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THE PRAIRIE ASTRONOMER

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League President Explains "At Large" Member Voting Rights

Accompanying the results of our vote on the Astronomical League's At-Large members voting privileges, PAC President Ron Veys sent a letter of explanation to League President Robert R. Young. As you may recall, the vote, at last month's meeting, was to disapprove the member -at-large privilege, because we felt it was unfair to give weight to this new class of members that was equal to, or perhaps greater than, that accorded to member clubs. Ron has received a reply from Mr. Young, part of which reads as follows:

"I agree with you that a member's clout should not depend on the cost of his membership. And, a member should not be penalized because he or she chooses, or happens, to have a certain type of membership. This, in fact, is why we have undertaken--at the unanimous recommendation of the general business session at the Portland convention last August--to submit this change to our present voting members.

"We have three types of voting members: Societies -- who are represented in three ways, 1) by two delegates on their regional council no matter what the club's size, 2) at regional conventions where each member of each society has one vote, and 3) in voting at the national level where a society has a varying number of votes, depending on size, but at least one, societies are also indirectly represented on the national council by their regional council's delegates (two for each region, no matter what the region's size); Patron Members -- who contribute toward support of the League's program and have one vote at regional or national conventions or by mail at the national level; Members-At-Large --who now have one vote at a national convention, but only if they are in attendance.

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FEBRUARY P.A.C. MEETING NOTICE

The February meeting will be Tuesday night, February 26, 7:30 p.m. at Hyde Observatory. Program Chairman Rick Johnson has planned a two-part program:

"Audio Frequency Plasma Readings From Voyager", wherein you can actually "hear" Voyager slam into Jupiter's bow shock.

"The Sun and Its Effects On Earth", a talk by Dave Knisely which he recently presented with great success to the Amateur Radio Club.

Also, details on the city-approved plan to sell posters at Hyde!

THE PRESIDENT'S REPORT:

I've been staying awake plenty of nights lately, but, unfortunately, Astronomy was not the reason. That's right, Baby Veys has finally arrived. Little Melissa Louise put in her appearance at 6:48 p.m. on Friday, February 8. Since we had arrived at the hospital at 6:00 a.m. that morning, it was a long hard day. But I decided it was all worth it when the nurse handed me this little baby and I carried her around the delivery room just three minutes after she was born. (An experience almost as exciting as your first view of the Orion Nebula through a large telescope on a dark, clear night.) Of course, she's beautiful and, of course, I'm prejudiced. Thanks to all of you for your good wishes. You're all invited to come over and meet Melissa anytime.

As you all probably know already, Steve and Holly Myatt are also expecting--their first 12½-inch telescope, that is. Steve claims it will arrive any day now and has big plans for it. However, since these big plans call for the investment of large amounts of cash, and, since this aforementioned cash is the joint possession of both Mr. and Mrs. Myatt, Holly may have other plans. I'm not taking sides, I just can't wait to see this awesome instrument that is capable of probing the universe...and destroying a happy home.

Our club's secretary, Budd Duvall, has assembled a very interesting condensed version of our club's 13-year history. If space permits, we'll print this history in a future newsletter. Budd has also taken to recording the minutes of our club meetings and keeping them on file--a useful practice that had been neglected in recent years. Thanks for all your hard work, Budd.

See you all at the meeting.

-- RON VEYS

LEAGUE PRESIDENT ANSWERS--
(from Page 1)

"This change will simply allow Members-at-large to have one vote at regional conventions (the same aseeach member of a local club) and will allow them to vote and participate on the national level by mail, so that the only people who can participate aren't just those who have been able to travel to (and can afford to) the national convention..."

THE PRAIRIE ASTRONOMER is published monthly by the Prairie Astronomy Club, and is free to club members. Yearly subscription without club membership is $5.00. Regular membership (includes one - year subscription to Sky & Telescope, club newsletter, and four quarterly issues of the Astronomical League newsletter), is $14.00. Family membership (includes all regular privileges, plus one additional vote in club elections) is $16.00. Newsletter editor, Lee Thomas, 489-3855. Address correspondence to P.O. Box 80553, Zip 68501.

COMA IN NEWTONIAN TELESCOPES, Part 2

An Article
By LARRY STEPP

In Part 1 of this article we discussed the common notion of telescopes having a certain size "coma free field" and showed that it is based on a photographic (linear) standard for the acceptable size of a comatic image. In this installment we will examine a different standard for the coma free field of view of a telescope, one based on the properties of light itself.

Diffraction Limited Standard

A true coma free field of view would be a field over which a point image is not enlarged more by coma than it is by diffraction, that is by the nature of light itself. Let's calculate the size of the true (diffraction limited) coma free field for various amateur telescopes.

The formula for the smallest angle which can be resolved by a given size mirror (optically perfect), is:

$$a = 4.56/D$$

where a is the angle measured in seconds of arc, and D is the diameter of the mirror in inches. The linear size of the smallest image which can be formed by a telescope mirror is calculated (for small angles) by:

$$b = F\sin(a)$$

where F is the focal length of the mirror and a is given by the above formula. By substituting:

$$b = Df\sin(4.56/D)$$

but for small angles $\sin(4.56/D)$ equals $(1/D)(\sin(4.56))$. Therefore:

$$b = 0.000001604(f)$$

Notice that the mirror diameter does not enter into this formula either! The diffraction limited star image produced by any telescope of a given focal ratio is the same size. Column 2 of Table 3 gives the size of the smallest image which can be produced by telescopes of different focal ratios.

TABLE #3

Focal Ratio	Diffraction Limited Image Size (millionths of an inch)	Actual Coma Free Field (inches)
4	88	0.015
5	110	0.029
6	133	0.051
7	155	0.081
8	177	0.121
10	221	0.236
12	265	0.408

Now we can compare the size of the images in column 2 to the comatic effects caused by the image being off axis. If we let s (the size of the comatic image) be equal to b (the size of the diffraction limited image) we can calculate the diameter of the field of view where the comatic flare is no larger than the diffract-

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COMA IN NEWTONIAN TELESCOPES
(Continued from Page 3)

ion limited image. By substituting:

$$r = sf^2(16/3) =$$
$$bf^2(16/3) =$$
$$0.000001604(f^3)(16/3) =$$
$$0.00000855(f^3)$$

Column 3 of Table 3 gives values of d, the diameter of the true coma frée field, defined in this way for telescopes of different focal ratios.

This seems to be too restrictive a criterion--obviously most amateur astronomers would not limit the useable field of view of an f/8 telescope to 1/8 inch. A more realistic standard is needed, and in the next part of this article we will develop a standard based on the limits of eyesight of the observer.

(PART 3 will appear in the March issue of THE PRAIRIE ASTRONOMER)

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