

THE STARRY SIDE

Summer skies

BY GREELEY WELLS

Ah, the third quarter of the year: summer. Will the rain and snow have stopped and the sun come out to warm us up by the time you read this? I sure hope so! It's been quite a winter and a hesitant spring, making me wonder: will we HAVE spring or just move directly into summer?

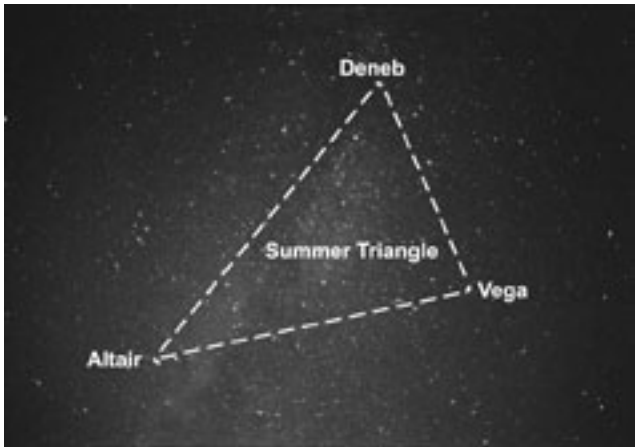
Let's start with the Milky Way, our galaxy: it has risen along the whole eastern horizon with a north-south orientation, and will now be swinging and sliding toward a northeast-to-southwest orientation until it is fully overhead in September. Within this beautiful arc of stars is the "summer triangle" (something I've talked about a lot in past columns).

Now let's shift to another favorite of mine: Hercules, the Greek hero. In July he's directly overhead, at the zenith of the sky. He's kneeling and shooting an arrow from a bow, but that's pretty hard to figure out. So suffice it to look for a thick hour-glass shape. This is my version of Hercules, not what's in the science books: two trapezoids each sharing the small side. The larger trapezoid is below his waist; the smaller one, above, forms his shoulders. Hercules is upside down, his head toward the north. Directly above him is Draco, the dragon that he's fighting. Above the trapezoid forming his shoulders are stars you can make out as arms and a club, which he's using on Draco. Remember Hercules is upside-down; to see him upright, sit or lie facing south, lean back, and he'll be over your head. Now find Draco: he will be even further back, to the north. Find the four stars close by and just to the north. They form Draco's head. Now continue in the same direction, following the stars coming off Draco's head: he's a really long constellation! He goes further north-east, then turns back and heads around between both dippers! If you follow the line of stars, you can smooth them out into a snaky form going all that distance.

To Hercules' left is the bright Vega in Lyra (part of the summer triangle). Now go a little farther to the right to find Arcturus, whom you may know from my old saying, "Follow the arc (of the big dipper handle) to Arcturus." Arcturus is the prominent star in Bootes, the herdsman. I see Bootes as a large kite-like figure with Arcturus at the bottom (where you'd tie the kite string). Instead of a kite string, there are two "feet" — groups of stars to each side of Arcturus. He's a little bit diagonal to Hercules, and between

them is another of my favorites: Corona Borealis, the northern crown. It's a quite clear, if a bit dim, backwards "C".

So those four make another nice set to learn together: to the left Vega (in the summer triangle you already know), then Hercules, next Corona, and finally



Bootes. They are all lined up in a row, bracketed by the two bright stars Vega and Arcturus. Cool, heh? They'll be working their way west and a little north in the sky all during this quarter. In August, Bootes and Arcturus will be setting while standing upright on the horizon. And at that point the summer triangle will be right overhead.

THE PLANETS

Venus is definitely the dominant Planet of the quarter because of her brightness and her place in the sunset and twilight. On July 1 (and other nights around that date), Venus is on the right end of an amazing straight line consisting of three planets and one star. Going left from Venus is Regulus, then Mars, and finally Saturn. On July 9 she is right above Regulus in Leo, showing how bright the planets are compared to even the brightest stars like Regulus. They are separated by only about 1° on July 10 and 11, so here's another chance to measure that distance between them (holding a finger at arm's length) and confirm what a degree really looks like.

In early August appears the trio of Venus-Mars-Saturn. They play around all month; I'll describe some of their dance here. By August 31, Venus is just 1° below the star Spica, with Mars to her upper right; together they make a little triangle. Saturn is away in the lower right at dusk (half an hour after sunset). In September Venus is spectacularly bright but also low in the dusk, setting less than an hour after the sun. But wait, there's more! On September 1 there is a line consisting of Venus, Spica (1° to the right), and Mars (3.3° to the right). Saturn is again off to the right below. Then on the September 10 and 11, as noted below, they perform

another show with the crescent moon. What a planet-and-star-and-moon dance! Each night you'll see the changes, until September's end finds Venus disappearing into the sunset.

Mars has had its highlights described above and below, but something else to notice is the dim orange quality of Mars compared to bright cool Saturn, incredibly bright Venus, and Regulus—the bright star of the group who sparkles and blinks with distance. All throughout August and September, Mars hangs with Venus but is slowly fading, so as time goes on you will need binoculars until you finally lose sight of them when they all drop into the sunlight. The star Spica (of Virgo) appears to slide through this planetary dance during these two months as well. She comes in from the left, then moves through the sky and out the right side.

Jupiter rises in July in the middle of the night and is high, bright and southeast by dawn. In August Jupiter rises shortly after sunset and in September he is shining high in the southeast by 11 pm, below the great square that is Pegasus.

Saturn closes in on Mars in the sunset and western twilight of July. In August, Saturn also shadows Venus, getting low and hard to see by month's end. By September Saturn is lost in the sunset light.

Mercury spends July deep in the glow of sunset, but with binoculars you might find him late in the month with Regulus, who will sparkle 1/2° above Mercury low in the west during twilight. In September Mercury slips into the dawn, so look low; the brighter Regulus glows above it. If you're an early-morning person this is a good chance to see the mercurial Mercury.

OF SPECIAL NOTE

The July moon is full on the 25 (or the morning of the 26); it's called the Hay Moon or Thunder Moon. In August the full moon is known as the Grain Moon or Green Corn Moon, and it's on the 24. September's full moon occurs on the 23, and is the Harvest Moon this year. The Harvest Moon is defined as the moon closest to the Equinox, and this year it's only six hours off hitting it exactly! September 10 and 11 bring a special crescent moon right near Venus in the sunset. On the 10th it's below and to the right; on the 11 it's above and to the left. Above Venus is Spica and still further up is Mars; that's Saturn way off to the right. They are all bathing in the dusk light together a half-hour after sunset; for this sweet show, look west-southwest.

The autumn equinox is on



Greeley Wells

September 23 and is the moment when the sun shifts from the north into the southern section of the ecliptic, that invisible road the planets, sun and moon drive on through in our sky.

August has the only Friday the 13th of 2010!

A photograph of nothing turned out to change the universe as we knew it. The folks in control of our Hubble Telescope in space were asked to find a blank piece of space with nothing in it and take the best photograph they could. When the photograph was finally taken it turned out to be the picture we all know, containing all those galaxies, hundreds of them. All this from a tiny deserted part of the sky! It changed the whole conception of our universe.

OK, a little more down-to-earth: the best meteors of the year—the Perseid Meteor Shower!—have no moon to spoil them. Every year like clockwork on the night of August 12, we get our best- predictable show. Perseus is near Cassiopeia; these are both circumpolar constellations, so the radiant of the shower is there, i.e. the shooting stars seem to radiate from that spot in the sky east of the north star. The best viewing is early morning on the August 13, near dawn with a deck chair and blanket. But any time all night (and actually over a few days) there will be more meteors than usual. If the shooting star radiates from some other part of the sky it's just a normal background falling star and not a Perseid. Shooting or falling stars or meteors are all names given to the same beautiful phenomena. Whatever the name, it's always a special moment for me, a rareness I sometimes feel only I may have witnessed.

While out watching for the Perseids you might try to see the zodiacal light about one to two hours before sunrise. Often mistaken for the glow of dawn, it is actually a "false dawn"—similar in appearance, but different in its timing. The other difference is that the zodiacal light is triangular, stretching up from the horizon line. It's in the ecliptic where the sun is, below the horizon, and has a whitish, rather than warmish, quality. What is it? It's the glowing of tiny dust way up high in the sky where the sun can still strike it. It's a very rare and subtle spring effect—good luck trying for it!

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