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UNIVERSITY*
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LOWBROW+
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ASTRONOMERS*

Newsletter

Vol # 7

Nov. 1980

WJR 760 news

CKLW 800 top 40

AM

CLUB NOTES AND CRIB CARDS

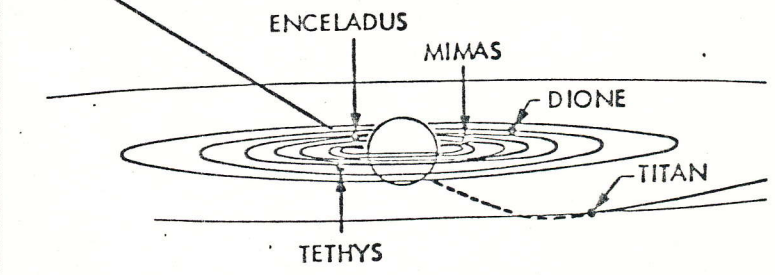
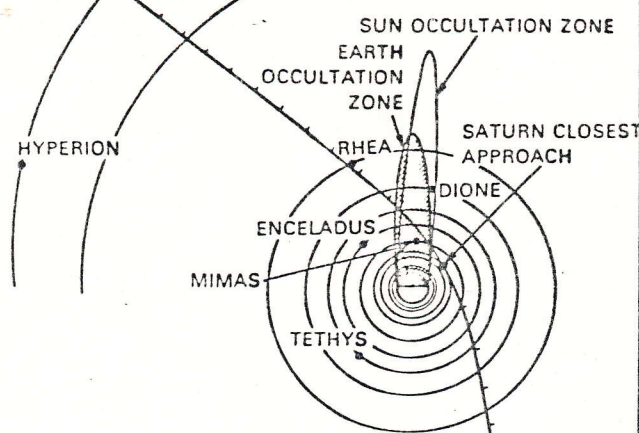
Twinkle, twinkle little meteor, how I wonder what you are - something like that anyhow. Next month on the 13th of December we are planning the annual Geminid meteor shower party. You can observe for as little or as long as you want. The location is at the 24" on Peach Mountain. Ask Jim Cypser or anyone else who looks vague for directions on how to get there. Just to inform the new members; last year we had a very successful outing - the Geminids were very intense and spectacular, hopefully this year it will be as good.

The new constitution is reproduced in this issue, make sure you get a copy and read it, so we can vote on its ratification next meeting.

VOYAGER 1: SO WHAT ELSE IS NEW.

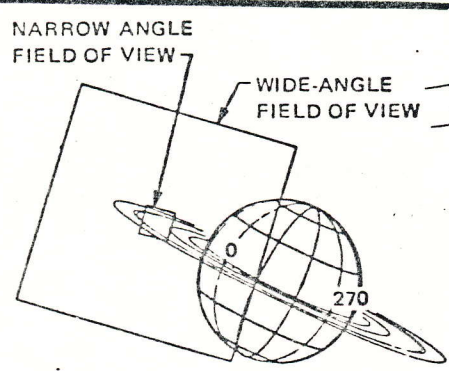
For those that haven't heard, Voyager 1 has flew by Saturn with some remarkable discoveries. The rings do not have 3 or 6 rings but have over 100 rings. That's nothing - one ring, the F-ring is braided in a double helix structure, DNA-like-the rings of Saturn are alive, run for your lives. The moons are also remarkable, different moons are in resonances with other moons, that is, one moon might have twice the orbital period of a moon closer in to Saturn. The two nearest moons share the same orbit! See the sheet on next page for Voyager's trajectory.

VOYAGER 1 SATURN ENCOUNTER
 NOV. 11-13, 1980

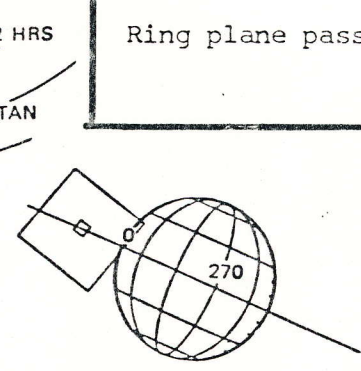


Titan - Wednesday, 02:05 AM - Dist = 4330 km
 Saturn - Wednesday, 08:11 PM - Dist 124000 km

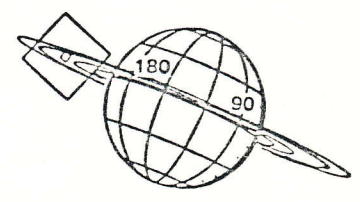
Ring plane passages Wednesday, 02:23 AM
 Thursday, 00:15 AM



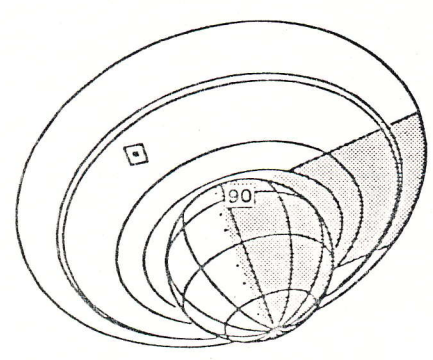
S-48h



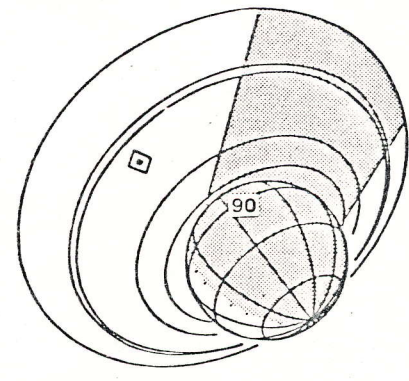
S-18h
 Wednesday, 02:23 AM



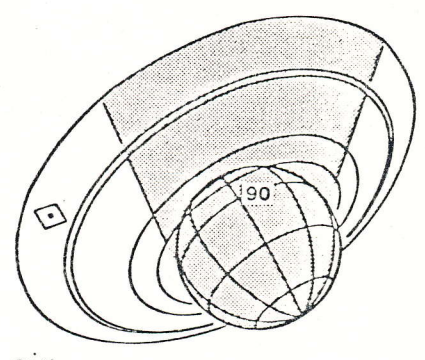
S-12h



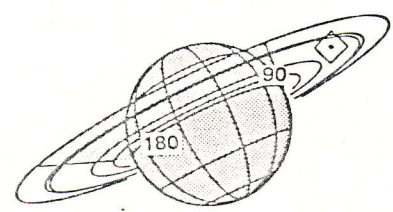
S-1h



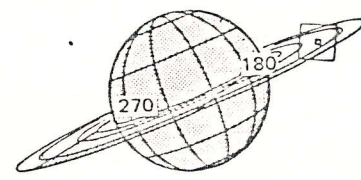
ENCOUNTER
 Wednesday, 8:11 PM



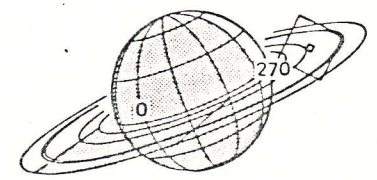
S+1h



S+3h



S+6h



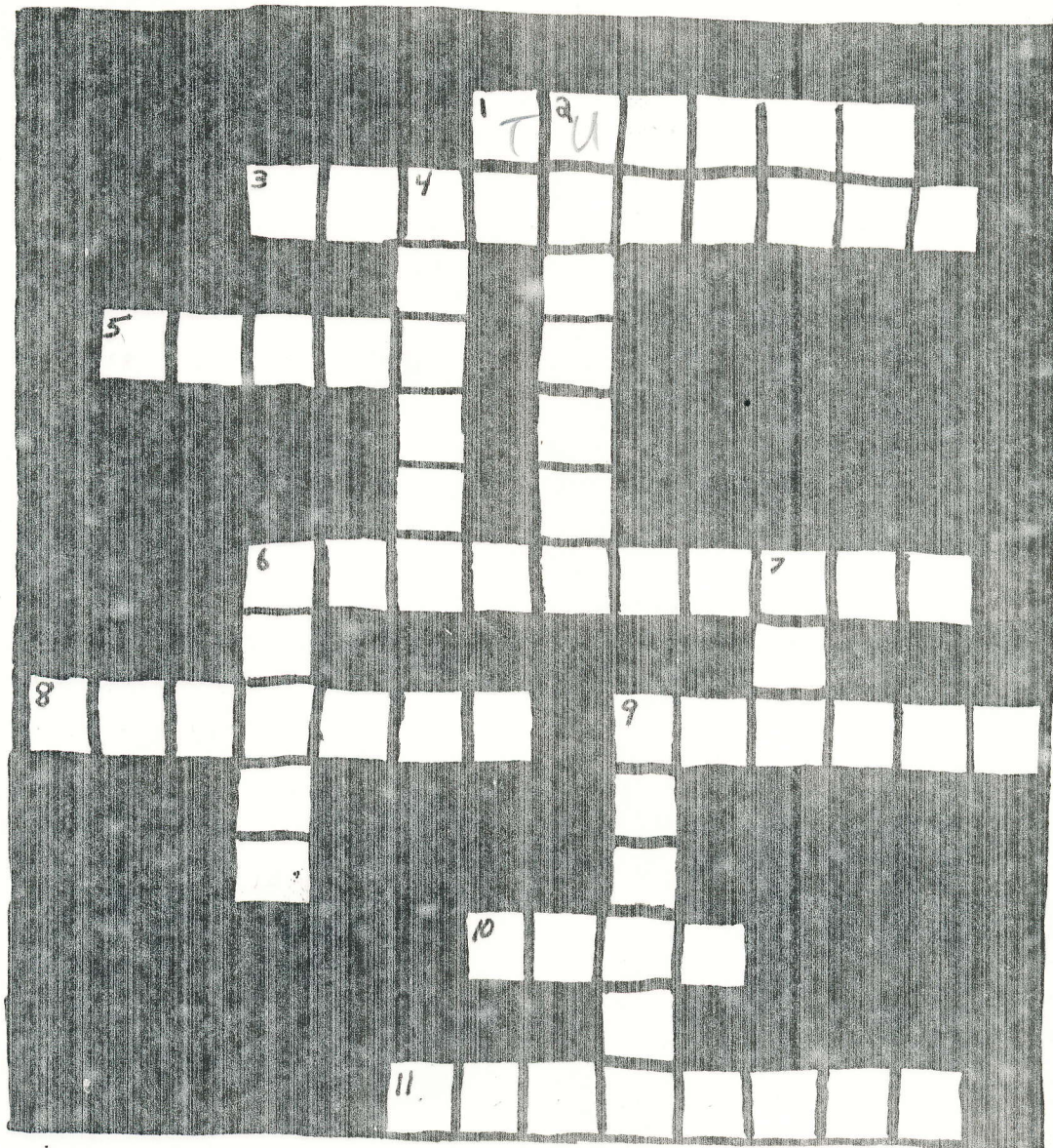
S+9h

RING ASPECTS - These computer-generated plots show how Voyager 1's view of the rings will change as it flies past Saturn in November. The planet size is constant in these views to allow a comparison of Voyager's wide- and narrow-angle cameras' fields-of-view at various times (the locations of the fields-of-view shown here are not necessarily where the camera will be pointing at these times but are shown only for size comparison; the longitudes given are also for reference only). Two days before closest approach (S-48 hours), Voyager 1 will still be above the ring plane on its inbound journey. Shortly after closest approach to Titan, at about S-18 hours, the spacecraft will drop below the ring plane. Near closest approach, Voyager 1 will be above Saturn's shadowed southern hemisphere. Radio measurements of the rings will take place as the spacecraft passes behind the planet as seen from earth and all other science data will be tape recorded for about 4-1/2 hours while spacecraft telemetry is turned off. At S+4-1/2 hours, Voyager 1 will soar above the ring plane, crossing an area where the satellite Dione is thought to clear a path through the E-ring particles. Voyager 1 will continue its Saturn system observations through December 15, looking back at the receding planet.

CELESTIAL & ASTRONOMICAL EVENTS SCHEDULE

11/14/80--12/13/80

	<u>In the Sky</u>	<u>Down here</u>
Nov. 14	Andromedid/Bielid meteors	Lowbrow meeting
15	First Quarter Moon	
16	Leonid Meteors	
17	" "	
18	Next stop for V II moves into morning sky	
19	Mercury at Greatest Western Elongation, 20° , Mg. -.2	
20		
21		
22	Full Moon (Frosty Moon) may occult Aldebaron	
23	Sophrosyne occults SAO 74963	Lowbrow Observations of
24		Occultation
25		
26		
27		
28	Moon may occult Regulus	
29	Last Quarter Moon	
30		
Dec. 1	Moon passes 3° N. of Jupiter & 2° N. of Saturn	
2		
3	Mercury 0.9° N. of Uranus, both 16° W. of sun	
4		
5	Earliest sunset for 40° N./ Phoenicid meteors/Astrofest	
6		
7	New Moon	
8		
9		
10	Monoceratid meteors (6 per hour?)	
11	Sigma Hydrid meteors	
12		
13	Geminids (60 per hour?)	Lowbrow Meeting



Across:

1. Name of a comet which causes a Dec. Meteor shower. Tuttle
3. Asteroid that will occult 8th magnitude star later this month. Sophrosyne
5. Brightest asteroid; sometimes visible with naked eye. Vesta
6. The constellation in which this will occur. (see 3 across)
8. Where Voyager 2 will be August 24, 1989. Neptune Triangulum
9. Name of an asteroid which will collide with Mars. Phobos
10. It's been described as looking like a "star sapphire". Rhea
11. Name of the man who came up peculiar and obscure constellations like Lynx, Sextans, etc. Hevelius

Down:

2. Where Voyager 2 will be Jan. 24, 1986. Uranus

Concerning Programs....

At each monthly meeting of the University Lowbrow Astronomers it is customary to have a "program", which may be a slide show, a talk or a demonstration about amateur astronomy. Various people have contributed to these programs in the past. The subject has not always been truly amateur, and sometimes it has been nothing more complicated than a film on some subject relevant to astronomy.

I would like to encourage club members to come up with programs that they would either like to see or like to present themselves. Two or more people can come up with a program--it doesn't have to be an individual effort.

There are many things that the club members have not heard much about or tried their hands at, such as: variable and double star observations, comets, observations of the lesser-known moons of Jupiter & Saturn, satellite tracking, noctilucent clouds, different kinds of auroras, etc, etc. (Don't be afraid of a subject you don't know about--we all have to do research for the programs.)

If there is some kind of Astronomy that you especially like, or would like to learn about, or would like to tell the rest of the club about, speak up!! Talk to me about it.

Remember, it doesn't have to be "lowbrow" every time. There is an important difference between an astronomy club and, say, the U-M Astronomy Department Visitor's Nights. At the Visitor's nights people learn about astronomy because they sit and listen and they get shown things through a telescope. A club should provide all its members with opportunities to learn astronomy by doing things, both together and individually. The Visitors' Nights can be at most a kind of passive learning. A club should be, as Jim Loudon has described us, "active". The club can tell you what is going on, and when, and can get you to the telescopes or observing site but only if members participate. If all the members put their interests and talents to work in the field and in the meeting room, everyone would learn a lot more.

JIM CYPSEK, PRESIDENT

CROSSWORD PUZZLE CLUES cont'd

Down:

4. Discovered first asteroid. **PIAZZI**
6. A moon of Saturn with an atmosphere. **TITAN**
7. Where a November meteor shower comes from. **LEO**
9. A moon of Saturn which revolves about the planet backwards and is thus suspected of being a captured asteroid. **PHOEBE**

So show how smart you are! Answers next month!

SOPHROSYNE

On the 23rd of this month, between 11:14 & 11:19 p.m. EST, the minor planet (134) Sophrosyne will pass in front of the 8th magnitude star SAO 74963 in Triangulum, making the star's light seem to drop three magnitudes. This event, which should be visible from Michigan, is a fine example of astronomy happening rather than just being there to look at. The occultation (as this is called) should be especially interesting because the existence of a suspected satellite or moon may be confirmed if the star's light dims more than once.

The star is bright enough to be watched with moderately-sized telescopes, and if it's clear it will be a golden opportunity to discover something for yourself, and to contribute directly to our knowledge of the solar system--something amateurs don't get to do very regularly.

The idea is to have as many observers as possible spread out along the approximate path of the "shadow" that the asteroid will make across the face of the Earth. As the time of the occultation approaches, the serious observer will have a radio which picks up station WWV in Colorado (which gives Universal Time at regular intervals) and a tape recorder on which to record both the time and the observations, such as: "Well, the star's as bright as ever.", "Hey! There--it's gone!" and "Darn, the shadow must have passed south of us!" By noting aloud the start and finish of any occultation(s), you can listen to the tape later and discover just how long the star was occulted. This information, along with your location, can be used to determine the asteroid's size--and possibly the size of a moon.

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The Leonids

This year the Leonid meteor shower peaks at 3:00 a.m. on the 17th (Monday morning) or 9:00 p.m. the evening before. The Leonids are the fastest-moving meteors known (71 km/sec). They're often greenish or blueish, and can leave trains that can persist for up to eight minutes. Most years this meteor shower peaks at about twenty per hour. This increases greatly every thirty-three years, though, resulting in an unforgettable spectacle for observers in the right place at the right time. In 1966 a few very lucky observers in the southwest U.S. and eastern Asia stayed up late and saw up to a hundred thousand meteors between 4:00 and 5:00 a.m., many of them brighter than Venus. The radiant for this shower is located at about 22 degrees north and 10 hours 10 minutes right ascension, inside the "backwards question mark" group of stars that is easy to recognize and which many people use to find Leo. Just such an interesting group of stars that is not officially a constellation is called an asterism. Other examples are the Pleiades in Taurus, the Big Dipper in Ursa Major, and the Bull of Poniatowski in Ophiuchus (seriously!)

Several club members went out and watched this shower from Peach Mountain last year. As a reward for freezing to death while lying on the cold ground, we saw about twenty meteors an hour, if I remember rightly. This year the night of the peak is followed by a Monday morning, so a lot of people may not want to spend all night awake in the cold. However, there should be a fair number of meteors to be seen before midnight. The moon (near first quarter) may cause some problems, but in other ways the situation is better this year than last. The 24-inch 'scope is working, as well as the space heater in the observatory's side room.

If it's clear, it would be a good chance to observe with the 24-inch and see a few meteors in the same night--all in all a reasonable excuse to make the trip to the dark skies of Dexter. If you do go, remember to dress warmly. If you're going to do serious observing, a warm sleeping bag and a groundcloth are vital.

Those of you who aren't meteor fanatics may want to wait for the Geminids. They peak on a Saturday night (December 13th) and reached rates of up to 80 per hour last year.

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