

# THE FOCAL POINT

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## PROGRAM NOTES

by Bud Rosser

Hats off to Hal Crawford, Jr. and Tom Buchanan for an enlightening (every pun intended) soiree into where our dark skies have gone, and what might be done about it. As such, the January meeting was enjoyable.

The February meeting will be held at the Bradley Observatory of Agnes Scott College on 8:00 p.m. on Friday, the 21<sup>st</sup>. The program subject will be variable stars and will feature Ms. Elizabeth Fraser, one of Dr. Alberto Sadon's students, who has done quite detailed studies in this area. A warm AAC welcome is extended to Ms. Fraser. As many of you know, variable star observation and the scientific learning therefrom constitute one specialization of astronomy in which amateurs tend to dominate over their professional counterparts.

Following the meeting, the club officers will have a brief, 15 minute meeting to coordinate current and future business.

A glance ahead at programs scheduled for the spring includes a report on the Florida Star Party, astrophotography demonstrated, and some firsthand reports of the second-most-often ersatz sightings in the universe; neutrinos! (Elvis is the first...)

Speaking of Elvis, neither John Marsh nor I saw him at the Barber Observatory on the night of January 31, but we did get some good observing in. See the details



in the Recent Observations section later in this newsletter.

## THE THRESHOLD OF VISION

by Dave Riddle

"The question is not what you look at, but what you see."

— Henry David Thoreau

"Sight is a faculty; seeing, an art."

— George Perkins Marsh

"... have eyes to see, and see not..."

— Ezekiel 12:2

I have found it important to keep these words in mind as I look skyward. Observing subtle planetary details blurred by a swirling atmosphere or an indistinct nebula requires a degree of concentration and patience. Maybe a good comparison is the act of reading. Without concentration the written word is meaningless, not much more than funny looking scratches on paper. A little effort brings the written word to life. A cursory glance into an eyepiece is like a glance at this page; all information is lost.

Conventional wisdom suggests the limiting magnitude for an unaided eye under ideal conditions is around magnitude 6.2, and the resolving power is around 4 arc minutes. Yet there are documented reports of stars down to magnitude 8.5 being glimpsed. Undocumented reports claim resolution of a crescent Venus. Should the case of Venus be

dismissed because most observers can't see it? No! The point is each observer's eyes are unique, and your powers of observation are yours alone.

The history of observational astronomy is sprinkled with the names of truly outstanding observers — Herschel, Dawes, Barnard, Schmidt and many others. Are your eyes equal to those of the historical greats? Well, you will never know until you try!

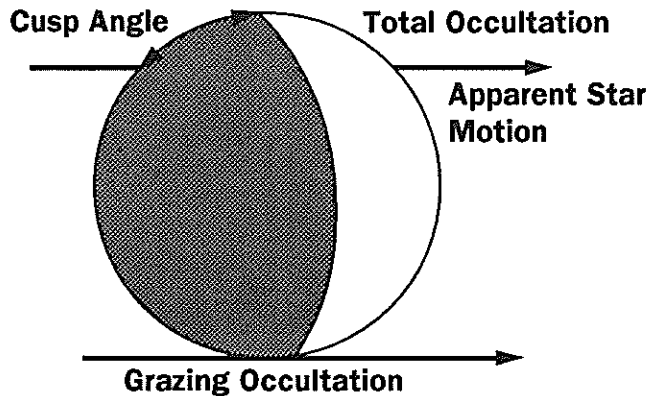
## OCCULTATION HIGHLIGHTS FOR 1992

by Mike Kazmierczak

Once again, it is time for occultation highlights for the upcoming year. There are a few good grazes throughout 1992. For those members who might be new to occultations, I'll describe them. An occultation occurs when the moon's disk covers or uncovers a star. Technically, it could also be called a stellar eclipse, but I guess the term occultation sounds more scientific. When the moon covers a star, it is called a disappearance. When the star reappears, it is called a reappearance.

Two types of occultations are pictured in Figure 1. If the star makes a path tangent to the moon's limb (edge), such that there is little time between a disappearance and reappearance (also called events), then this is a grazing occultation.

Figure 1. Schematic of an Occultation



Let's define a few more terms. The terminator of the moon is the dividing line between the sunlit and dark parts of the moon. The cusp is where the terminator meets the edge of the moon's disk. The cusp angle of an occultation is the angle between the nearest cusp and the point where the event occurs. This is also illustrated in Figure 1. If the event occurs on the bright limb, the cusp angle is negative.

The observability of a grazing occultation depends on several expected factors. These factors are brightness of the star, percentage of moon sunlit, moon and sun altitude and the cusp angle. Each factor has a differing effect, but a general rule is that a 7<sup>th</sup> magnitude star on a 70% sunlit moon which grazes 7° on the dark limb should be observable using a 6 inch reflector.

When projected on the earth, these graze paths are 2-5 miles wide. Observers spaced along this distance can see a variety of multiple events. The moon's limb is not perfectly smooth and the star can reappear and disappear behind valleys and mountains at any time intervals, depending on the moon's shape. Observers 500 feet apart can observe quite different events based on the moon's profile. The data are sent to the International Occultation Timing Association (IOTA) for use in improving star positions and profile data to help predict future grazes. Not only are grazing

observations exciting, but this area is one where amateurs make most of the valuable observations.

Now that I have you all fired up to observe a graze, the next questions are when, where and what equipment do I need? The table below lists the grazes remaining for 1992. I am planning to observe all the grazes (weather permitting) listed. I usually don't travel much farther than 75 miles to see a graze, unless it happens to be a very favorable one. Equipment that you need includes a telescope of 4 inches aperture or more, a shortwave radio and a tape recorder. The shortwave radio is tuned to a time station like WWV or CHU so that the timings of each event are known accurately. The tape recorder records the time signals and your voice comments for later data reduction. The dates/times are Universal Time.

If you are interested in joining me on one of these wonderful events, give me a call at 760-8502.

DATE	TIME	MAG	%SN	CA	DST	COMMENTS
3/11	1:25	8.1	38+	11N	2	
3/13	3:31	6.0	61+	15N	73	
4/09	4:08	7.4	35+	14N	47	WY Gem
4/23	8:03	6.4	64-	2N	90	
5/07	1:21	5.2	21+	14N	50	36 Gem
6/19	4:13	5.9	85-	1S	35	MN 9 DV Aqr
7/12	5:48	3.2	94+	10S	68	θ Oph
8/08	0:51	5.8	75+	1S	37	SN -5 26 Oph
8/11	6:42	5.1	96+	21S	33	56 Sag
9/18	10:15	4.3	65-	3S	86	v Tau
9/23	9:18	7.9	13-	5S	21	MN 13
12/07	21:43	4.5	95+	7S	32	SN 7 MN 12
(above graze is δ Ari; in daylight)						
12/30	1:38	6.4	30+	6S	18	

## AAC JOINS IDSA

The subject isn't alphabet soup, but the new organization which the AAC members voted to join at the January meeting. IDSA is the International Dark Sky Association. Dues for an organization such as ours are \$100 per year. In a nice show of support, several club members contributed unsolicited donations totaling \$44 to help offset the membership cost. The club greatly appreciates your financial contributions.

The IDSA sends out a quarterly newsletter and other literature. The Treasurer will maintain a notebook of this information for your perusal at club meetings.

WELCOME NEW MEMBERS

We would like to welcome Tim and Sandra Olds from Lilburn as new members of the AAC. Make them feel welcome when you see them at club functions.

AAC BEGINS DOOR PRIZE PROGRAM

As incentive to increase attendance at our monthly meetings, we are beginning a program of awarding a door prize each month. Congratulations go to Phil Bracken, who won a year's subscription to *Astronomy* magazine at our January meeting. Now, every prize may not be so special, but we think each one will be interesting to any astronomy buff.

Remember, we want you at the meetings, and hope the door prizes give a little extra encouragement. This is your club. If you've been missing meetings, you've been missing out on some good programs and great fellowship (and now door prizes!) We hope to see you soon!

T-SHIRT CONTEST EXTENDED

Due to the pitiful show of entries for the T-shirt design contest, I have been forced to extend the deadline yet again. I have heard lots of stories like, "Well, I have such a neat idea, but ..." This is your last chance to get the designs to me. I won't run the rules again in the newsletter, but remember that the new, final deadline is March 31, 1992. If you have any questions, call Mike Kazmierczak at 760-8502.

OBSERVING SESSIONS AT VILLA RICA

Future observing sessions have been scheduled for the following dates:

February 28 and 29, 1992  
 March 27 and 28, 1992

It is strongly recommended that you call Bill Snell at least one week prior to any observing session to let him know you are going to attend. You can still come to the observatory if you do not call but he will not be able to inform you of changes due to weather. Also, he will have some idea how many people to expect and he hopes to plan better sessions as a result.

If none of the sessions listed above are convenient because of work, school or baby-sitting problems, please let him know and he will try to work around your schedule, if possible.

**The Focal Point** is published monthly by the Atlanta Astronomy Club, Inc. The AAC is a non-profit organization dedicated to the advancement of amateur astronomy. Meetings are held on the third Friday of each month (the second Friday in December) at the Bradley Observatory on the Agnes Scott College campus. Dues are \$35 annually and include a subscription to *Sky & Telescope* magazine and use of the club observatory in Villa Rica.

**Submissions:** Article submissions are welcome and encouraged. Please deliver to the editor for consideration. Electronic submissions are accepted at [mike@beow.uucp](mailto:mike@beow.uucp). The submission deadline for the next issue is *March 2*.

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# Recent Observations

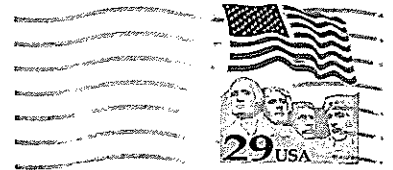
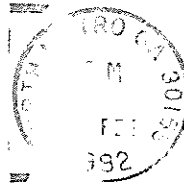
Well, before we cut Bud off earlier in the newsletter, he was telling us about observing at the Barber Observatory. John Marsh and I got pretty good views of M-81 and M-82 and the winter Milky Way. Zodiacal light was easily seen and we made one other startling discovery. When all three radiant heaters in the warm-up shed are turned on at the same time, the breaker will trip. Overall, the sky was plenty dark to do good deep-sky work. I encourage members to take the drive; it's still well worth it. — *Bud Rosser*

Several AAC members kicked off the new year by successfully timing a grazing occultation. Steve Gilbreath and I set up in my driveway to observe the graze of SAO 128276, a star of meager brightness at

magnitude 8.4. Against a 29% waxing moon, the star was not too hard to see, even in Steve's 8 inch telescope. Steve lost the star before the graze, but found it mere moments before the first event. The graze prediction was less accurate for this faint star, so if we got a miss, we wouldn't be far from home. Also, we were set up only 50 feet apart, which assured us of seeing virtually the same events.

The star disappeared and stayed gone for several minutes. We knew it had to come back, and over four minutes later, it did, next to a mountain with only its peak sunlit. This was by far, the faintest graze I have observed and will redefine my limitations for traveling to see these wonderful events. Our four minute disappearance was evidence of a 1.0 arc second shift in the position of this faint double star. Both of us can't wait until the next graze! — *Mike Kazmierczak*

-A 15FEB92 22:16



NORTH-METRO-GA 15FEB92 22:16

# THE FOCAL POINT

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