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Astronomy Bulletin - The Night Sky: April 19 to May 15, 1993

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The Night Sky
April 19 to May 15, 1993

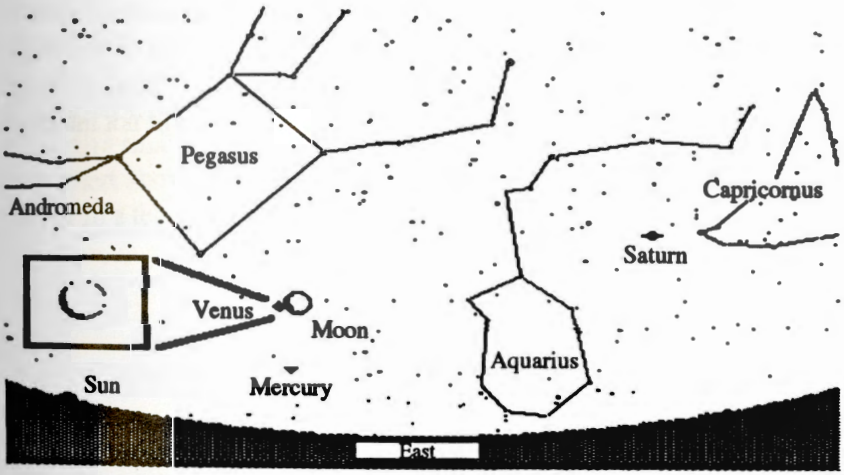
While Venus has dominated the evening sky through much of the winter, another planet should attract the sky-watcher during the spring. Just outside the orbit of the Earth, Mars completes one circuit about the Sun at a slower rate than the Earth. About every two years the Earth catches up to and passes the red planet, and the two are said to be in opposition. Whenever this happens, the two planets are as close to one another as they will ever get. This opposition occurred on January 3, placing the two planets a "mere" 58 million miles apart. When the opposition occurs, Mars is visible all night long and glows as a bright red "star." Close approaches have always appealed to the public. As recently as the beginning of this century, people believed the planet to be populated with intelligent life. This belief was encouraged by reports by Chiaparelli and Lowell that vast canal systems existed on the planet. These canals were designed to transport water from the polar caps to the equatorial region. Chiaparelli and Lowell suggested that such canals would only be possible from efforts of an intelligent civilization. H. G. Wells wrote *The War of the Worlds* in 1908, during the opposition of Mars. This book was made popular in 1938, as a result of the radio broadcast of Orson Welles. In the 1920's, radio signals were reported as originating from the planet and the rather staid U.S. Naval Observatory ordered all of the navy's radio transmitters shut down for three days during August of 1924 so that the Earth could listen for signals from the planet. The Army's chief cryptographer was assigned the task of cracking the code of any incoming signal. (No signals were received. However, in a footnote to history, the cryptographer was responsible for cracking the famous Japanese diplomatic code just prior to World War II.)

The results of the Mariner 4 and 9 missions to Mars in the 1960's and the Viking missions in the 1970's revealed Mars to be a cratered and seemingly dead planet. Experiments on the Viking Lander missions failed to reveal the presence of any type of life, even at the microbial level. However, only two isolated sites were surveyed, and we do not know with certainty that life *doesn't* exist. Yet, U.S. spacecrafts are returning to the planet. A mission called the Mars Observer was launched last September

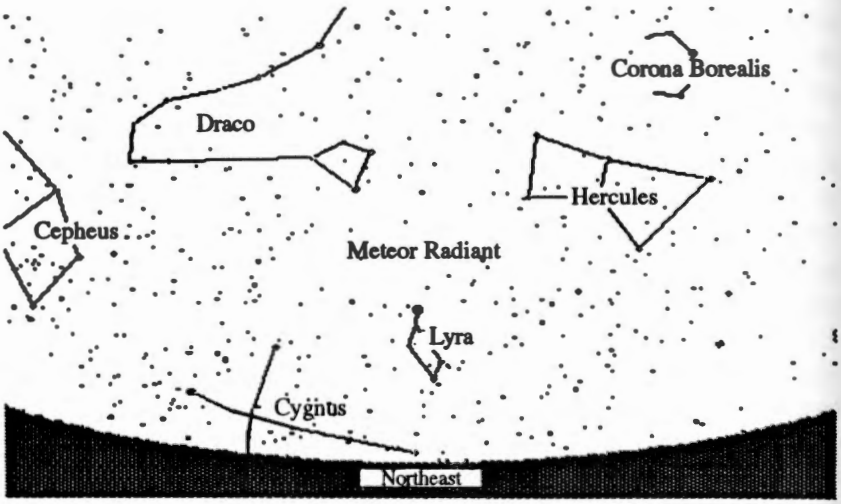
and will arrive at Mars late this year. The probe will be put in polar orbit and will study the planet's atmosphere and surface. One imaging device will permit observation of details on the surface as small as 1.5 meters. We may even be able to see the lonely Viking landers still sitting on the surface. If the economic conditions in Russia permit, two Russian crafts will arrive at the planet in late 1995. These probes will use balloons to land packages on the surface, and the Mars Observer will relay information from the surface back to Earth.

Scientists and science educators from the Planetary Society are planning an educational program called *Marslink* that will bring some of the scientific results directly into the classroom for elementary and secondary students to examine and interpret. One of us (Darrel B. Hoff) is currently on the advisory board for the project and will continue to keep readers of this journal informed of the program.

Figure 1: Early in the morning on April 19, the Moon and three planets will be visible. The Moon is 15° above the horizon, and appears as a very thin crescent (illuminated only 6 percent), but it is only 2° to the right of *Venus*. Venus is bright and it should be very easy to see, especially with binoculars. Through a small telescope, Venus would appear to be 10 percent illuminated. The insert box of figure 4 shows how Venus would appear in the telescope. *Mercury* is below the Moon, 7° above the horizon. *Saturn* is also visible about 22° above the horizon and 30° to the right of the Moon.

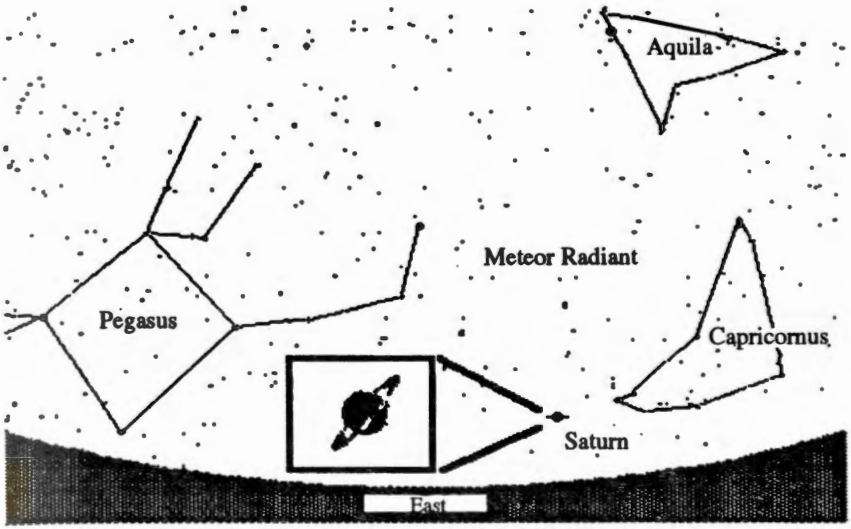


April 19, 1993
6:30 AM



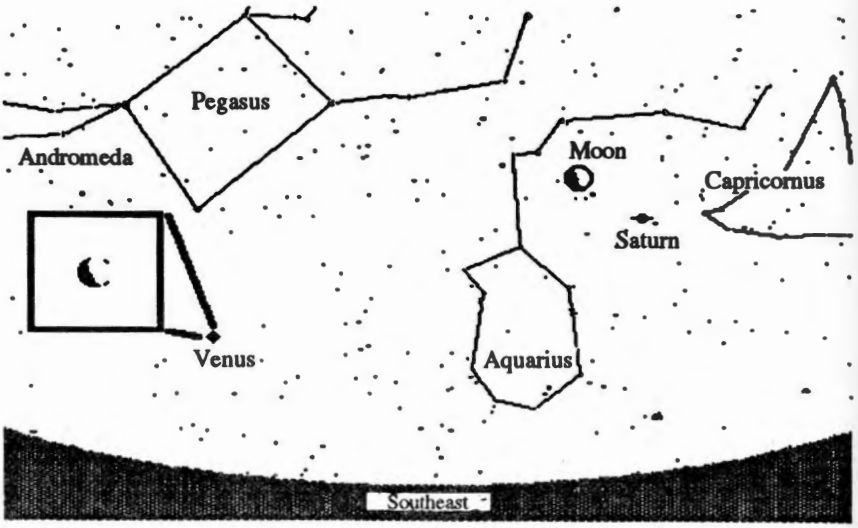
April 21, 1993
11:00 PM

Figure 2: On the night of April 21, meteors of the Lyrid meteor shower will appear to radiate from the constellation Lyra (see the area on the chart marked "meteor radiant"). This meteor shower normally produces about 15 meteors per hour. Fortunately, the Moon is new and will not interfere with meteor observing.



May 4, 1993
4:00 AM

Figure 3: Early in the morning on May 4, another meteor shower, the *Eta Aquarids*, will appear to radiate from the constellation Aquarius. This meteor shower normally produces about 20 meteors per hour. Because the Moon is nearly full, it will be difficult to see all but the brightest meteors. The Moon sets at 4:50 AM. The planet *Saturn* is also visible low in the sky. Through a small telescope the rings which encircle the planet may be seen. The insert shows Saturn and the orientation of its rings as they would appear in a telescope.



May 14, 1993
5:30 AM

Figure 4: Early in the morning on May 14, the Moon and two planets will be visible. The Moon is in the waning crescent phase and is illuminated 41 percent. It will be approximately 30° above the horizon. *Saturn* is to the lower right of the Moon 7°. *Venus* is the very bright object 14° above the horizon and 40° to the lower left of the Moon. Through a telescope Venus will appear to be a crescent illuminated 32 percent. The insert shows how it would appear in a telescope.

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