

Mountain Skies

May and June, 1999

Venus seems to hover in twilight as the days lengthen into early summer. It moved from the morning sky into the evening sky at the end of last October as it passed behind the sun in its orbit. In its continuing orbital motion, Venus has been moving eastward with respect to the sun as we view it from Earth. The angle between the sun and any object is referred to as its *elongation*, and Venus' increasing eastern elongation through the first half of 1999 has made it appear to rise above the western horizon at sunset. On June 11 it will be at *greatest eastern elongation*, 45.2° east of the sun in our sky.

While Venus has been moving with respect to the sun, the Earth's orbital motion has been carrying us toward summer, tilting the Northern Hemisphere toward the sun. With this, the days have been growing longer and the sun rising and setting farther north of due east and west each day. This apparent motion of the sun and Venus' orbital motion combine to place Venus about 30° above the western horizon at sunset throughout May and June.

Morning to evening

Mercury is in the morning sky as May begins. As the month progresses, Mercury moves away from Earth

toward the far side of the sun, passing behind it in *superior conjunction* on May 25. It then becomes visible in the evening sky.

The summer solstice, with the sun at its most northern point, will occur on June 21 at 3:50 p.m. (EDT); Mercury will achieve its greatest eastern elongation of 25.6° on June 28. Around that time, look for Mercury as the heel of a cosmic hockey stick standing on the western horizon with Venus and Regulus at the handle

and Castor and Pollux at the toe—a gentle reminder at the cusp of July that the days are already getting shorter!

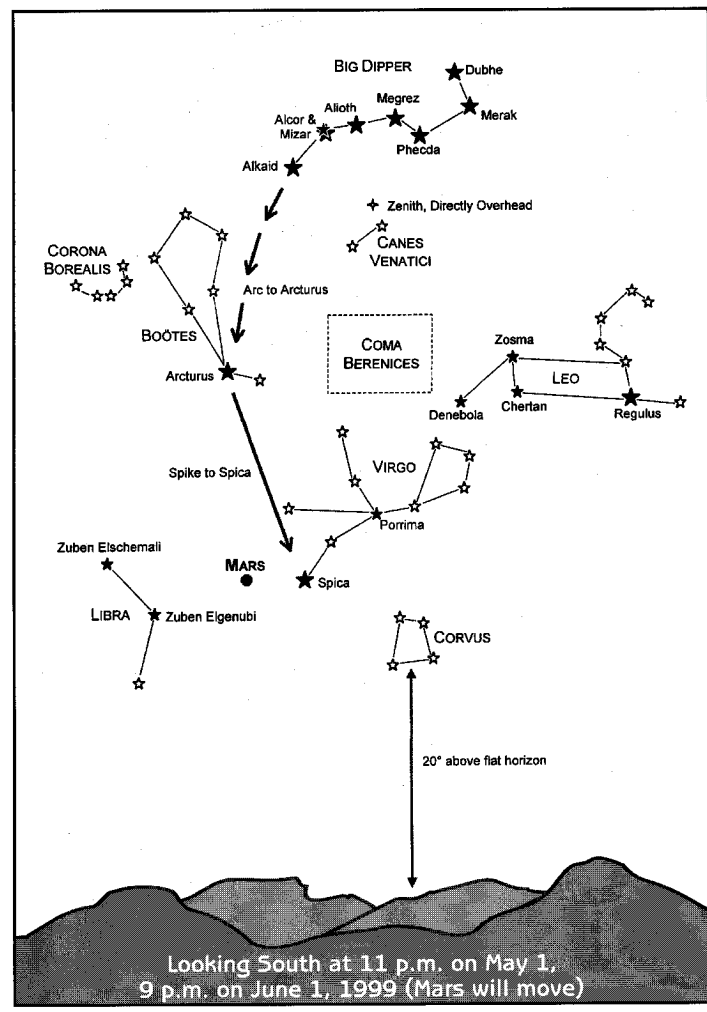
In early May, Mars blazes in the southeastern sky as twilight deepens into darkness. It will be closest to Earth on May 1, forming an arc with the (just past full) moon and the bright star Spica. The beauty of these bodies illuminating the night will give added reason for celebration to those recognizing Beltane, the beginning of the Celtic summer, which is centered on the solstice (in contrast to the Roman summer, which begins on the solstice).

Mars was at opposition on April 24, when it rose at sunset. Now it rises in the afternoon and is high and bright by nightfall. Through May, only Venus will outshine Mars, but it can't compete with the ruddiness of the red planet. In June, Mars will appear to dim as Earth out-distances it on the orbital track.

Wanderers

The planets' motions in their orbits give rise to the odd motion of the local celestial bodies that confounded the ancients, inspired Copernicus and Galileo to challenge the cosmology of the Church, and gave them the name *planets*: Greek for "wanderers."

Mars and Spica provide us an opportunity to watch this motion through the warming evenings of early Celtic summer. As May begins, Spica is about 8° west of Mars at nightfall. By May 15 they've closed to within 4°. On May 26 the waxing crescent moon passes about 7° north of the pair. The 1.7° minimum separation occurs on June 9. Look for them 35° above the southern horizon (about 1/3 of the way from the horizon to the zenith) at 10 p.m.



Mars will be the brighter and higher of the two. At this point, Mars will resume its more normal, prograde, motion to the east, separating from Spica to 5° on July 1, 10° on July 15, and nearly 20° by August 1.

The winter hexagon of March and February disappears quickly into the twilight of the longer nights of late spring, but the bright planets guide us to the constellations of the Zodiac. These, with all the familiar names from the newspaper horoscopes, are the constellations that lie along the plane of the solar system. The sun, moon, and planets in their motions are always found close to this plane that is known as the ecliptic.

In early May, Venus hangs just below the feet of the twins of Gemini, who stand upright as they descend toward the horizon (see Mountain Skies of March/April for Gemini). Castor, the mortal twin, is to the north (seen to the right looking west) and his immortal brother Pollux is to the south. Through May the twins sink toward Venus at sunset, forming an arc parallel to the western horizon in early June with the stars to the north of the planet. By the end of June, only the bright stars Castor and Pollux are visible above the horizon after sunset, and set themselves by 9:15 p.m.

Cosmic lion

The next bright constellation along the ecliptic is Leo. As shown in the diagram, the cosmic lion poses like the Sphinx high in the spring sky. At the lion's elbow is Regulus (REG-you-luss), the brightest star in the constellation. It also stands as the dot in a backwards question mark known as the asterism of the sickle. The stars making up the back of the lion are Zosma (ZOZE-ma, zoze rhymes with rose) and Chertan (rhymes with curtain, some call this star Chort), with Denebola (den-EBB-oh-la) marking the end of the tail.

Following Leo through the astrological year is Virgo, in which Mars will be found throughout

the spring and summer. The brightest stars are Spica (SPIKE-a), and Porrima (POUR-rim-a). After Mars makes its closest approach to Spica in early June, it will return to its normal eastward motion. At the end of July it will move into the constellation of Libra and pass within two degrees of Zuben Elgenubi (zuben el-jen-

The light from these stars that we see now has been travelling since the 1750s, when the Adirondacks were mostly unexplored wilderness.

NEW-bee, the southern claw). The names of Zuben Elgenubi and its mate, Zuben Elshemali (zuben el-shaw-MALL-ee, the northern claw) do not refer to the claws of a celestial beast, but to the southern and northern scale trays of the balance, the symbol of Libra. The next zodiacal constellations, Scorpius and Sagittarius, will glitter with the Milky Way later in the summer.

Other constellations to notice during May and June include the asterism of the Big Dipper with the stars Dubhe (DUBB-ee), Merak (MEE-rack), Phecda (FECK-da), Megrez (MEE-greez), Alioth (al-LEE-oth, rhymes with cloth), Mizar (MY-zar) with its fainter companion Alcor (AL-core), and Alkaid (al-KADE) at the end of the handle. Early evening finds the Dipper nearly overhead. The

handle arcs toward bright Arcturus in Boötes (the ö indicates pronunciation of both o's as in cooperate) that appears more like a Spanish bota, the traditional winebag, than a herdsman to this observer!

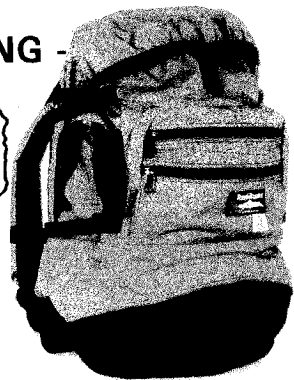
East of Boötes is Corona Borealis, the Northern Crown. The stars aren't particularly bright, but the shape makes the constellation fairly easy to pick out.

Another small constellation, Corvus (CORE-vus, the Raven) hangs like a cosmic kite below Virgo. Between the tail of the lion and the Big Dipper lies Canes Venatici (CANE-ess Ven-NAT-a-see, the hunting dogs), a tiny constellation of two bright stars.

Between Canes Venatici and Leo lies a constellation of many more, but very faint stars, Coma Berenices (ber-EN-e-sees, the hair of Berenice). Legend has named it for Berenice II, the Queen of Ptolemy III who sacrificed her hair in return for the safe return of her husband from battle. The hair disappeared from the temple and the court astronomer, Conon, consoled the couple with the story that the hair had been accepted and placed among the stars. In truth, this faint but beautiful grouping is a star cluster about 250 light years away (a light year, the distance light travels in a year at a speed of 186,000 miles per second, is about six trillion miles). Thus the light from these stars that we see now has been travelling since the 1750s, when the Adirondacks were mostly unexplored wilderness.

—Aileen O' Donoghue

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