

What's Up?

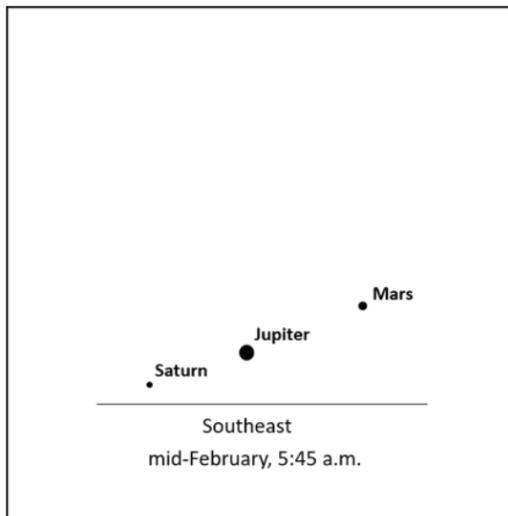
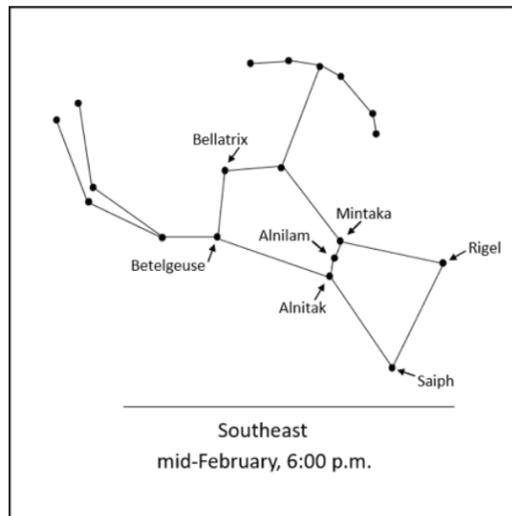


BY BARRY DECRISTOFANO

Hello!

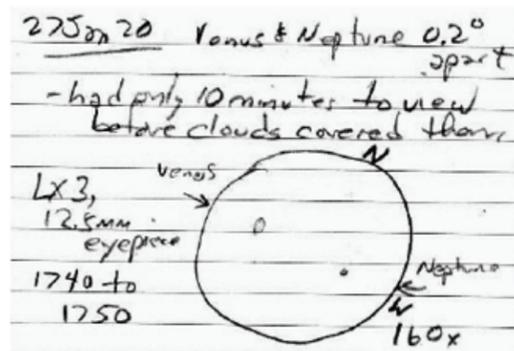
At sunset these days Venus and Neptune are now 20 degrees apart. That's about the width of two fists held out at arm's length (see What's Up? #4 for how to measure the sky). These two planets are joined now by the planet Mercury. Mercury is the closest planet to the Sun and is a fast mover that is rarely more than about 10 degrees above the horizon at dusk. While these planets and the constellations they appear in (Aquarius and Pisces) sink into the West, in the East we can see the hunter Orion coming into our sky. Orion may be best known for his belt of stars that mark his waist in drawings of him. The stars' names are Alnitak, Alnilam, and Mintaka. Orion has four bright stars that mark his shoulders (Betelgeuse and Bellatrix), right knee (Saiph), and left foot (Rigel). One of these, Betelgeuse, has dimmed by one magnitude since October. That means it's less than half as bright as it was last summer. What's going on? At this point astronomers (the professional ones) aren't sure. There are a few possibilities and time will tell which is most likely. Below Orion's belt is a string of stars that mark his sword. Surrounding the middle star of the sword is a faint hazy patch. It is the Orion Nebula, a cloud of gas from which new stars are being born. The light of stars that have already been formed from the cloud is what gives it its glow.

For you early risers, the 3rd quarter Moon is in the Southeast, Mars is still slowly making its way up into the sky and – bonus – Jupiter and Saturn are just starting to peek over the Southeastern horizon. At the end of the month around 5:30 in the morning – just as the sky is beginning to glow from the rising Sun, these three planets will be a string of pearls low in the sky.



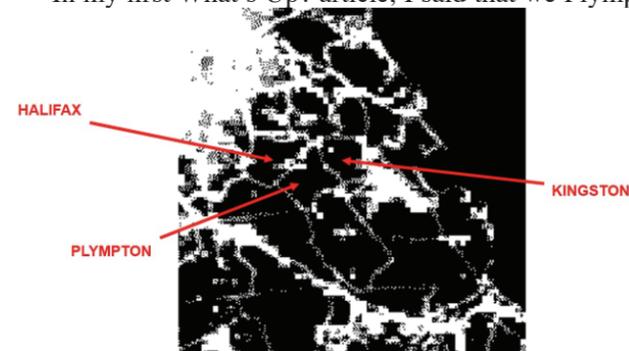
Last time, in What's Up? #12, I wrote about the conjunction of Venus and Neptune. Well, it happened and I was able to view it. In the evening sky on January 27th, the two planets were within a 1/4 of a degree of each other. To my surprise and delight, Venus did not wash out the much fainter Neptune (Venus was about 63,000 times brighter than Neptune). Using an 8-inch telescope at 160 magnification, I could see both planets at the same time in the eyepiece! Towards one side of the eyepiece was Venus, bright white and looking like a ting gibbous Moon. Towards the other side was the smaller and fainter, blue circle of Neptune. Below is the sketch of my view, which I drew in my observing logbook. Did anyone else observe the conjunction of Venus and Neptune? If you did, please email me. I'd love hear about it.

Three days later, I and about two dozen others, viewed both Venus and Neptune at the Plympton Public Li-



brary. While the planets were not close enough to see in the same eyepiece field, another member of the South Shore Astronomical Society brought a telescope too, so that each scope was pointed at one of the two planets. After viewing Venus, Neptune, and then the Moon, we went indoors for the first of three astronomy evenings that the Plympton Library is hosting. In these sessions, Carolyn and I will be talking about and doing activities related to a range of astronomical topics, all geared towards helping attendees become familiar with the night skies. The next two will be on the last Tuesdays of February (the 27th) and March (the 26th). To find out more, you can call the library at 781-585-4551 and check the library's website (sails.ent.sirsi.net/client/en_US/plympton/) when the dates get closer.

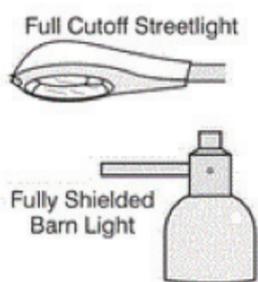
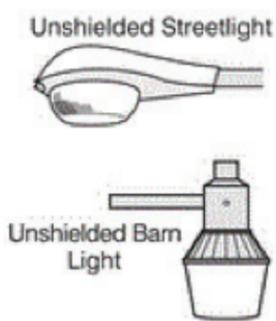
In my first What's Up? article, I said that we Plymptonians, Halifaxians, and Kingstonians have a great resource in our dark night sky. I meant just that. One definition of the word resource is "a natural feature or phenomenon that enhances the quality of human life." We are fortunate to live in a patch of darkness in Southeastern Massachusetts. The bright areas in this picture are the lights of Southeastern Massachusetts as seen from low Earth orbit.



Maintaining our dark skies takes all of us to do just a little. Light in our night skies affects both animals (migration patterns) and plants (trees may bud earlier, before the danger of frost is past). And as to us humans, besides disconnecting us from nature, unneeded lighting costs us money when we pay our electric bills. As to safety, well-designed lighting (putting the light where it is most needed) provides a safer space than just "more" lighting will do. General guidelines for outdoor lighting are that it only be on when needed, only light the area that needs it, be no brighter than necessary, minimize blue light emissions (a component of white LED light that is more disruptive to our sleep cycles, which in turns causes other health-related problems), and be fully shielded (pointing downward).

For instance, instead of these:

We can use these:



In Plympton, we have a section of our by-laws that specifies how municipal and commercial lighting must be done. Our by-law does not apply to residential property, but each of us, if we are thoughtful about it, can contribute to keeping our piece of our dark oasis dark for years to come. I invite you to visit the website of the International Dark Sky Association (www.darksky.org) and read some of their information. In particular, they have sketches of fixtures that meet the fully-shielded criterion (www.darksky.org/our-work/lighting/lighting-for-citizens/lighting-basics/) and information on where retail fixtures can be purchased (www.darksky.org/our-work/lighting/lighting-for-industry/fsa/retailers/). I'm not suggesting that we should all run out now and replace all of our lighting, but if we are all more aware of what we can do, then as the time does come to replace a bulb or a fixture, we can do so with our night skies in mind. Over time, it will and does make a difference. The city of Tucson, Arizona has reduced skyglow (that overall brightness in the sky that we see along our horizons) by 7% over just a three-year period. State-wide, there is a bill in our legislature (H.2941 An Act Improving Outdoor Lighting and Increasing Dark-sky Visibility, malegislature.gov/Bills/188/House/H2941) that has languished in commit-

tees since 2013. It would be a huge step forward if this bill were to be passed. You can reach me with your questions/comments/suggestions at astroblog@comcast.net. This is What's Up? Installment #13.

Keep looking up!

Barry