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# THE PRAIRIE ASTRONOMER

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## JUPITER RADIATION, MORE ON URANUS' RINGS, AND A DISC STAR ARE JUNE NEWS

Two Pioneer spacecraft passing by the planet Jupiter have discovered high energy radiation from that planet and traced it far out into the solar system. The strength of the radiation is periodic, corresponding to Jupiter's 10-hour rotation, so the emissions may be analogous to the intermittent radiation of pulsars, which are thought to be extremely dense stars spinning at very high speeds. If so, Jupiter's emissions may help scientists understand the pulsars better.

The radiation from Jupiter consists of electrons moving at nearly the speed of light and therefore carrying very high energies. Because the solar system is full of radiation coming from all directions, Jupiter's emissions could not be discriminated until the spacecraft neared the planet and observed an increase in the strength of the emissions, as well as the 10-hour variation. The radiation, which may have been detected as near the sun as the orbit of Mercury, does not reach the earth's surface, presumably because the electrons are captured by the earth's magnetic field, and in any case would not penetrate the atmosphere.

It is not fully understood how the electrons are accelerated in Jupiter's magnetic field or how they escape it. On earth, a band of similar high-energy particles is confined within the planet's magnetic field,

with rare "leaks" that are believed to account for aurora displays.

*It looks like scientists are going to be able to take another crack at verifying the existence of rings around Uranus. The planet is due to occult a faint blue star, about 13.5 -14.0 magnitude, spectral type A5, on August 26. The star's position, derived from a Palomar Sky Survey plate, is RA 14h23m07sec.02, DEC -13°47'36" (1950 coordinates).*

*Observations are expected to be quite difficult, and may prove inconclusive because of the extreme brightness of the planet relative to the occulted star. In any case, it should be a dead-on occultation, lasting about 21.3 minutes.*

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### JUNE MEETING AT OLIN ON THE 28TH

The regular meeting of the Prairie Astronomy Club will be held at Olin Hall of Science, Nebraska Wesleyan University, Tuesday, June 28, 7:30 p.m.

The program will be a film from the National Radio Astronomy Observatory at Greenbank, Virginia, entitled, "The Invisible Universe". Funded by the National Science Foundation, the film is about radio astronomy. However, Jack Dunn, rather cryptically, described its beginning as "alot like Young Frankenstein." Figure that out!

## URANUS RINGS, DISCOVERY OF DISC STAR HIGHLIGHT JUNE ASTRO NEWS

(Continued from Page 1)

A new phenomenon of space, a disc-star, has been discovered in the constellation Cygnus.

The visible image of the flat, disc-shaped, highly luminous stellar object is that of the star when it was only 1,000 years old--extremely young in astronomical terms--and it appears to be in the process of forming planets, a research team said. But the new star is actually much older than it appears. Because it is 10,000 light years away, the image astronomers now view has taken 10,000 years to reach the earth.

Photographs were made of the star, which has a center core and a disc of intensely-glowing gas with a diameter 20 times that of its center.

Scientists said the luminous disc is believed to be the inner part of a surrounding larger disc of non-luminous gas in which outer planets may already have formed.

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## PRESIDENT'S REPORT:

### WICHITA, TELESCOPE PROJECT WILL BE A PART OF JUNE MEETING

The midstates regional convention was held June 17-18-19 in Wichita. I rode with Roger Besch, Tom Beardsley, and two of their friends (prospective club members, I hope), Gene Alt and Rex Greenwell.

The convention was interesting and although we missed parts of it, we did hear several good speakers. Besides the official presentations, one of the main attractions of these meetings is the chance to visit with other amateur astronomers. I will relate two bits of gossip I picked up from Russ Maag.

Russ mentioned a review of commercial eyepieces published in the newsletter of the AAVSO (I think), and he kindly offered to send me a copy. At the next meeting I will talk about the results of that comparison (Clave Plossls were not number one.) Also, he related the sad news that the enhanced coatings DL-1, DL-2, etc., will no longer be offered to amateur astronomers.

At the last club meeting Earl mentioned he had a large eyepiece

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OKAY, SO IT'S PROBABLY THE BIGGEST FILM OF 1977...

SO, AFTER "STAR WARS" WHAT WILL BE THE ENCORE?

You may not agree that there was much science in the science fictional "Star Wars." But one thing is certain--success in Hollywood breeds copies. And with the phenomenal success of George Lucas's "Star Wars", can there be much doubt that a flock of sci-fi epics is far behind?

Paramount announced just before the release of Star Wars that the Star Trek film had been cancelled. Gene Roddenberry has now announced, however, that Paramount will soon go into production with another 22 weeks of Star Trek for TV syndication. The target date is Spring, 1978.

In film, the monster that everyone is trying to imitate is Steven ("Jaws") Spielberg's "Close Encounters of the Third Kind." For those who don't know, in UFO parlance, a "First Encounter" is a sighting, a "Second Encounter" is the finding of physical evidence, and, you guessed it, a "Third Encounter" is face-to-face with an alien from outer space. Spielberg's extravaganza, employing over 500 special effects by Douglas Trumbull (he did effects for Kubrik's 2001, and directed a minor cult film with some nice effects called "Silent Running") will open over the Christmas holiday.

Also in the wings: "Superman", which stars Marlon Brando as Superman's father on the doomed planet Krypton, a remake of "When Worlds Collide" which was originally done by director George Pal. He has now

signed up to do H.G. Wells' "In The Days Of The Comet", and has been working on a film version of Wells' "The Return of the Time Machine."

Universal is planning an updated version (without James Arness) of "The Thing From Another World", and Disney Studios have (brace yourself) "The Cat From Outer Space." They're also working on a non-farce tentatively entitled "Space Probe."

And the avalanche doesn't stop there. Independent productions, which may or may not find willing U.S. distributors, include these titles: "Capricorn One", about a phony rocket launch, "End of the World", "Spawn Of The Slithis", "Gift From a Red Planet", and a film version of Hal Lindsay's best seller, "The Late Great Planet Earth." There's "Magna I", "Meteor", and "Incredible Adventure", "Timescape", "Rocketship X Flies Again", "Predictor", and an attempt to do a film version of Arthur C. Clarke's classic "Childhood's End."

And all George Lucas was doing with "Star Wars" was innocently acting out his childhood fantasies. Look what he started!

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*Side Note: After its opening at the Stuart Theater Wednesday after our premiere, "Star Wars" appeared to be heading for an all-time city record for film grosses in Lincoln--estimates say it will do 40% better than the previous record-holder, "Jaws."*

PRESIDENT'S MESSAGE (Continued From Page 2).....

which was intended for club use, but needed adaptation. We checked the eyepiece and it is a 38 mm. Erfle which could be remounted in a new cell with a 2-inch tube, and would make an excellent eyepiece for the 14-inch Celestron.

Tuesday night I went to see Star Wars. It is a tremendous movie, and of course, there were many club members there. We all owe Lee Thomas our thanks, particularly because of the quality of the film.

Our mirror grinders have some very good news to relate and I will let them tell it at the June meeting. See you there.

--Larry Stepp

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# ADRAMS PLANETARIUM SKY CALENDAR JULY 1977

Information for helping teachers and students observe the sky

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<p><b>3 Planets in Morning Sky:</b> Diagram shows positions of Planets among stars of Taurus in eastern morning sky at 5-day intervals as follows: 1's give positions for Jul 5; 2's for Jul 10; etc., concluding with 7's for Aug 4.</p>	<p style="text-align: center;">MARS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31</p> <p style="text-align: center;">Pleiades</p> <p style="text-align: center;">VENUS</p> <p style="text-align: center;">JUPITER</p> <p style="text-align: center;">Aldebaran</p> <p style="text-align: center;">Hyades</p> <p style="text-align: center;">TAURUS</p> <p style="text-align: center;">Diagram by Ted A. Hunt</p>	<p>Venus is brilliant morning "star" rising north of east 2 1/2 to 3 hrs before sun. <i>Jupiter</i>, next in brightness, rises only 1 1/2 hrs before sun in early July and is close to Venus late in month. Red Mars is highest; don't confuse with brighter Aldebaran which is also red. <i>Take series of pictures or slides of planets among stars.</i> Use fast film and lens, such as High-Speed Ektachrome at f/1.4. Take a 15 to 30-second exposure every few days. Sky should be quite dark (at least 1 1/2 hrs before sunup).</p>	<p>See circles labeled 5 on diagram at left for this morning's arrangement of the planets. One hour before sunrise note Mars 8° upper right of Venus, Aldebaran 11° lower left of Venus, and Jupiter 22° lower left of Venus.</p>	<p>This morning before sky gets too light (at least an hour before sunrise), look for the Pleiades cluster 7° upper left of Venus. Light from Venus now takes 7 minutes to reach us; light from the Pleiades, 400 years.</p>	<p>Dark moonless evenings in July are especially good for viewing the Milky Way. After twilight ends, look for the Great Rift, the dark lane of dust clouds dividing the Milky Way from Cygnus southward.</p>	<p>Last Quarter. (Half moon in morning). When evening sky darkens, look 5° upper left of Scorpion's tail for the cluster M7 (see map). Binoculars resolve this fuzzy patch into a cluster of stars, 750 light-years away.</p>
<p>One hour before sunrise (see circles labeled 2 on planet diagram above): Mars 9° upper right of Venus, Aldebaran 6° lower left of Venus, Jupiter 18° lower left of Venus. Watch Venus pass Hyades cluster (Bull's head) this week.</p>	<p>One hour before sunrise: Mars * Pleiades * Moon * Venus * Aldebaran * Jupiter</p>	<p>One hour before sunrise: Pleiades * Mars * Venus * Moon * Aldebaran * Jupiter</p>	<p>One hour before sunrise: Pleiades * Mars * Venus * Moon * Aldebaran * Jupiter</p>	<p>1-2 hours before sunrise, note 3.6 magnitude star Epsilon Tauri 0.2° upper right of Venus. One hr before sunrise: Jupiter * Moon</p>	<p>One hour before sunrise (see circles labeled 3 on planet diagram above): Venus and Aldebaran closest this morning, 2.9° apart. Mars 11° upper right of Venus; Jupiter 14° lower left of Venus.</p>	<p>One hour after sunset: Watch these get a little lower each evening. * Regulus Saturn *</p>
<p>Mars closest to Pleiades this morning. Look 5° to lower right of that cluster. The next time Mars passes the Pleiades will be June 25, 1979.</p>	<p>45 minutes after sunset (use binoculars): Saturn 12° lower right of Regulus. Mercury 1.7° lower right of Saturn. * Regulus * Mercury * Saturn * Moon</p>	<p>45 minutes after sunset (use binoculars): Saturn only 1/3 degree to lower left of Mercury. * Regulus * Mercury * Saturn * Moon</p>	<p>One hour before sunrise (see circles labeled 4 on planet diagram above): Aldebaran 6° upper right of Venus; Mars 13° upper right of Venus; Jupiter 9° lower left of Venus. Watch Venus approach Jupiter next 10 days.</p>	<p>One hour after sunset: Spica * Moon</p>	<p>Morning: Jupiter 1.8° north of 3rd-magnitude Zeta Tauri. Venus passes this star next week. One hr after sunset: Spica * Moon</p>	<p>One hour after sunset: First Quarter (evening half moon) * Spica</p>
<p>Mars midway between Pleiades and Aldebaran this morning, 7° from each. Watch Hyades this week. Venus-Jupiter 31 1.8° apart. Mars 5° north (upper left) of Aldebaran.</p>	<p>One hour before sunrise (see circles labeled 5 on planet diagram above): Aldebaran 12° upper right of Venus; Mars 15° upper right of Venus; Jupiter 5° lower left of Venus. Evening: Antares lower left of moon.</p>	<p>Venus-Jupiter 4° apart this morning. One hour after sunset: Moon * Antares</p>	<p>Venus-Jupiter 3.2° apart in morning sky. 45 min after sunset (use binoculars): Mercury and Regulus only 8 minutes of arc apart (1/4 of moon's diameter). Look 4° up, 12° N of W. Mercury brighter.</p>	<p>Venus-Jupiter now 2.4° apart. Venus appears 1.1° farther east among the stars each morning. This morning and tomorrow note 3rd-magnitude Zeta Tauri (tip of Taurus' southern horn) 0.6° from Venus.</p>	<p>Venus-Jupiter only 1.8° apart this morning. Moon rises today about 45 min before sunset. Tomorrow's full moon sets around sunrise and rises around sunset.</p>	<p>Venus and Jupiter closest this morning, 1.5° apart. Jupiter is 2 magnitudes fainter than Venus, or 1/6 as bright. 17° to upper right of this brilliant pair are two reddish objects, Mars and Aldebaran. See circles marked 5 on diagram.</p>

Magnitudes of the Planets: Venus -3.6 to -3.6; Jupiter -1.5 to -1.6; Saturn +0.7; Mars +1.2; Mercury -0.4 (Jul 16) to +0.3 (Jul 31) All naked eye planets move eastward this month as follows (details on Calendar): Venus goes 36° through Taurus, passing Pleiades, Aldebaran, and Jupiter; Mars, 12° from Arcturus into Taurus, passing Pleiades and Aldebaran; Zeta Tauri (Bull's southern horn). In evening twilight, Saturn in Cancer, moves 2° closer to Regulus July 1-18; Mercury passes Saturn and Regulus.

East Lansing Sunrise: July 1 6:03 a.m.; July 16 5:33 a.m.; July 31 6:28 a.m. EDT  
Sunset : July 1 9:20 p.m. ; July 16 8:14 p.m. ; July 31 9:00 p.m. EDT