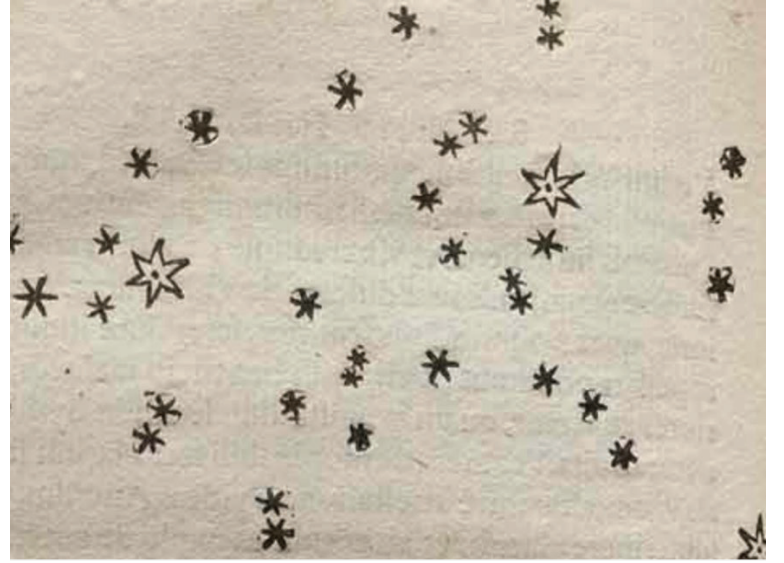


WHAT'S UP?

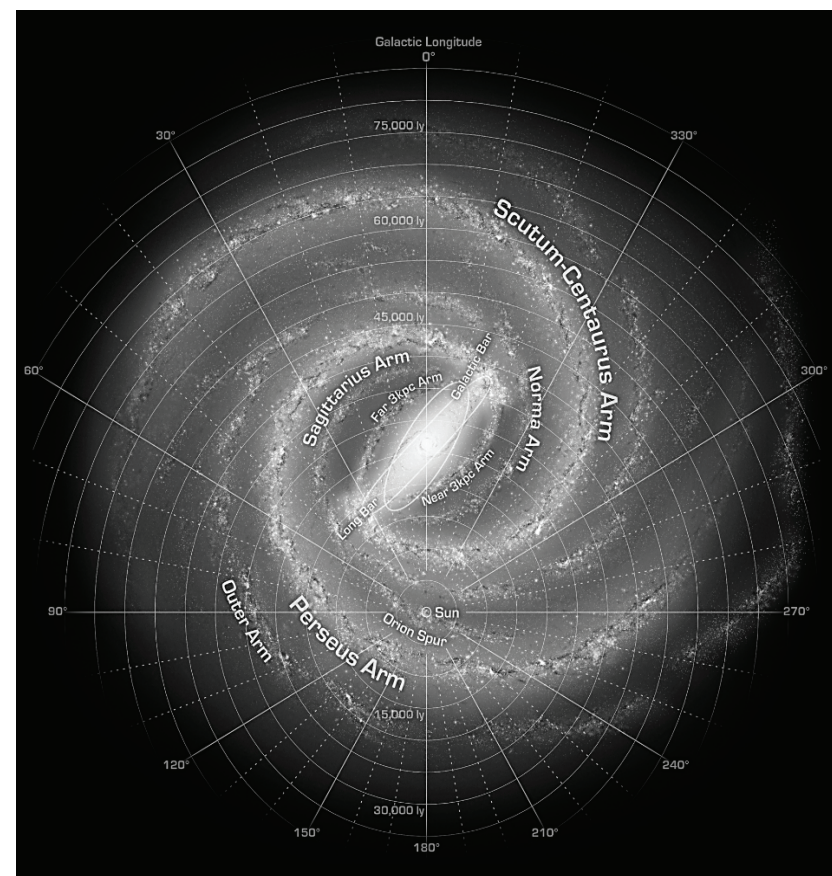
The Summer Solstice has occurred (on June 21st) and – yay! – the nights are getting shorter now! But it still isn't dark enough for me until at least 9:30 p.m. When it is good and dark on these summer nights, take a look overhead and find that dim fuzzy band of light stretching from the northern horizon to the southern horizon. That is our view of the disk of our home galaxy, the Milky Way – *Via Lactea*, in Latin – literally, the “milky way”. Until the 17th century, when Galileo turned his telescope towards the Milky Way, we couldn't appreciate it for what it is. In Galileo's 1620 publication, *The Starry Messenger*, Galileo included his drawing of what he saw – distinctly separate stars. Not just a milky band. This was mind-blowing at the time. Our galaxy, if seen from far, far away would look like a flat(-ish) spiral disk with a bump at the center of it. We are located within this disk about one-third of the way out from the center. Think of being inside of a pancake that has a big lump of butter on it (and under it). If we were to look around us, we would be looking into the thickness of the cake. We'd see a band of cooked dough. That's what we are seeing when we see the band of the Milky Way stretching across the sky. We are seeing all of the stars that make up the disk. When we look to the south, in the constellation *Sagittarius*, the band of the Milky Way bulges a bit. This is the center of our galaxy (the lump of butter). When we look above and below the band, we are looking out of the plane of the galaxy's disk. What we see there are some



Galileo's sketch of part of the Milky Way

scattered stars, clusters of stars, and things called nebulae. Except for five fuzzy patches of light (and just three of these can be seen from where we live), *everything* that we see in our night sky is part of our Milky Way galaxy. Using Earth-based and orbiting telescopes and some distance-measuring techniques, we can map our galaxy even though we are stuck inside our little section of it.

Planet Roundup: Venus is still with us in these early summer nights, but has passed its greatest eastern elongation and is slowly getting lower in our skies. When it's finally (sorta) dark now, at 9:30 p.m., Venus is still a good 11 degrees above the western horizon and shining at -3.7 magnitude. Four degrees above and to the left of Venus is Mars. The Red Planet has now left *Cancer, the Crab*, and is now among the stars of the constellation *Leo, the Lion*. Like Venus, being low on the horizon, we are viewing the planet through a much thicker layer of air than when it is overhead. The result is that Mars, much dimmer than Venus to begin with, appears only as a magnitude 3 sight. That is 6.7 magnitudes – or more than 250 times dimmer than Venus. That's still easily visible to use with our unaided eyes though. Saturn rises now a bit before midnight. Even though the planet's famous rings are only tilted 10 degrees to our view, it is still an awesome sight in even a small telescope. Neptune follows about an hour later



Artist's drawing of the Milky Way¹

and Jupiter about an hour after that. Rising around 3:00 a.m., Uranus is now far enough from the Sun in our sky to be seen with binoculars. Mercury is too close to the Sun for us to see right now. The next Full Moon is on July 3rd, the 3Q will be on the 9th, the New Moon occurs on the 17th and the next 1Q Moon is on the 25th.

You can reach me at astroblog@comcast.net with any questions and comments. This is *What's Up?* installment #72.

Barry

¹ NASA/JPL-Caltech/ESO/R. Hurt