

Mountain Skies

May and June 2001

In Adirondack and Catskill night skies, Jupiter and Saturn are plunging toward the western horizon. As they disappear after their winter show, Mercury will shoot up from the horizon like a rocket. At 8:30 p.m. on May 5, Mercury and Saturn will both be about 9° (the width of your fist held at arm's length) above the horizon in the WNW. Mercury will be much brighter and more easily visible than Saturn.

If you have a low western horizon and can find Jupiter (level with Betelgeuse in Orion's shoulder), Mercury will be below it and to the right (north) and Saturn will appear just to the left (south) of Mercury as the sky darkens. All three planets should be visible by 9 p.m. Mercury and Saturn will be low, a mere 5° above the horizon. However, Sirius and Orion's belt to the south provide a convenient pointer. If you can find these four bright stars, look along the line to the right (north) to find Saturn and Mercury.

Spring is the best time of year to look for the young crescent moon. On May 24 the moon is two days old and the thin crescent should provide a glorious sight just left (south) of Mercury, with bright Jupiter 7° below the pair. On May 25, the three worlds are aligned in the western sky.

CHAMPION OF THE SKIES

Rising in the east, as Mercury sets in the west at 10:24 p.m. on May 25, is the champion of the skies of the millennium's first summer, Mars. On May 11, Mars' eastward (normal, or prograde) motion stops and it starts moving to the west in retrograde motion. Mars pauses for a few days, as if admiring the view itself, then begins to move back to the east.

This backward motion was the great puzzle that led to Ptolemy's complicated geocentric model of the solar system and the work of Copernicus, Galileo, Kepler and Newton. Western science owes its origin to this backwards motion of planets, and Mars gives us a wonderful opportunity to watch it in the warm, bug-and frog sound-filled nights of summer. Mars is at opposition—directly opposite the sun—on June 13, so it rises as the sun sets, sets at dawn, and is gloriously

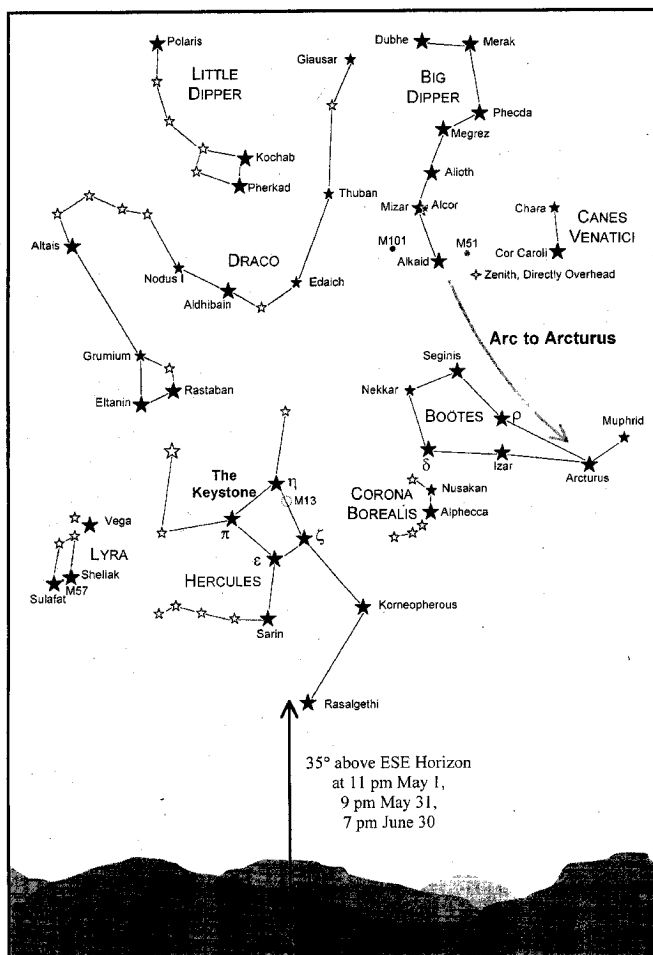
red, shining brilliantly in the midst of the Milky Way.

Venus will appear in the morning sky to greet the early risers among us. Though it rises more than an hour before the sun, it's only 15° above the horizon when it disappears into the light of day. On May 18 and June 17 and 18, the waning crescent moon will join Venus for a pre-dawn show. Look early, though—the sky is bright by 5 a.m. By the end of June, Venus rises almost three hours before the sun and is high enough before dawn to be visible even in some of the mountain valleys.

BRIGHTEST STAR

Stars of interest in early summer include Arcturus (ark-tew-russ), the lumina, or brightest star, in Bootes (bow-oh-tees, the two o's as in cooperate), the Herdsman. Arcturus is the brightest northern star. Often pictured holding the leashes of Canes Venatici, the Hunting Dogs, Bootes herds Ursa Major, the Great Bear, around the northern pole (cf. Mountain Skies, May/June 2000) with the dogs nipping at the bear's heels. Arcturus, the "guardian of the bear," is most easily found by continuing the curve of the bear's tail, the handle of the Big Dipper, in an "arc to Arcturus."

According to *Burnham's Celestial Handbook*, this star became famous for a short time in 1933 when its light was focused on photoelectric cells to activate the switch turning on the floodlights at the "Century of Progress" Exposition in Chicago. Arcturus was chosen because it was thought to be 40



light years distant, so that the light focused by the telescopes had left the star in 1893, the year of a previous great exposition in Chicago.

The Hunting Dogs are found above Bootes on early summer evenings. There are two dogs, but the brightest stars are both in the southern dog, Chara. The brightest star represents her collar, and was named Cor Coroli (kore care-ol-eye) for the heart of Charles II by Edmund Halley in 1725 when he was Astronomer Royal.

This area of the sky provides some excellent challenges for those with small telescopes. Forming a right angle with the end of the Big Dipper's handle is M51, the Whirlpool Galaxy. This is a prototype face-on spiral galaxy and was the first to be identified as having a spiral shape in 1845. Any telescope

smaller than eight inches across will not reveal the spirals, however, since its distance of 15 million light years makes it quite faint, though one of the brightest galaxies in our sky. If you are able to detect a circular smudge on the sky through a small telescope, keep in mind that the photons, the bundles of light impacting your retinas to allow you to see it, have been traveling across intergalactic space for 15 million years —almost a quarter of the way back to the age of dinosaurs.

CONSTELLATION GUIDE

Arcturus and the second brightest star of the northern sky, Vega, are guides I use to find two important but rather faint constellations, Corona Borealis (the Northern Crown) and Hercules. Alphecca (al-feck-a), the lumina of Corona Borealis, is about 1/3 of the way from Arcturus to Vega. The half circlet of the crown arcs from both sides of Alphecca. The crown opens toward the keystone of Hercules, which is 2/3 of the way from Arcturus to Vega.

Though Hercules looks to us northerners as though he is about to make a tennis serve, we actually see him upside down. Hercules is "the Kneeling One" who is kneeling on one knee. π (pi) and η (eta) mark his hips and ι (iota) his foot, while Sarin and Korneopherous (core-NEFF-or-oss which rhymes with floss) mark his shoulders and Rasalgethi (rass al-JEE-thee) his eye.

With binoculars or a small telescope you should be able to detect a fuzzy blur near η , on the line to ζ (zeta). This is M13, a globular cluster about 150 light years across and 25,000 light years away approaching us at a phenomenal 150 miles per second. The globular clusters are some of the oldest objects in the galaxy, forming before the disk stars such as the sun and most of the stars in the sky. M13 is thus a very ancient object, as old as perhaps 14 billion years. Its orbit is not in the disk of the galaxy, but at a steep angle to the plane, so in its millions of orbits it has watched the entire history of the Milky Way unfold, from the formation of the first stars of nearly pure hydrogen and helium, to their violent deaths and the formation of new stars such as our own Sol, from the debris enriched with the elements of life...carbon, nitrogen and oxygen.

On a particularly dark, moonless night in the second half of May or June, M13 should be visible to the unaided eye. Take a few moments to stretch out in a chaise lounge, gaze up at this fuzzy blur that's nearly as old as the universe and revel in your own comparative infancy.

Aileen O'Donoghue

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