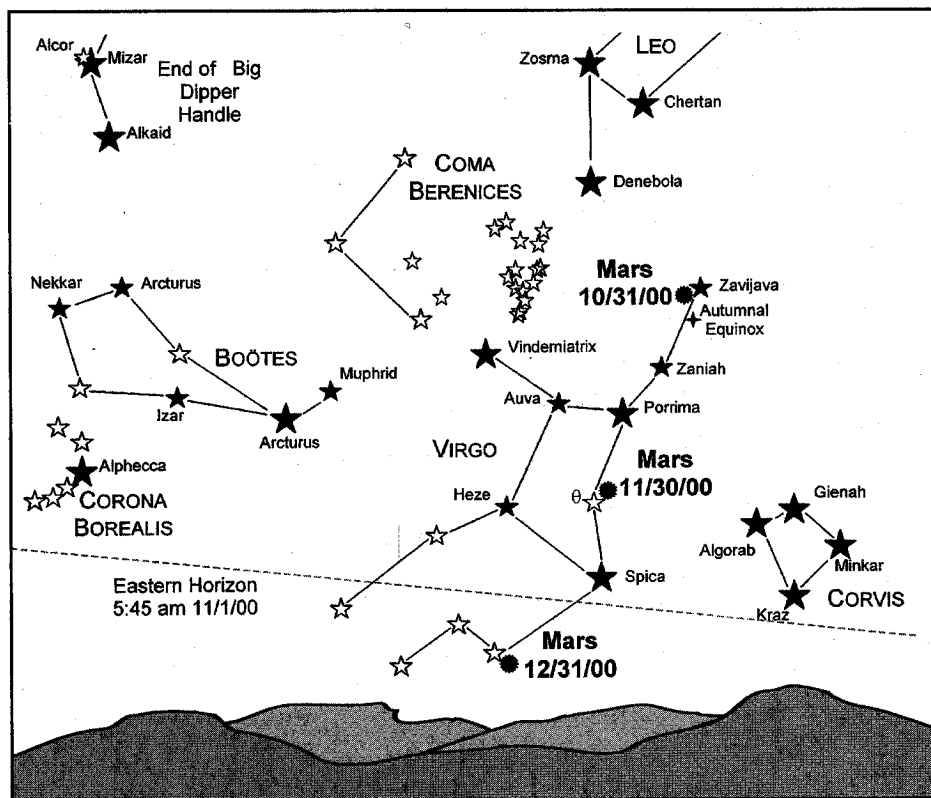


Mountain Skies

November and December, 2000



Looking east on November 30 at 5 a.m., December 31 at 3 a.m.

Sol and Luna, our own sun and moon, help North America celebrate the last Christmas of the second millennium with a partial eclipse of the sun. It will take from 11:05 a.m. to 2:15 p.m. for the moon's shadow to pass over the Adirondacks, but only about half of the sun will be blocked. This should diminish the brightness of the sun enough to be noticeable and fairly "weird." For more detailed information on the eclipse, follow the "Solar Eclipse" link on NASA's Sun-Earth Connection Education Forum page <sunearth.gsfc.nasa.gov> to Fred Espenak's Eclipse Home Page.

The celebration of the arrival of the year 2000 would make one think that it was the start of the third millennium; however, it has been the last year of the second millennium. The Royal Greenwich Observatory (at <www.rog.nmm.ac.uk>) has a leaflet on the start of the new millennium explaining the reason for this. Our way of reck-

oning years from the birth of Jesus was invented by a monk and astronomer named Denys the Little in what is now southwest Russia during the sixth century. At that time, there was no concept of zero. The Arabs brought the concept of zero to Europe in the 12th century. Thus Denys counted Jesus' first year as year one AD making the date of his birth December 25, 1 BC (historical studies of the actual birth of Jesus . . . probably around 6 BC . . . and calendar adjustments aside). Hence, if everything worked the way we count it, Jesus celebrated his first birthday on December 25, 1 AD and our calendar completed one year on December 31, 1 AD. By this argument, December 25, 2000 is Jesus' 2000th birthday, that is, the 2000th anniversary of his birth. Thus this is our last Mountain Skies for the second millennium . . . but it was cool to see all the numbers turn over, wasn't it?

Less spectacular events during No-

vember and December include Venus climbing in the western sky at dusk. Meanwhile, to the ENE, Saturn and Jupiter rise at 5:45 p.m. and 6:15 p.m., respectively on All Saints Day, the first day of fall in the Celtic and Tibetan calendars. The giant worlds are in a spectacular setting between the Hyades and Pleiades star clusters in Taurus. It's as though they, too, are celebrating the change of the millennium.

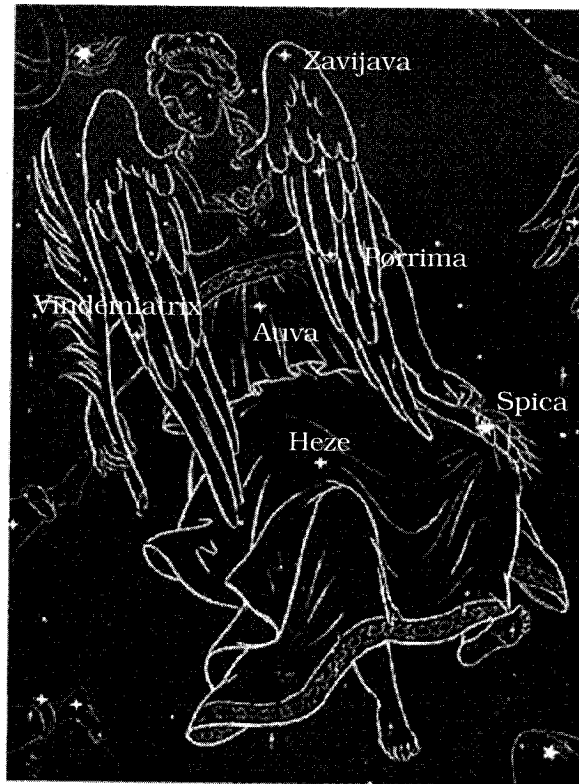
In the morning sky, Mars hangs about 20° above the horizon at 5 a.m. while the stars of Virgo pass behind it. Mars provides us with a tour of Virgo in the pre-dawn skies of November and December 2000. Though morning might be considered less convenient for viewing than evening, Virgo stands upright in the morning so it is the best time to view the only free woman of the sky. The other women, Cassiopeia and Andromeda, are both chained in their positions. This astronomer is beginning a campaign to change Orion the Hunter to Mother O'Ryan since the Great Nebula (cf. Mountain Skies March/April 2000) is one of the richest star formation regions in the visible sky and because we need another strong woman among the constellations. Virgo is associated with many women in mythology, including Diana, Minerva, Medusa, Isis, and the Virgin Mary. I consider her the Goddess of the Harvest since she is always pictured with a sheaf of wheat or a palm leaf. An illustration from the catalog of Franz Niklaus König (1826) held by Municipal and University Library of Berne (StUB), Switzerland is representative of the depictions of Virgo.

As November begins, Mars is just east (down in the diagrams) of Zavijava (*zav* and *jav* are both accented and rhyme with *have*), "the corner." The name refers to the Arab constellation of the Kennel of the Barking Dogs. In the Virgin, it marks the top of her right wing as she rises from below the horizon in the early morning holding her sheaf of wheat. Only the top of Virgo is above the horizon before twilight, so look for the planet star pair about 20° (twice the width of your closed fist held at arm's length) above the ESE horizon around 5:30 a.m. To find the ESE, find the Big Dipper hanging handle-down, follow the pointer stars

of the end of the bowl to Polaris (cf. Mountain Skies May/June 2000) to locate north, then turn to your right 90° plus a bit.

On the 4th, Mars passes about a degree northwest (left in the diagram) of the autumnal equinox, the position of the sun when it crosses the equator in September. By November 19, Mars is 1.5° from Porrima (PAH-reem-a), named for the ancient goddess of prophecy. This star marks the left side of her waist as we look at her. Auva, a "bend" in the line of stars, also marks her waist and leads to Vindemiatrix, the "grape gatherer" that rises in the morning just before the grape harvest and marks the lower part of Virgo's right wing. Mercury will make a brief appearance at this time, but is less than 10° above the horizon in the robes between Virgo's feet as the sky brightens with the dawn.

The moon returns to Virgo on December 17, and its path to the Christmas eclipse. On the 20th it will be just north (left) of Mars giving one last show of its illuminated beauty before the drama of its shadow's passage. Before the last dawn of the year, Mars marks Virgo's ankle, and will cross into Libra at 11



Courtesy of the Municipal and University Library, Berne, Switzerland

p.m. EST on January 4, 2001, 11 hours after the Earth's closest ap-

proach to the sun, perihelion.

After the eclipse on Christmas Day, Christians may appreciate the sight of the Northern Cross of Cygnus standing on the western horizon as the Praesepe, the Manger, a star cluster in Cancer, rises in the east. Use binoculars to look for the Praesepe at about 9 p.m. on Christmas evening 20° above the ENE horizon, about halfway between the horizon and the Twins of Gemini, Castor and Pollux (cf. Mountain Skies March/April 1999). The moon continues to celebrate the changing century as a waxing crescent 2° below Venus as evening falls on December 29.

The last sunset of the year finds the moon almost twice as high and a little south (left) of Venus. Jupiter and Saturn are high in the southeast sky and move to the southwest sky by the strike of midnight. If you have a chance to step outdoors at midnight, take a look to the southwest where the Pleiades, Jupiter, and Sirius will form a bright arc across the sky as their contribution to the celebration.

—Aileen O'Donoghue

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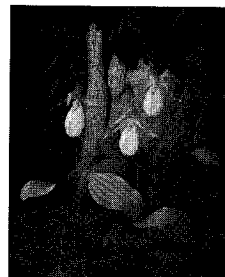


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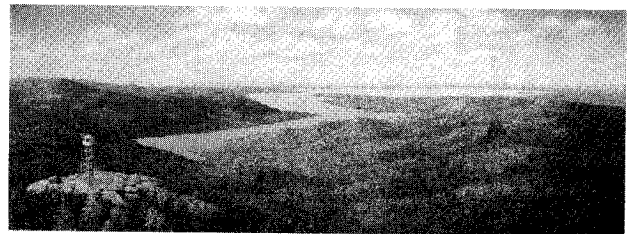
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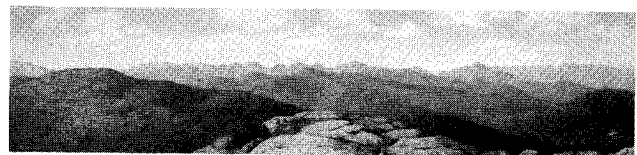


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