

NEWSLETTER of the LACKAWANNA ASTRONOMICAL SOCIETY SCRANTON, PENNSYLVANIA

LAS OFFICERS AND BOARD MEMBERS FOR 1985

President - J. Michael Schirra  
 Secretary - LouAnn Benjamin  
 Junior Vice President - Tommy Holeva  
 At- Large Members - John D. Sabia/Mary Rose Schirra/Ed Sidorski

Vice President - Jo-Ann Pluciennik  
 Treasurer - Joe Kamichitis

LAS CALENDAR

<u>DATE</u>	<u>ACTIVITY</u>	<u>PLACE</u>	<u>TIME</u>
March 5 Tuesday	Regular Monthly Meeting	Everhart Museum	7:30 PM
March 9 Saturday	Official Club Observing Night	KJC/LASO, Fleetville	9:00 PM and on
March 19 Tuesday	Board of Directors Meeting	Home of J. M. Schirra	8:00 PM
April 2 Tuesday	Regular Monthly Meeting	Everhart Museum	7:30 PM
April 6 Saturday	Official Club Observing Night	KJC/LASO, Fleetville	9:00 PM and on
April 16 Tuesday	Board of Directors Meeting	Home of J. M. Schirra	8:00 PM
April 28 Sunday	"Keep Pennsylvania Beautiful" Project	Time and place to be announced. See article in this newsletter for more information.	

On all <sup>clear</sup> official club nights, a keyholder to KJC/LASO will be present (either John Sabia or Jo-Ann Pluciennik.) On other clear weekend nights contact J. Pluciennik (346-3268) 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 I 81, as you head to Fleetville Corners. You take a left on Hack Road.

SPRING MEETINGS

The next few meetings should be fairly exciting. In March, we will have a Konstellation Klose-up from John Sabia, the subject of which will be "Cancer and Leo." I am sure you remember seeing these two before, but not like this. John reassures me that Cancer is still a crab and Leo is still

a lion. We will also test your memories with trivia questions on your favorite subject ... astronomy.

In April, we will have a slide presentation from Mr. William Speare, the world-renowned eclipse chaser, on his latest excursion to New Caledonia. I heard he even had some film left for the eclipse, after his visit to the beaches. Probably because he didn't have a motor winder!

Both meetings will also include "up-coming events" talks and, of course, we need all of you there to discuss plans for spring and summer (possible bus trips, open houses, etc.)

J. Michael Schirra  
President

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KEEP PENNSYLVANIA BEAUTIFUL

Dear Members:

We have been asked to participate in the "Keep Pennsylvania Beautiful Day" project by William C. Baker, County Maintenance Manager and Joseph H. Tonti, Coordinator of "Keep Pennsylvania Beautiful Day".

We would like to have the participation of all our members on Sunday, April 28th, the time and place to be announced. Officially, "Keep Pennsylvania Beautiful Day" is Saturday, April 27, but we feel that we will have better participation from the Club if we hold it on Sunday.

As of this time, I have contacted Mr. Baker, and he assures me that they would be very willing to cooperate with us if we would like to hold it on that Sunday. Following this article is an excerpt from the letter requesting our assistance in this project.

If you would like to participate, you can contact me, J. Michael Schirra, at 348-1189 or any of the other Board members, for further information.

I hope everyone will do their best to help make this project a success. Thank you for your participation.

J. Michael Schirra  
President

"Governor Dick Thornburgh has proclaimed April 27, 1985, "Keep Pennsylvania Beautiful Day." Few states can compete with the natural beauty of Pennsylvania. Drive almost any road in the Northeastern region and you will see breathtaking forests, lakes, rivers or mountains. It's a perfect picture with one exception. The roadside is marred by litter, trash, paper cans, bottles and etc.

In order to help combat this problem, the Department of Transportation is once again sponsoring its annual "Keep Pennsylvania Beautiful Day" on Saturday, April 27, 1985. We are asking for your help and participation and the help and participation of groups which you may have contact with to again make this day a success. The Department of Transportation Maintenance Crews will work in conjunction with these groups in delivering trash bags and also in picking them up. Arrangements will be made to provide them with litter collection bags, safety vests and patches.

If your group is interested in participating but have other plans for April 27, feel free to schedule your own pick-up on a convenient day; just let us know so that arrangements can be made to collect the bags."

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OBSERVERS' NOTEBOOK

On warm sunny days such as this, I reflect on the many interesting projects yet to be tried at KJCC. While it's taken some time, there's now a polar aligned permanent mount found in the compound area. With that, many astrophotography projects are possible using the variety of scopes available in the club. If you want, don't bother with photography, just use your 'scope on the polar aligned mount to locate faint deep sky objects and double stars!

I still haven't been able to have a clear evening to expose hypered 2415 with the Schmidt or even with a 55mm (with and without filters). It would be great if a minimum exposure time can be determined before sky fogging occurs, in time to be ready for Halley's comet. But at the rate things are going, who knows?

We were having problems with the darkroom at the observatory, with both the hot water heater and the pump not working. Fortunately both are now back in operation, and we can resume developing and printing our black and white photographs.

During the lull, we've been constructing a Projector Blink Comparator (Problicom - in Ben Mayer's term), using the surplus motor that Ed Sidorski supplied. It seems to work fine with our temporary shutter.

Joe Kamichitis is considering construction of a high quality model using "real wood", therefore, look for a really sharp looking Problicom at an upcoming meeting. We hope the demonstration will be even better than the set up looks. We'd like to be blinking photos of the area Halley's comet is in, soon.

John D. Sabia

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SIMPLE TELESCOPE MATH

[From "Celestial Horizons" December 1984, newsletter of the Ventura County (California) Astronomical Society]

To be a knowledgeable user of telescopes, it is important to know a few simple mathematical relationships. Some of the most important ones are presented below.

**FOCAL RATIO:** The focal ratio of a telescope is defined as the focal length of the telescope divided by the diameter of the mirror or lens:

$$f = FL_t / D_t$$

**MAGNIFICATION:** The magnification (power) of a telescope with a given eyepiece is the telescope focal length divided by the eyepiece focal length:

$$M = FL_t / FL_e$$

The lowest useful power is given by 3.63 times the telescope diameter in inches, while the highest useful power is 60 times the diameter:

$$M_{min} = 3.63 \times D_t \text{ (in)}$$

$$M_{max} = 60 \times D_t \text{ (in)}$$

**EXIT PUPIL:** The exit pupil of a telescope, the little circle of light which comes out of the eyepiece, is determined by dividing the telescope diameter by the magnification, or by the eyepiece focal length divided by the focal ratio:

$$EP = D_t / M$$

$$EP = FL_e / f$$

The richest field (lowest power) eyepiece is 7mm times the focal ratio, while the highest power eyepiece is 0.4233mm times the focal ratio:

$$FL_e \text{ min} = 7\text{mm} \times f$$

$$FL_e \text{ max} = 0.4233\text{mm} \times f$$

TRUE FIELD: The true field of view (angle of sky seen, in degrees) is given by the apparent field of view of the eyepiece (apparent angle seen by the eye) divided by the magnification:

$$TF = AF / M$$

To find the true field when the apparent field is unknown, place a star of known declination at the edge of the eyepiece and time its passage. The true field is the drift time in minutes, divided by 4, and multiplied by the cosine of the declination:

$$TF = \left[ \text{Drift time (Min)}/4 \right] \times \cos (\text{Dec})$$

Gary Kinsman

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#### BOOK REVIEW

Richard Learner, Astronomy Through The Telescope

This book has a pricing policy gone berserk!

I bought it a year or so ago from Willmann-Bell for \$34.95. Any book that costs that much deserves a lot of thought before purchasing, but my interest in the history and development of telescopes is strong so I went ahead and bought it. When I got the book, I read in the inside flap introductory price \$24.95 until December 1981 and then afterwards \$29.95. The least Willman-Bell could have done was to cut off the corner of the flap before shipping the book to someone who had just paid \$35 for it. Last month I received a catalog from a clearing house in Connecticut and there was the book selling for \$10.00! Sky & Telescope for March has it going for \$24.95, but Willman-Bell still sells it for \$34.95.

The book is an oversize, semi-coffee table, 224 page volume and is typically British, i.e. heavy paper, two columns per page (good for speed-reading, I suppose), and photographs and drawings scattered about frequently breaking up the columns, filling up the margins, bleeding off the edges of the page, and lying at various angles. There is a sepia-toned photograph of the 100 inch Hooker telescope, a blue-toned photo of the 200 inch, and a grainy, semi-abstract photo of the 1 meter of the US Naval Observatory. It's exactly the type of book you would expect to see (and probably will) on the bargain tables of the Mall book stores.

Learner begins with Galileo and Newton, jumps back to pre-telescope history, and then progresses through the development of the reflector and refractor. Since the book was published in 1981, there are chapters on modern developments such as image detectors, the Space Telescope, and New Generation Telescopes.

My advice -- don't pay \$35 or \$25. Buy the book for \$10 or so when you find it for that price. Until then, for less than \$10, buy King's The History of the Telescope.

Joe Kamichitis

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#### THE ASTRONOMICAL CRYPTOGRAM STRIKES AGAIN!

The Cryptogram is a simple substitution cipher in which each letter used stands for another. If you think that X equals C, it will equal C throughout the puzzle. Single letters, short words, and words using an apostrophe can give you clues to locating vowels. Solution is accomplished by trial and error.

AJBI THHI MREMOCDSEBJK AMB PLFC FCJI LEWNH BDECI ONHEMBC!  
CVH OKJBRCF:  
AMHELHI, TMBLF, MJHCV, AJHF, PLODCMH, FJCLHE, LHJBLF, BMOCLBN, OKLCS.

Hard clue: T equals V                      Extra help clue: I equals Y

We have been asked to supply the answers to the previous puzzles. The very first puzzle's answer was:  
The starry-eyed astronomers were caught staring at "the Ecliptic"!

The second puzzle's answer was:  
How many stars are there in the Milky Way? All of them!

J. Michael Schirra

OBSERVATORY ASIDES

This winter I've become obsessed with the weather, probably due to clear nights being so rare. I've noticed some rules of local meteorology. (1.) Most storm systems will run through Scranton on Friday and Saturday nights. (2.) "Partly cloudy" means it will be crystal clear briefly at sunset followed by overcast skies and snow flurries. (3.) "Clearing overnight" means not until sunrise. (4.) The clearest nights will always be midweek when I have to make up a test for the next day. (5.) Even when the weather becomes shockingly mild and spring-like, it will be cloudy at night. Some how it makes the chances of seeing Halley's comet well from <sup>the</sup> area, seem to be vanishingly small.

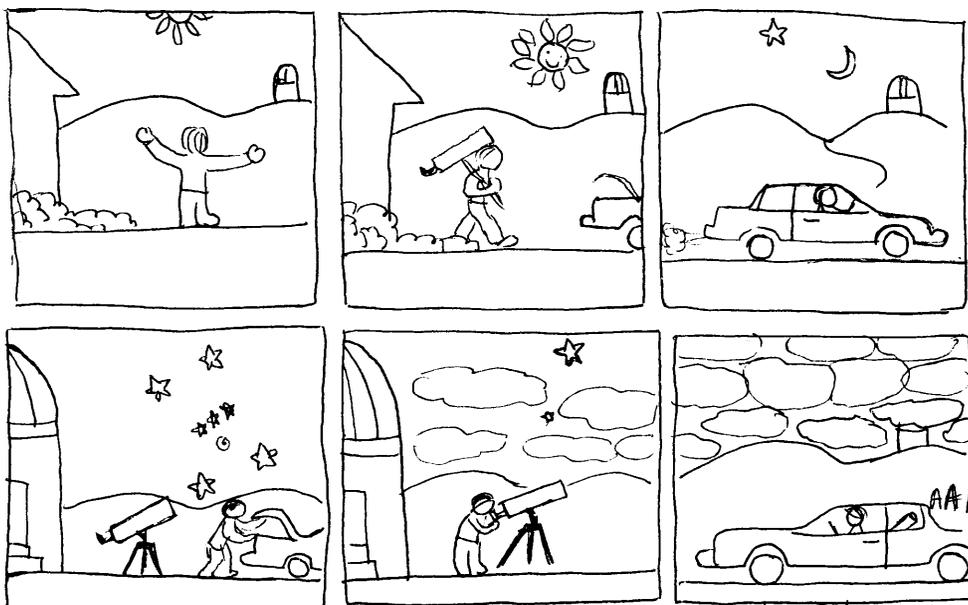
Catching up on my back issues of "Sky & Telescope" and "Astronomy" keeps me into astronomy, but I have noticed that the ads aren't as much fun, since I declared a moratorium on further spending. There are two reasons for this. I want to get to use the astro equipment I own already, and if I buy any more books, my shelves will collapse. It is interesting to see the Halley-oriented products on sale; I found the most interesting was that the "Halleyscope" is being discounted in one of those mail-order book catalogs already.

The spring and summer promises some good LAS action. There's the "Keep Pennsylvania Beautiful" Day in April. In May (probably around the 26th) there's a bus trip to New York's "Natural History Museum" and the Hayden Planetarium. In June we've planned an open house in lieu of an April "Astronomy Day" set-up -- with the extra added attraction of rocket launchings. And besides all that, we'll have the KJCO public nights in April and May, the July lecture series; and maybe "Mars in 3D" -- a movie from the Planetary Society -- at one of the spring meetings.

But I must admit what I'd really like is some clear mild nights, too.

Jo-Ann Pluciennik

A Night  
in NE-PA



J. M. Schirra

DID YOU KNOW?

The Scranton area may not have the climate for a major astronomical observatory, but we will be making a contribution to astronomical progress soon. The new 10 meter (400") Keck Telescope will use Zerodur, a patented low-expansion glass ceramic, for the mirror that will be manufactured at Schott Glass Technologies Inc., Duryea, PA.

The Telescope's mirror will actually be a mosaic of 36 hexagonal mirrors, each measuring 6 feet wide and 3 inches thick. This means the 400" mosaic mirrors will weigh only 14 tons compared to the Hale telescope's 200" single mirror which weighs 16 tons.

Delivery of the mirror blanks will begin in 1986. The Telescope will be situated on Mauna Kea, an extinct volcano on the "big island" of Hawaii.

Jo-Ann Pluciennik

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DUES AGAIN

If you find a yellow slip of paper in with your "Ecliptic" that means that we do not have a record of your 1985 renewal. Unless we get your dues payment in the next 2 months, this will be your last newsletter and you will not be included in our 1985 membership list. We hope to hear from you soon. If you have paid for 1985 and still get a yellow dues notice, please contact Joe Kamichitis and help him get his records straight. Please pay your dues soon so you don't miss any news about the club and the upcoming Halley's comet apparition!

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P. S. Public Nights at KJCC will be from March 20 to May 29, on Wednesday nights.