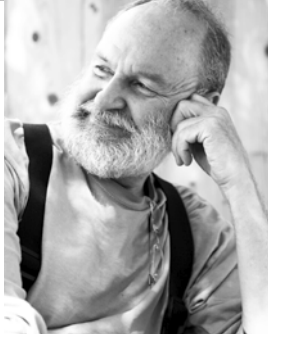


## THE STARRY SIDE

# Dark matters

BY GREELEY WELLS



Greeley Wells

The pure white of the Milky Way is so beautiful. All summer and into fall the Milky Way swept across our sky from north to south. Now, in winter, it swings nightly toward a more east-west orientation. Next spring it will leave the visible sky completely. It will be all around our horizons, but just out of sight.

At the north end of the Milky Way is Cassiopeia, who seems to be the queen and source of the Milky Way. In fall it flowed out of her due south. Now it flows out of her farther to the west, and in late winter it will flow east-west.

Notice that this expanse of gorgeous white has distinct dark “holes” in it. It turns out that these are not holes or spaces with no stars, but a massive amount

of dust: star dust. This darkness is called the Great Rift or the Dark Rift, and it’s made completely of interstellar dust that comes from areas in our galaxy where new stars are created. This rift starts just above the southern constellation Sagittarius (which the English call the Teapot), near the very center of our galaxy. The rift flows north to the constellation Cygnus, the swan, in the shape of a cross (the Northern Cross). That’s where the rift stops.

We’ve discovered another dark mystery, too, but it’s not matter as we know it. Estimates of the weight and density of the universe tell us that it isn’t interstellar dust, but we don’t know what it is. Since we can see only 15 percent of what’s out

there, 85 percent of the universe is made up of something we can’t even detect!

After scratching their heads about this mystery, scientists decided there must be something huge out there and decided to name it “Dark Matter.” This is a fascinating mystery still to be unraveled. Imagine huge black clouds of sweeping shapes and sizes making up the majority of our universe that we cannot detect in any way we’ve tried!

There’s something else that we have never seen and can only theorize about, another anomaly we think is in our universe: black holes! We don’t know much about this essence of darkness, either, only that black holes are out there.

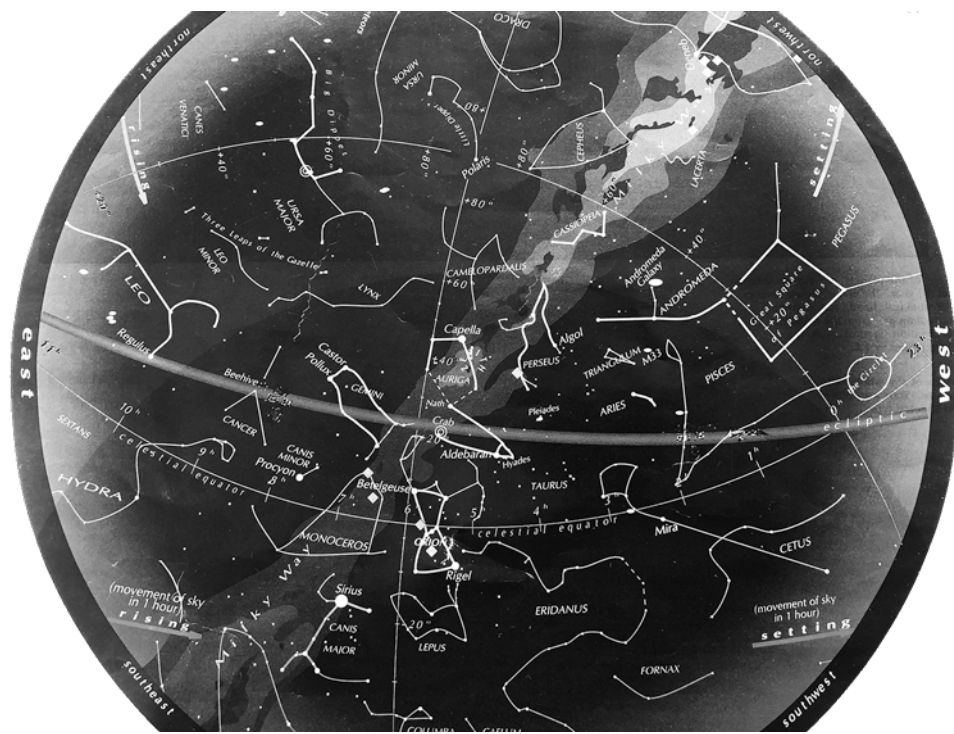
These are three dark mysteries beyond our reach, but we are pretty much

convinced that they are all out there somewhere, somehow! Go figure. We started out describing white and now have turned dark three times over!

The brightest star in the sky, Sirius, the dog star, rises in the east-southeast, faithfully following the hunter Orion. Orion’s belt points back (left) to Sirius and forward (right) to Taurus—that distinctive “V” with its one bright star, Aldebaran—and even farther on a fairly straight line to the Pleiades, which looks like a very small dipper. They all line up to help show each other off!

Happy dark, clear nights with friends.  
Greeley Wells  
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Photo: Guy Ottewell’s *Astronomical Calendar*.



### Of Note

**Venus** will be with us after sunset until June. In December she sets at 7:03 pm. On January 6 Venus is in her highest position and away from the sunset. In February she’ll be up much longer, till about 9 pm, with good evening visibility after sunset.

**Mercury** is hardly visible at all, and Mars is not with us at night this season.

**Jupiter** sets at 5:17 pm with a very brief sighting at sunset in December. In the January dawn, he rises at 5:48 am. He’s visible for an hour before dawn in the February morning sky.

**Saturn** can be seen dimly in the dawn before sunrise in February.

### Meteor showers

- The Geminids peak the night of December 13. Look for the radiant (the point from which meteors originate) in Gemini. There is a just-past-full moon, so viewing conditions are slightly downgraded from perfect.
- The Quadrantid meteor shower reaches its peak late night January 3 until dawn January 4. Look for up to 120 meteors for a few unpredictable hours. And no moon to spoil it either!

*Remember warm clothing, blankets, and comfy chairs!*

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