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THE PRAIRIE ASTRONOMER

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Astronomy Day-1980 Is Major Effort for Prairie Astro Club

The Prairie Astronomy Club trotted out its wares for full public inspection all day Saturday, April 26, in celebration of Astronomy Day 1980.

From opening to closing time at Gateway Shopping Center, the club was set up on both the indoor and outdoor malls. On the Gallery Mall was a telescope display with scopes ranging from 6 to 12½ inches in aperture contributed by Ron Veys, Steve Myatt and Rick Johnson. Russ Genzmer's Apple Computer star map was displayed continuously throughout the day, and Rick Johnson had one of his micro computers programmed to ask multiple choice questions of passersby in an astronomy quiz.

In a demonstration of telescope optics, customers were invited to view an unidentified picture over 300 feet away down the mall. There was an astrophotography display and a number of handouts about astronomy, Hyde Observatory, and the club.

On the garden mall, the solar telescope was set up to allow safe viewing of the sun.

During the evening, Hyde Observatory was open as usual, and club members brought out a variety of telescopes to supplement the instruments usually available at the community facility.

All of these activities will be described in a written presentation that is to be submitted for consideration in the Edmund Scientific Co. Astronomy Day Awards contest.

50 Bolts Of Lightning/Second May Cause Eerie Venus Glow

Thunderstorms with up to 50 lightning bolts per second rake the clouds of Venus and may account for that planet's mysterious nightside glow, a Soviet scientist has said.

He told of the storms in the March 22 issue of the British science magazine *NATURE*.

The discovery, made by the Soviet spacecraft Venera 11 and 12 makes Venus the third planet known to have lightning.

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April Meeting Date Is Set

The Prairie Astronomy Club will meet Tuesday, April 29 at 7:30 p.m. at Hyde Observatory.

The Hyde Observatory Committee will meet, as usual, at 6:30 p.m. on the same date.

COMA IN NEWTONIAN TELESCOPES, Part 4

An Article
By LARRY STEPP

In the earlier installments of this article we developed three different approaches to evaluate the amount of degradation suffered because of the aberation coma. In general, telescopes of shorter focal ratios suffer more from coma,but the extent to which this matters depends upon the way the telescope is used.

For photography with a 35mm camera, the first approach is most instructive. To get slides that look sharp all the way to the corner, a telescope with a focal ratio of about f/7 is required. For example, if the slide image on the screen is 4 feet by 6 feet, a star image in the corner of the frame will be less than 3/16 inch long if the telescope was an f/7, but will be more than 1/2 inch long if the telescope was an f/4. However, unless your guiding accuracy is pretty good, this effect may not be very noticable.

For visual use, using orthoscopic or plossl eyepieces (with an apparent field of about 50°) an f/12 telescope is necessary to make the effects of coma unnoticeable to a person with good eyesight. An f/7 has noticeable coma present at the edge of the field, and an f/4 has truly objectionable coma present. In addition, an eyepiece with a larger apparent field of view such as a Konig or an Erfle will show even more degradation from coma than the values calculated earlier in this series.

These comparisons bring up an interesting point about rich field telescopes. Let's compare two possible rich field instruments. One of the proposed instruments will be a 6-inch f/4, which is a very popular size for a rich field scope. The other will be a 6-inch f/7, which is not thought of as a rich field scope by most people.

Both telescopes would have commercially available eyepieces with apparent fields of 50°,and providing a low enough magnification to give an exit pupil of 7mm. There should be no more than a 1/2 magnitude dimming of the light at the edge of the field of view because of vignetting

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at the diagonal mirror, and the telescope tube should be large enough that it causes no vignetting. In each design the image will be positioned 4 inches above the surface of the tube to allow for the height of the focuser. Table 5 lists the design parameters of the two telescopes based on these assumptions.

The f/4 requires a larger diagonal mirror, which costs more and causes more loss of contrast in the image. The f/7 mirror can be more easily and more accurately figured and it will cost less if purchased (although the 48mm eyepiece will cost more than the 28mm). And the f/7 will have star images at the edge of the field only 1/3 the size of those in the f/4. This means that collimation of the f/4 is much more critical in terms of the amount of image degradation which results from poor alignment.

Based on this comparison, I believe the popularity of f/4 telescopes for rich field observing is undeserved!

-- Larry Stepp

MIDSTATE CONVENTION PLANS

Plans for the 1980 Convention of the Mid-States Region are progressing nicely. Mark the dates on your calendar and be sure to attend because you will enjoy gathering with the other outstanding amateur astronomers of our region, at Central Methodist College, Fayette Missouri, 13 - 15 June, 1980. Fayette is a small col-

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TABLE #5

	f/4	f/7
Magnification	22	22
Eyepiece Focal Length (mm)	28	48
Tube Outside Diameter (inches)	7.25	8.0
Diagonal Minor Axis (inches)	1.91	1.79
Diameter of Field (inches)	1.03	1.76
Size of Image at Edge (inches)	0.0061	0.0033
Apparent Size of Image At Edge (minutes of arc)	18.3	6.1

Venus 50 Bolts Per Second?

(Continued from Page 1)

The two U.S. Voyager spacecraft last year observed lightning on the dark side of Jupiter.

The discovery of lightning on Venus had been reported in the Soviet Union, but the paper in *NATURE* by L. V. Ksanfomaliti of the Space Research Institute in Moscow is the first publication in the West.

"This is rather remarkable because nobody really expected to find lightning on Venus", said Dr. Donald Hunten, professor of planetary sciences at the University of Arizona at Tucson and scientist on the U.S. Pioneer Venus probes.

Venera 11 spotted a storm 90 miles wide and 930 miles away.

MIDSTATES CONVENTION PLANS

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lege town about 20 miles northwest of Columbia, Missouri.

Housing and Meals: Two nights lodging in dormitory with linen and towels furnished plus six meals beginning with dinner on Friday evening and ending with lunch on Sunday - $25.00 per person. Separate meal tickets available for $13.00 per person if you want to stay off campus.

Registration: $4.00 individual, $5.00 family. Discount of $1.00 if paid before June 1,1980. Make checks payable to James M. Roe, Chairman. Mail to:

James M. Roe
10 Raymond Drive
O'Fallon, Missouri 63366

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