information flyer, 2 ESSCO Constellation Charts (north circumpolar and equatorial) compact and handy for naked eye star-browsing, and the ten-page LAS "Selected Deep-Sky Objects." The deep sky listing contains the classic favorites of our committee of veteran observers; the same veterans chose for the book list those books they thought helped them most at various stages of their sky-gazing skill development.

Since it costs 75¢ each to mail these out, we'd like to mail as few as possible. Please pick up your packet at one of the meetings, and we'll check your name off our list.

Offer #2 At KJC Observatory, public nights are not scheduled for June or August. However, in July there is the summer lecture series. Each week on Monday night (repeated on Wednesday night) a slide-lecture on some facet of astronomy will be given. Following the talk there will be observing through the 9" Clark and other, smaller, instruments. Topics scheduled for this summer include the planet Venus, the Sun and Comets.

This free-to-the-public series begins July 5; lectures start at 8 PM. Check the newspapers for information as to the exact lecture schedule.

LUNAR ECLIPSE PLANNED

As I promised in the Aug-Sept 1981 issue of this newsletter, the total lunar eclipse I arranged is scheduled for the early morning of Tuesday, July 6th. I tried hard to get it for a more convenient time but one of the west coast clubs won out for Monday night.

The penumbral phase begins at 22 minutes after midnight July 5-6, but the serious stuff starts at 1:33 AM EDT when the moon enters the umbra. The moon's path goes through the central part of the umbra so there is a good chance that its disk will be pretty dim by mid-eclipse which occurs at 3:31 AM. Photographers note: be prepared for long exposures, perhaps a few minutes, if you want any detail at this stage. Align your mounts carefully and check your drives - you may have to do some guiding. (But then, that's half the fun!) The moon begins leaving the umbra at 4:24 AM ending the total phase. As any weekend observer knows, 4:24 on a summer morning means virtual daylight, and the moon by this time will be an hour and a half or so from setting.

Some LAS members will be at the Observatory for most, if not all, of the eclipse, and all members are, of course, welcome to come up and spend a night observing one of nature's sky-shows. By coincidence or design the July Lecture Series at Keystone Observatory begins the evening of July 5th so we may have several of the public around too.

Joe Kamichitis

PROMISED LAND PROGRAM

It's a tradition in the LAS (we did it once before, that makes it a tradition) to give a slide presentation and have an evening of telescopic viewing of the heavens at Promised Land State Park each summer. The tentative date for this year's activity is Thursday, July 29th.

Last year's mistake was having a too early set-up time - God knows when it gets dark this time of year. This year we'll schedule the slide show for about 9 PM, but telescope set-up should be from 8:00 to 8:30. The slides will be shown just behind the nature museum near the Pickerel Point Contact Station and the telescopes will be set up in a nearby camping area.

The moon is just past first quarter this date, and the planets will still be around so there will be a lot to show everyone. We had a large, interested group of campers there last summer, but uncooperative weather cut the viewing time short.

LAS members are invited to participate, and if you can, bring your telescope. We'd like to have at least 4 or 5 there. Check for final details two weeks or so before the 29th.

To get to Promised Land take Route 84 East to Exit 7, then take 390 South about 4 miles to the park office building. Pickerel Point is down the road, directly across from the office.

Joe Kamichitis

NEW MEMBERS/MEMBERS NEWS

Dr. Frank Murray, 100 Jonslea Lane, Route 2, Moscow, PA 18444 (unlisted)
(inadvertantly omitted from the membership list last month)

Ron Benjamin, 628 Moosic St., Scranton, PA 18505 346-6737

George Brown, 243 Madison St., Wilkes Barre, PA 18705 824-0706

Sharon Hughes, 1258 Short Ave., Scranton, PA 18508 344-7185

Dennis Myroniak, 131 Salem Road, Carbondale, PA 18407 282-5602

Joseph Pidich, 1258 Short Avenue, Scranton, PA 18508 344-7185

David Smith*, Box 235, Blooming Grove, Hawley, PA 18428

Ken Smith, 3220 Greenwood Avenue, Scranton, PA 18505 343-4803

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Congratulations to John and Dee Sabia on the birth of their son, John George Sabia, on June 9, 1982, who thoughtfully arrived after the June 5th meeting and so John was able to give the treasurer's report then.

UNDER THE DOME

During the many public evenings at the observatory, the most impressive sight to the casual observer is the lunar terrain. People are taken by the difference of the lunar craters, especially near a first quarter phase. The large craters Atlas, Hercules, and Posidonius are great examples. The floors of Atlas and Posidonius have complex faults running in them. Close by, the crater Hercules' interior is marked by a nearly centrally located crater.

Another favorite site is on the Mare Imbrium floor, where there is an interesting trio of craters of different characteristics. Aristillus forms a complex region with radial spokes emanating from the rough, terraced walls. Within are three central peaks. Nearby is Archimedes, larger, the walls are also terraced but more circular. Its interior floor is a smooth dark basin. The outer floor of Mare Imbrium is much the same. Smaller yet is Autolycus, its wall not as broken as Aristillus and some terracing can be seen. Between the walls, the floor shows a broken pattern. Much more can be seen than is in this brief description.

Now, usually after the program is completed for the evening, I journey in search of lunar domes. To the north of crater Arago is the large dome Alpha Arago, easy to locate for a beginner. I could find a small crater pit centrally placed, which is a characteristic of most domes. More domes can be found in this area. For a challenge try the area north of 18 mile crater Hortensius and west of 7.8 mile wide crater Milichius. Both located on the mare Oceanus Procellarum floor.

These are just some of the locations I am trying with a 4" f/15 refractor. Since the moon is riding high on the ecliptic at first quarter during this season, right now is the time to take advantage of the better seeing for these domes.

John D. Sabia

SEARCHING FOR VARIABLE STARS

Sometime after you've completed tracking and pinning down faint galaxies, and you've worked your way through the clusters, nebula and beautiful star fields of the summer Milky Way, and still find yourself with the urge to hunt and explore, why not try these five stars? They are not beautiful contrasting visual pairs, but eruptive variable stars.

The majority are of U Geminorum class. These stars exhibit abrupt outbursts of light, with slower declines to minimum brightness. A H Hercules is a Z Camelopardalis class star, similar to the U Gem class, but exhibiting standstills of brightness (periods where their brightness stays constant) for an indefinite period.

Now, how to locate the stars? Since you are not searching for a nebula patch, but a faint star (or no star at all) a little description may help. I'll use Norton's Star Atlas as a starting source.

<u>STAR</u>	<u>MAGNITUDE RANGE</u>
X LEO	11.0 to 15.5
SS CYG	8.1 to 12.1
SU U MA	11.1 to 14.5
U U AQL	11.0 to 16.8
AH HER	10.2 to 14.7

X LEO - to find this variable start with Regulus; from Regulus move the telescope in right ascension (RA) to stars 18 & 19 Leo. Star 18 Leo is 5.8 mag, 19 is 6.4. Move 4 min. in RA back towards Regulus, until you spot a 6.6 mag. star. X Leo is in the same field of view.

UU AQL - Begin with η (eta) Aquilae; from here lock the 'scope in RA and drop down in declination (dec) $9\frac{1}{2}^{\circ}$ until you find 57 Aquila, (5.3 mag) and 56 Aquila (5.8 mag). Now use chart.

AH HER - Here also start with a bright star, 3.1 mag. Delta (δ) Hercules. Lock 'scope in dec. and move west 25 min. in RA until you locate 51 Hercules (5.0 mag.) AH is 10 more min. west and $\frac{1}{2}^{\circ}$ north.

SU UMA - This one is more difficult to find. Begin with Omicron (\circ) Ursa Majoris and move 'scope 15 min. west in RA and $\frac{1}{2}^{\circ}$ North. There are no stars labeled in Norton's. See the map for more details.

SS CYG - In this case it will be more difficult to identify SS Cyg from the other 8th magnitude stars in the Milky Way, so use the map. To start, locate Rho Cygni, then maneuver to 75 Cygnus (5.1 mag) SS is 2 minutes east and $\frac{1}{2}^{\circ}$ North, close by is an 8.5 mag star.

Good luck in hunting. If anyone wants more information, call on me or for more information on variable star observing and star charts, contact AAVSO, 187 Concord Ave., Cambridge, MA 02138.

John D. Sabia

X LEO

UU AQL -5-

AH HER

X 66
181es
R. 19 LEO

57 AQL
56 AQL
.88
UU 93

.81
AH
95
89
82

51 HER

SU UMA

SS CYG

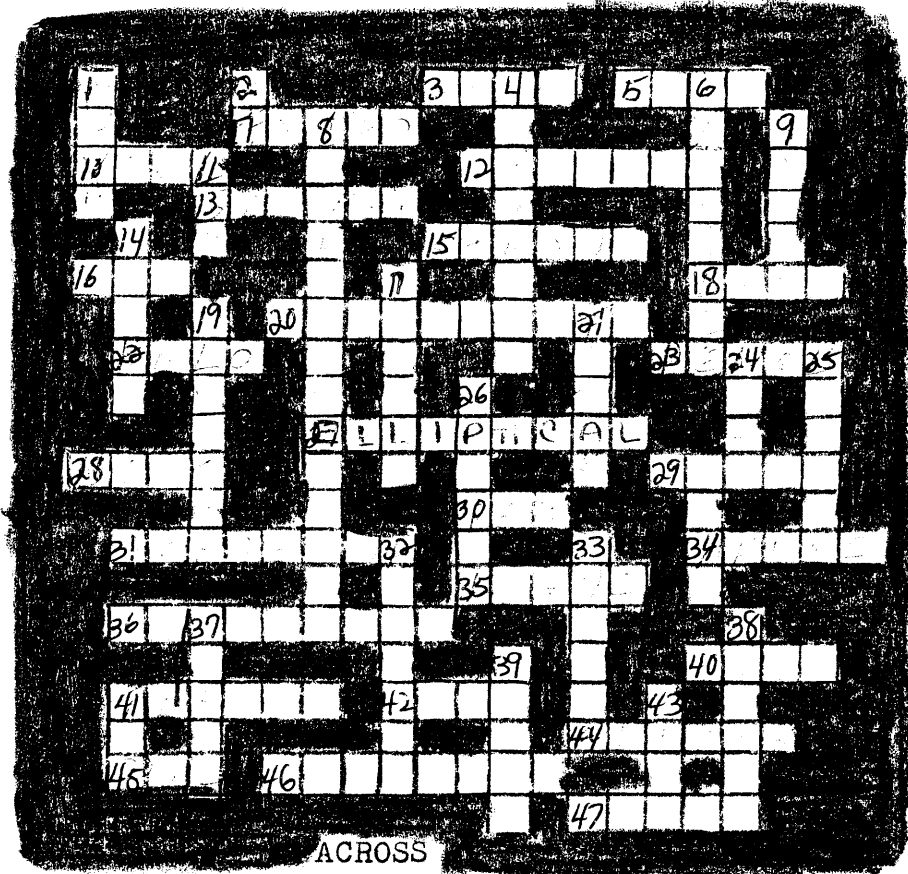
.94
.91 OSU

89)
85 → SS
80
.66
75cyg

UMA
.65

O MARKS VARIABLES
PLAIN NUMBERS INDICATE A STAR'S MAGNITUDE (APPARENT)

SOMETHING TO DO WHILE WAITING FOR DARKNESS



3. glowing dense sphere of gas in space, powered by fusion.
5. _____ the Peacock, a southern hemisphere constellation
7. _____ Brahe (also a prominent lunar crater)
10. probable super nova remnant in Cygnus, The _____ Nebula
12. adjective meaning "of a star"
13. gravitationally bound system of billions of stars (like M31)
15. name of a family of double star observers and catalogers
16. one of the largest of the super nova remnants, the _____ Nebula
18. Greek letter usually, but not always assigned to the 2nd brightest star in a constellation
20. faint cloudlike glow like that around the Pleiades or θ Orionis
22. the spherical region containing globular clusters and some field stars, that surrounds the disc of spiral galaxies
23. brightest star in Cygnus; the name means "tail"
27. galaxies that range in shape from spherical to needle-like or cigar shaped and seem to contain no gas or dust

28. Name for the 3 second magnitude stars in Orion that easily identify that constellation
29. Somewhat bright star in Sagittarius
30. Name for one of the bright streaks that seem to spread out from certain lunar craters (for example, 5 across)
31. comet discoverer, sister to William Herschel
34. _____ the Ram, Zodiac constellation
35. _____ the Hare, constellation under Orion
36. the brightest star in Canes Venatici (the "heart of Charles")
40. bright blue white star in Lyra
41. M8, the _____ Nebula
42. Puppis, the _____ deck of Argo Navis
44. _____, the Eagle
45. M97 the _____ Nebula planetary in Ursa Major
46. Canes _____, the hunting dogs
47. a nickname for the main asterism in Cassiopeia

DOWN

1. exploding star
2. time system used by astronomers to keep records uniform
4. distinctive pattern of stars
6. stars that change in brightness
8. author of a catalogue of fuzzy objects to ignore while hunting comets
9. "hairy star" or "dirty snowball" such as Meiers, Encke's or Halley's
11. original (temporary) name for pulsars when they were thought to be signals from "little green men."
14. one of the pointer stars in the Big Dipper
17. Edwin Powell _____, discover of the expanding universe
19. an open _____ such as the Pleiades or a globular such as M13
21. the largest moon of Saturn, possessing an atmosphere
24. the time when the sun is highest, and on the local meridian
25. exploding bright meteor
26. our galaxy and the great Andromeda galaxy are this type
32. when the moon blocks the sun or the moon enters the earth's shadow (like July 5-6)
33. Northern lights
37. Blue-white giant star that marks Orion's knee
38. Johannes _____, and his 3 laws of planetary motion
39. bright bluish star in Virgo (near Jupiter, Mars and Saturn now)
41. _____, the Lion, (zodiac constellation)
43. Classical name for the earth's moon

OBSERVATORY ASIDES

This issue we gave you a puzzle to do, to keep busy until the sky gets dark; there are other things you can do too. Of course, you can look over the star charts and your Burnham's to plan what you want to observe. Then you set up your equipment and see if it's all working and dustfree. I also set up my camera for widefield photos of the planetary groupings and hoped for auroras.

Once I've done all that and have found that either the sun hasn't set, or it's still bright twilight (twilight's so long this time of year since the sun doesn't go that far below our horizon), I just take out my binoculars, and handy field guides to everything, and look at what else is around.

So far we've seen some unspecified hawks (I need practice on them), boblinks, sparrows, crows, barn swallows, mockingbirds (how they do carry on) and of course, the kildeers (even a nest with 4 spotted eggs in it.) Rabbits and a field mouse cover the animals; so far no snakes or deer caught my eye this year. There's all types of weeds and flowers — gill-over-the-ground, thistles, yellow sorrel, pineapple weed (Chamomile), shepherd's purse, white clover, pepper grass, wild strawberries, common buttercup, ox-eye daisy and two bushes of rosa multiflora, and of course there are the domestic animals — last year we saw guinea fowl too, but this year it's just been cows. There must have been 15 of them, mostly calves, inside the fence lining the driveway, as we came up one night. Next I want to pin down the varieties of spiders we have in and around the observatory, and to stroll around and identify the types of trees.

Editor's Note: You may have noticed that there has been a change in the dating of this issue. The Ecliptic is still bimonthly, but we're adjusting so each volume will match with the calendar year, and so each issue comes out at the start of the period it's for, not in the middle.

The Ecliptic is the official publication of the Lackawanna Astronomical Society. A subscription to the Ecliptic is one of the benefits of membership in the Lackawanna Astronomical Society. No permission is needed for properly credited non-profit use of any material published here.

Anyone with anything to say about the hobby as a whole or your own experiences with equipment, and observing is asked to send any articles, essays, cartoons (especially since John Kosek is busy building a house), humor or news articles, etc. to me at the address below.

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Joe Kamichitis