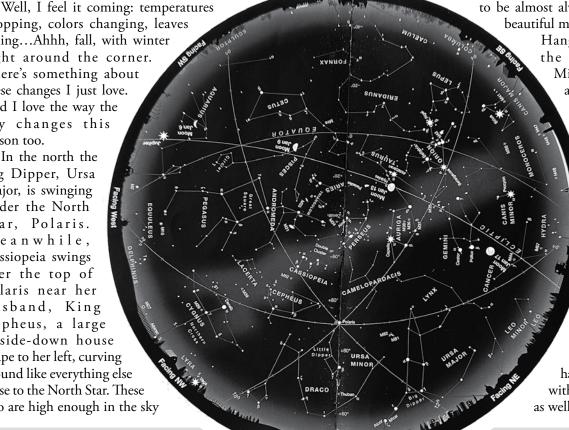
THE STARRY SIDE

Winter's season changes

BY GREELEY WELLS

dropping, colors changing, leaves falling...Ahhh, fall, with winter right around the corner. There's something about these changes I just love. And I love the way the sky changes this season too. In the north the

Big Dipper, Ursa Major, is swinging under the North Star, Polaris. Meanwhile, Cassiopeia swings over the top of Polaris near her husband, King Cepheus, a large upside-down house shape to her left, curving around like everything else close to the North Star. These two are high enough in the sky



Sky & Telescope (skyandtelescope.org).

December 14: Geminid meteor shower. Look east before the moon rises (10:50 pm) for up to 120 meteors per hour!

– OF NOTE –

December 21: Winter solstice. Earth's North Pole will be tilted away from the sun to the max, for the fewest hours of daylight. It's the first official day of winter in the northern hemisphere, although it's been winterish for a while. From here on there's a shift to longer days. But warmer days don't come right away, just as the longest day on Earth is not necessarily the hottest. There's always a slow buildup—or -down—with big things like sky, sun, and planets.

December 22: Ursids meteor shower. The radiant is near Polaris and the Little Dipper. Before dawn, 5-10 meteors per hour if there's a good dark sky.

January 3-4: Quadrantids meteors shower. Up to 40 an hour at its peak, but a full moon will try to steal the show! So look moments after the moon sets (5:21 to be almost always visible, locked in a beautiful marriage.

> Hanging low to the left is the Little Dipper, Ursa Minor, whose tail end is also the North Star. And then there's Draco the

> > dragon, the line of stars twisting around the Little Dipper and bending back to the left to form a fourstar head. Maybe he's a sort of alert or warning, or maybe he's just protecting Ursa Minor.

Constellations in the family of stars surrounding the North Star have their own unique beauty. Each also has a particular relationship with the other constellations, as well as to Polaris.

am on January 3, 6:28 am on January 4) and before sunrise (7:40 am). The radiant is just below the Big Dipper.

The planets

Mercury is visible at dusk in December, moving to dawn in February and March.

Venus has disappeared behind the sun until January and February, when he's visible at dusk. He shows up all evening in March, regaining the title of brightest planet.

Mars is up all night in December and then visible in evenings for the rest of the season. He's also at his brightest

You'll be seeing Orion

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climb up in the east into his primary position for most of the winter. He's followed by the sky's brightest star, Sirius the dog, who's pretty much lined up with Orion's belt. That other bright "star" is actually a planet: Jupiter. He's rising up from the east at sunset and slowly fading back to normal brightness—but still fantastically bright—as winter goes on.

One more treat: Mars! He's up all night and bright, next to Taurus's obvious triangle and his two horns sticking out from it. Why so bright? Because our paths around the sun are not regular circles but ellipses, and right now we are on Mars's side of the sun, and Mars is at its closest to the sun. The same thing is happening with Jupiter. They are both changing the night sky right now.

Enjoy these delights and try to keep a safe, livable planet for us all.

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and appears stuck on the end of one of the horns of Taurus the bull! I've been watching him hesitate there for months.

Jupiter is in our evening sky in January and February, shifting to dusk in March. He's still the brightest planet until March when Venus, back from a trip around the sun, regains that status. Jupiter's now in a slow fade that will eventually make him shine at "normal" brightness for the next 100 years!

Saturn is in the evening in January, moving into dusk near sunset. In February he gets too close to the sun to be seen; he'll be visible at dawn in March.

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