

THE STARRY SIDE

Winter hexagon

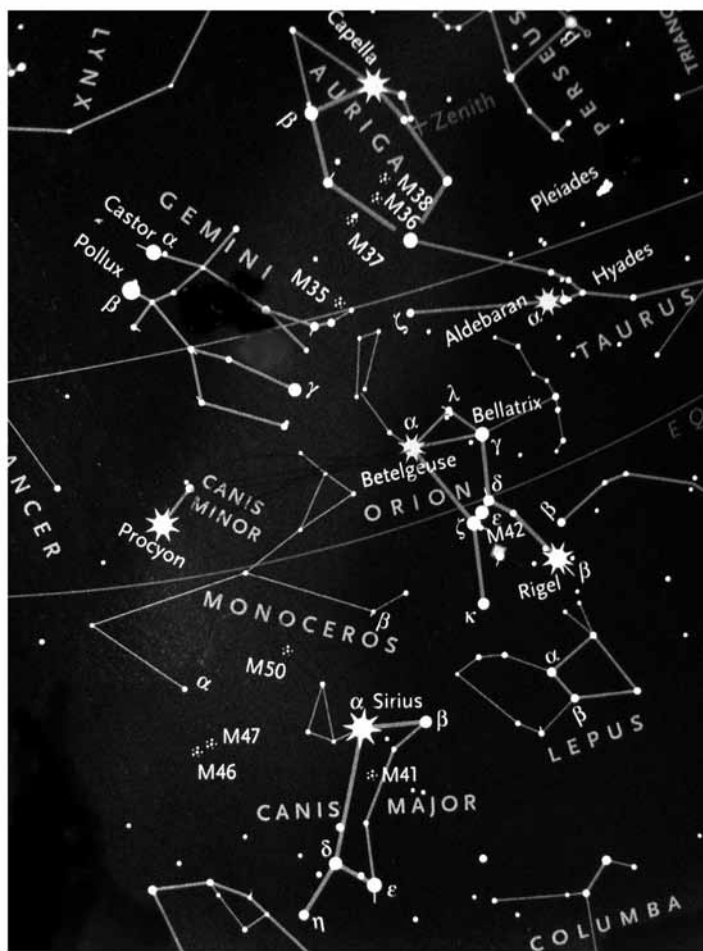
BY GREELEY WELLS

I hope you've enjoyed the summer triangle and its constellations during this short summer season, and that you can keep enjoying it as it overlaps into fall and eventually sinks in the west during winter. I've talked a lot in past columns about the summer triangle because it's the main asterism (a cluster of stars or constellations that have a name) of summer. There is an amazing asterism of winter, too, which I don't think I've talked about yet: the winter hexagon. This beautifully "perfect" six-sided polygon is made up of stars in many winter constellations that you probably are beginning to know quite well by now. The winter hexagon is beginning to rise in the east; by midwinter it will fill the southern sky. If you wake up early in the morning, you'll find this hexagon just before dawn in the SSE—it's a sight to behold.

But hold that image... Though the winter hexagon is my theme this season, I'd be remiss not to explain first what happens in early fall. The big deal now is Pegasus the horse, the huge "square" that's on its corner like a diamond early on, then straightens out as it moves overhead, but becomes a diamond again as it sets. Out of the right corner is an upwards sweep of stars that connotes the horse's head. The upper corner has two short rows of stars: legs. But it's actually half a horse. The rest is cut off and, instead, Andromeda comes sweeping out of the bottom-left side in two curved lines widening from each other as they go first down then up toward Cassiopeia. Cassiopeia—the "M" when it's above the North Star, although early in the season it's shaped more like a lightning bolt—is Andromeda's mother. But we've discussed all this before so I will leave it at this for now: last season's constellations are all setting in the west as these new ones are rising in the east.

Now here we go for winter's hexagon, which will be fully up in midwinter. You're looking for six stars or points of the hexagon. Our first star, at the center and top, is Capella—the brightest star in Auriga. It's rising in the northeast under Perseus, which is under the easy-to-find Cassiopeia—the "M" way up overhead if you are facing east. Off to the right is

our second star: the bright Aldebaran. (Aldebaran is part of Taurus the Bull, a beautiful and distinctive small triangle.) Stretch your arm out fully in front of you. With your hand wide open as a measuring device, the distance between Capella and Aldebaran is the distance between the end of your thumb and pinky finger (approximately 10°). These two make the top and right side stars of the hexagon. Keep using your hand as a measuring device—all five points of the hexagon are about 10° apart. Next are the Gemini Twins, Caster and Pollux. Pollux, our third star, is the slightly brighter of the two, and the next bright star to the lower



left of Capella. This completes the top triangle of the hexagon. (Just to confuse things, Mars is floating below and to the left of Castor and Pollux.

Below Pollux (about where you'd expect it) is our fourth star, Procyon—the bright star of tiny Canis Minor. Across from him to the right is our fifth star, Rigel, the foot or knee of the hunter Orion, and also Orion's brightest, right-most star. All that's left is Serious—oops, just kidding—Sirius, the brightest star in the sky, and the sixth star of the winter hexagon. (Of course, some planets are brighter, as are the moon and sun and a few other occasional

spectacles.) Sirius in Canis Major (Orion's faithful dog) holds up the bottom of the winter hexagon and may not rise for you till late December/early January, but as the season moves on all will be revealed, I promise! Here's an easy trick: the later you look the farther up they will be. So if you're caught out extra late some night, that's an excellent time to see it all. Hope for clear skies.

When they've all risen and you've figured all this out, step back and look at this amazing, very nearly perfect hexagon of bright stars that shows you the main constellations of winter. Are you amazed?

THE PLANETS

JUPITER in November gets up earlier and earlier in the eastern evening and is that bright planet shining all night long. December also finds it the dominating planet—very beautiful.

SATURN is in the dawn with the slightly dimmer Spica in Virgo. By the end of November the rings have opened to 14° and are worth a telescope look. By December and January, Saturn is high in the sky at dawn, having risen about midnight with Spica. That also puts it in a perfect position to observe with a telescope as the rings have opened to 15°.

VENUS gets higher in the dusk as the evening star in the southwest sunset twilight. It continues to get higher in December.

MARS is rising in the east around midnight, and high and mighty by dawn to the left and below the winter hexagon, which is completely visible by then. Mars is heading north in the sky towards Regulus in Leo the Lion, off to its left.

MERCURY hides in near the sun at dusk in November. Mercury is worth a look at dawn in December because it's now rising an hour and a half before the sun in the southeast.

OF SPECIAL NOTE

There's a total eclipse of the moon starting at 4:46 am in the Pacific Northwest on December 10 for you early risers. This is when the sun, earth and moon are in a perfect line together. The earth moves exactly between the sun and the moon so the earth's shadow falls across the moon. We'll get almost the full treatment this time as it's best seen from the Pacific side of our continent (perfectly out in the Pacific

Ocean). The moon enters the umbra (shadow) with a subtle, dim warmth that slowly envelops the whole

moon. The total eclipse is from 6:06 to 6:57 am. As we head toward dawn, this umbra begins to slide off the moon and slowly lightens as day arrives and the moon sets. This is a sight to see and we're in a rare position to see it. But it requires clear weather and a good visible western horizon...and you have to get up!

And what is that color on the moon? Imagine this: you're the sun, looking out at earth. Your whole side of earth is in light (remember, you're the sun!), and behind the earth is the moon. Now be the moon looking back at earth with the sun behind it. The whole earth is dark (nighttime), and around the earth from both views is a continuous sunset and sunrise, all the way around! That's what makes the color. It's always different and always unpredictable because of smog or "vog" (volcanic smog), pollution, clouds, weather, etc., all of which affect the color.

Don't forget to change your clocks back at midnight on Sunday, November 6. "Fall back" means we gain an hour at 2:00 am to get back to Standard Time. What was 2:00 am will be 1:00 am. You just added an hour to your life! But not to worry—you'll lose it later.

This season the Milky Way, which was north/south in summer, swings around to east/west during our winter.

The winter solstice is December 22. Since 1702, it has been either the 21st or 22nd and so it will continue to be till 2080 when it will slip to the 20th. Just thought you'd like to know—celestial mechanics... go figure.

The first full moons of winter occur on November 10, December 10 and January 9. November's moon names are Hunter's Moon (English), Frost Moon and Beaver Moon (Algonquian Indian name from the time beaver pelts were used for clothing to get through the long, cold winter). December's moons are called the Moon Before Yule, Cold Moon (Algonquian) and the Long Night Moon. January's full moons are called the Old Moon (English), Wolf Moon (Algonquian), and Moon After Yule or the Ice Moon.

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WCWC

be watching this closely.

WILLIAMS CREEK RESTORATION PLAN

WCWC also completed another large project that was part of its West Fork of Williams Creek Restoration Plan. This project was funded entirely by our partners of the Portland-based conservation group, Ecotrust. WCWC has previously restored many reaches along the West Fork. WCWC contacted the landowners about enhancing the creek on their land for fish habitat. We were given permission to restore almost a half mile of stream channel within a previously cutover logging site. We started by cutting and transporting logs donated from another landowner who wanted them removed from his land. This

was a big job in itself, but we ended up with over 50 large key logs and 42 smaller log sections, which were carefully placed into the stream system to develop complex habitat reaches.

The goals of this work were similar to those at the push-up dam, but on a larger scale. The concept is that as water rises in winter it will pour over the logs to scour deep holes for summer refugia (an area in which organisms can survive through a period of unfavorable conditions) and deposit gravel bars in other areas where spawning can occur. Log structures provide shelter for juvenile salmon as well as depositional areas for gravel.

WCWC is pleased with the work

accomplished this year. Each year for the past 14 years, it has worked to better wildlife habitat along the Williams Creek stream system. WCWC looks forward to five significant stream restoration projects next year.

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Over 90 logs were placed into the West Fork of Williams Creek to develop complex habitat reaches.

CONTINUED FROM PAGE 6