

# Variety of events await an active skywatcher

This will be an incredibly active month for skywatchers; a variety of events will delight the eye. Unfortunately, there will be a few other rare events which will not be visible from our area.

One of the highlights of November will be a month-long dance between two of the brightest objects in the sky: Venus and Jupiter. During November, a bright star, the moon and the planet Mercury will get into the act.

The moon will be in the constellation of Gemini the twins on Nov. 4 and 5. On the morning of the 5th the moon will be located midway between Castor, the head

of one of the twins (above and to the right of the moon), and Procyon (below and to the left of the moon). Procyon (PRO see on) is the brightest star in the constellation of Canis Minor, the Little Dog, and the eighth brightest star in the entire sky.

Notice also the distance between Venus and Jupiter on the morning of the 5th. A mere five mornings ago they were eight degrees apart, and Jupiter was very close to the horizon. Now the two objects will be just three degrees apart, and, on the morning of the sixth, will be two degrees apart.

Mercury will be in inferior conjunction with the sun on Nov. 6. Mercury will be located between the earth and the sun and will not be seen. In fact, Mercury will be nearly EXACTLY between the earth and the sun and a transit of Mercury will occur.

A transit is the passage of a

smaller body across the face of a larger one. Of the major planets, only Venus and Mercury can transit the sun. The smaller body is seen as a silhouette on the face of the sun. Transits of Mercury are fairly rare; on average there are 13 transits of that planet per century. (The last was in 1986, and the next will be in 1999.) Unfortunately this transit will occur at 10:06 p.m., at which time the sun will be nowhere to be found in the Michigan sky. To see the transit, you'll have to be in India, Southeast Asia, China, Australia or New Zealand. (When the moon "transits" the sun, a solar eclipse occurs.)

The moon will be at last quarter phase at 1:36 a.m. on Nov. 7. It will be starting the last-quarter of its orbit around the earth and will be visible high in the south-southeast at dawn. The bright star to the left of the moon will be

Regulus, the "heart" of Leo the lion. On the following morning the moon will be directly below that star.

Venus and Jupiter will have their close conjunction ("grouping") on the morning of the 8th. The two bright objects will be only one-half of a degree apart (about one full moon diameter). Venus will be passing to the left of Jupiter. The next morning they will be three-quarters of a degree apart, and the distance will increase rapidly during the rest of the month.

Notice Spica, above and to the left of the two planets. At the beginning of the month the three objects formed a triangle. Now they will be in a nearly straight line.

The moon joins the Venus-Jupiter-Spica grouping on the morning of Nov. 11. The moon will be above and to the right of Spica, and that star will be midway be-

tween the moon and Jupiter. On the next morning the waning crescent moon will form a triangle with Venus and Jupiter.

Mercury officially will be in the morning sky by this time; a line drawn from Jupiter through Venus will bring you to Mercury, but that illusive planet will be only two degrees above the horizon. It will be better placed for viewing in just a few more days.

New moon will be at 4:34 a.m. on Nov. 12. The moon will be located between the earth and the sun and will not be visible. As in the case of the transit of Mercury, the moon will be located nearly exactly between the earth and the sun and there will be a partial solar eclipse. The bad news is this eclipse, just like the transit of Mercury, will not be visible from our area, but the view from Antarctica could be nice.

Mercury will be one degree to the left of Venus before sunrise on

Nov. 14. Venus, which will be much brighter than Mercury, will dazzle the eye. Mercury has been zipping between the earth and the sun during the month, but on the 14th it will appear to be stationary then will begin to draw closer to the sun. Venus is also drawing closer to the sun, but it's ahead of Mercury in that respect. This will result in Mercury remaining very well placed for observing while Venus becomes more difficult as the weeks pass.

The waxing crescent moon will be visible in the evening sky on the 15th. Look toward the southwest horizon around 5:50 p.m. On the 16th the moon will be higher in the sky, within the constellation of Sagittarius the archer.

Coming up next time: Mercury remains extremely well-placed for viewing in the morning sky for 1993, the Leonid meteor shower peaks and there will be a total eclipse of the moon.

## OU professor contributes to new book

John Paul White, associate professor and head of the vocal program at Oakland University's Department of Music, Theatre and Dance, is one of 27 leading experts contributing to a new book on voice disorders called "Vocal Arts Medicine."

The first book on the subject to include such a wide variety of authors, it deals with the treatment and prevention of vocal problems by discussing them from the per-

spectives of several professions: medicine, psychology, speech-language pathology and singing.

White is one of three singers in the country invited to write for "Vocal Arts Medicine." And, except for the editors, he is the only author to have written more than one chapter. Edith Diggy, OU voice instructor, co-authored White's chapter "Assessment of the Singing Voice." His other chapter is titled "Multidiscipli-

nary Approach to Treatment."

Three doctors at Henry Ford Hospital in Detroit edited the book: Michael S. Benninger, MD, head of the Department of Otolaryngology; Barbara H. Jacobson, Ph.D., and Alex F. Johnson, Ph.D., of the Division of Speech-Language Sciences and Disorders, Department of Neurology. "Vocal Arts Medicine" is published by Thieme Medical Publishers.

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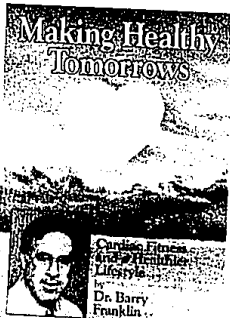
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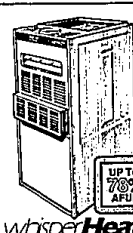
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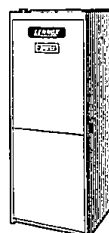
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