1. Do you have a star group or groups that you enjoy that is not one of the "official" constellations? If so, sketch them on the observing form (remember to complete all required data), and answer these questions:

   Yes. I remember a saying that you start with the 3 handle stars of the Big Dipper, you arc to Arcturus, speed onto Spica and curve to Corvus.

   a. Do you associate the star group with any date or season, or memory of its "discovery" by you?

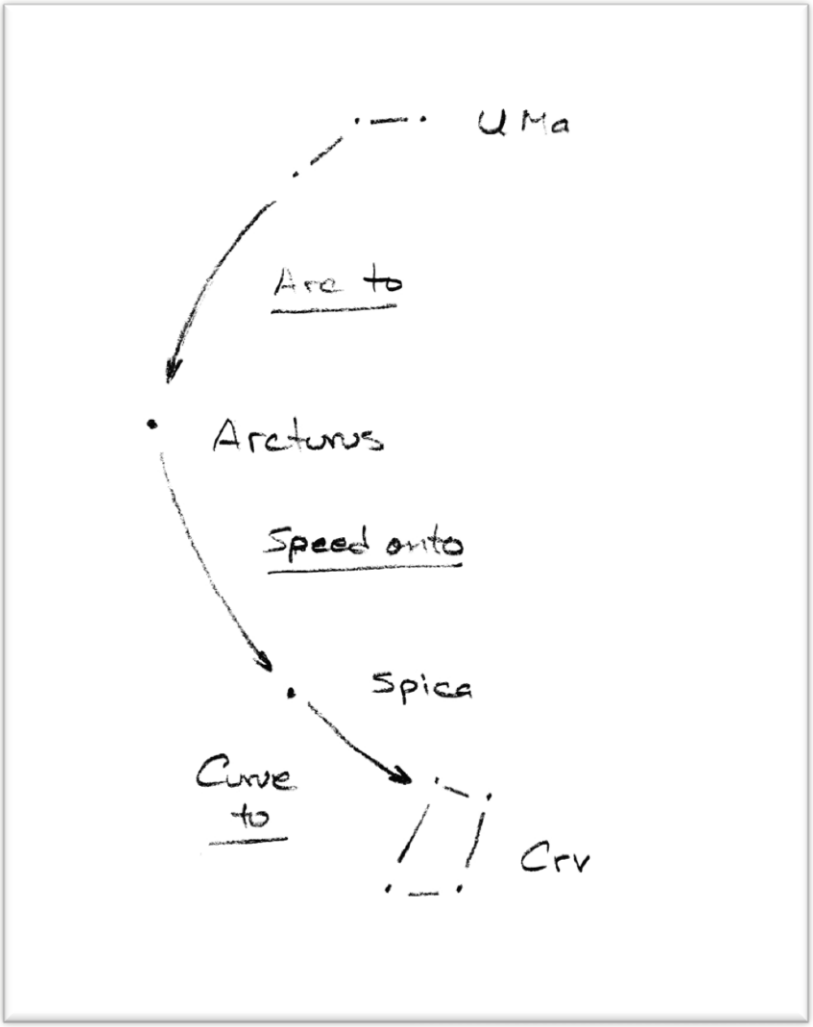
      I associate this with spring and springtime galaxies. I cannot remember where I first learned on this. It might have been in Boy Scouts in the 1960s. Or I might have picked it up early on in my astronomy hobby. Regardless, in the spring, I always look up and remember this saying and trace the path through the sky.

   b. What does the figure look like (e.g. horse, king, spoon, etc.)?

      It is a big arc through the sky starting at the handle of the Bid Dipper and ending in the constellation Corvus, the Crow.

   c. Do you have a story or anecdote you would like to share about this star group?

      Nothing more than I have already said above.



2. Sketch the following on the provided log sheet (none of the usual data is required, other than your name):
    a. The Sun is an average star, so it is not seen as spectacularly bright from other star systems as in our sky. But, assuming you could see it, and you were on a planet at the following stars, where would the Sun appear in your sky, and how would the official constellation it is "in" change from what we see here? For simplicity, assume all the other stars stay in the same relative place.

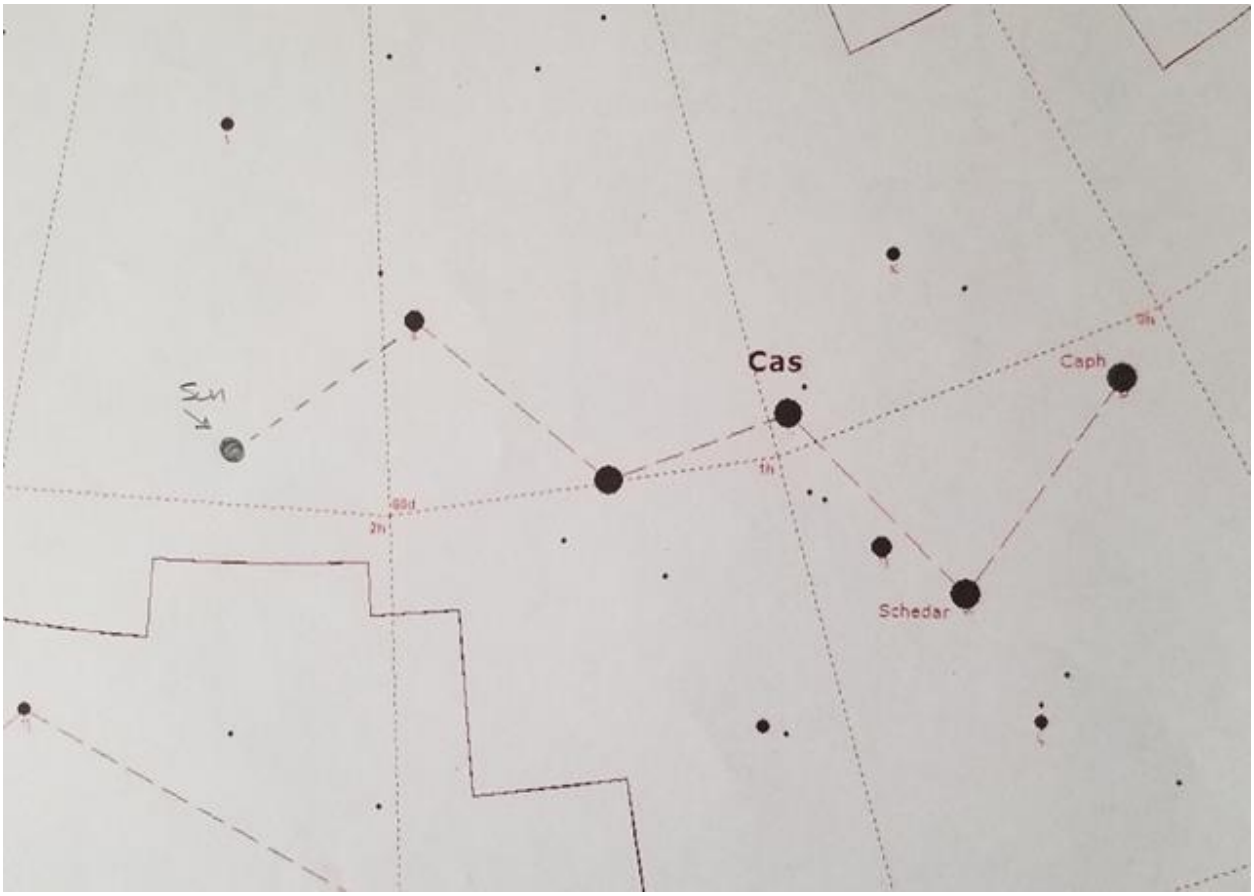
I used a Goggle online translator to translate the light years to parsecs.

I used https://www.omnicalculator.com/physics/lumininosity to put the specifics of our Sun in and calculate the absolute magnitude the Sun would appear at the distances of Deneb and Betelgeuse.

All the calculations are in the following 3 sections.

i. Alpha Centauri

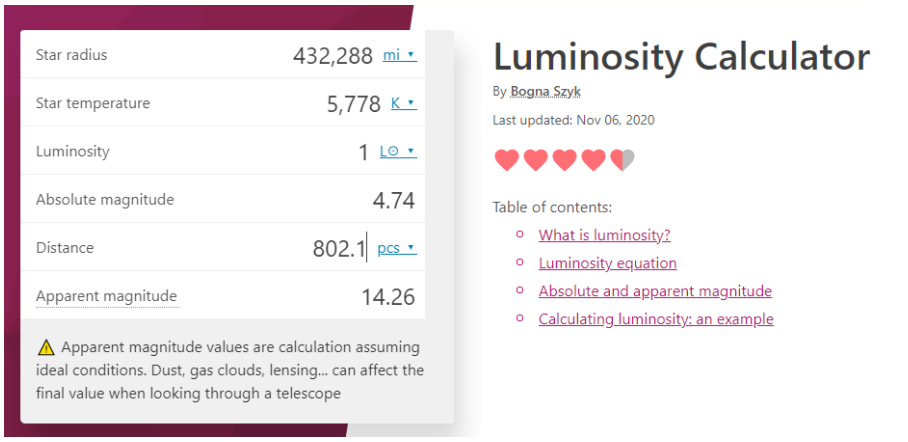
1. Alpha Centauri coordinates: 14h 39m 36.5s -60^{o} 50’ 02” of Mag +0.2 with spectral classification of G2V
2. Anti-coordinates: 2h 21m 23.5 s +60^{o} 50’ 02”
3. The Sun would be in Casseopia would have an identical magnitude of +0.2 because both stars are the identical spectral classification.

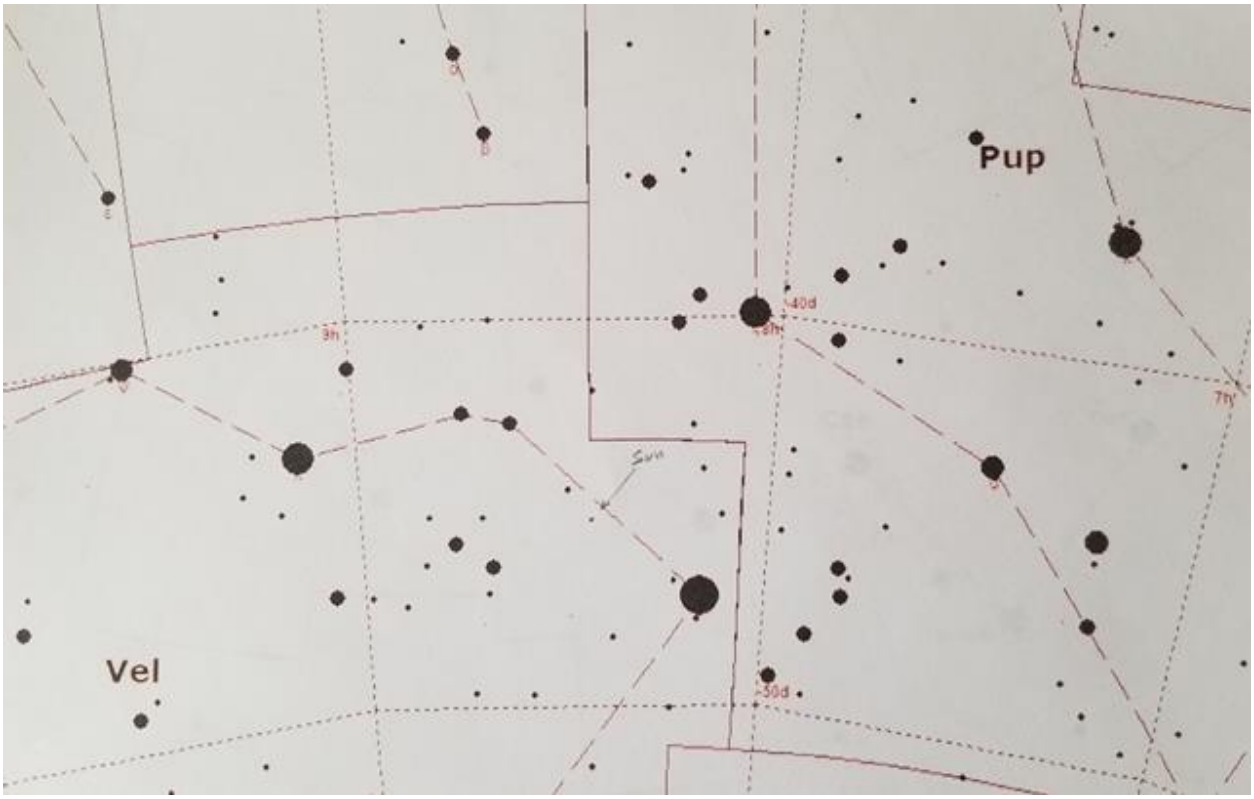


Arrow marks the new star, our Sun.

ii. Deneb

1. Deneb coordinates: 20h 41m 26s +45^{o} 16’ 49” of Mag +1.2 with spectral classification of A2
2. Anti-coordinates: 8h 19m 34s -45^{o} 16’ 49”
3. The Sun would be in Vela would have a magnitude of +14.26

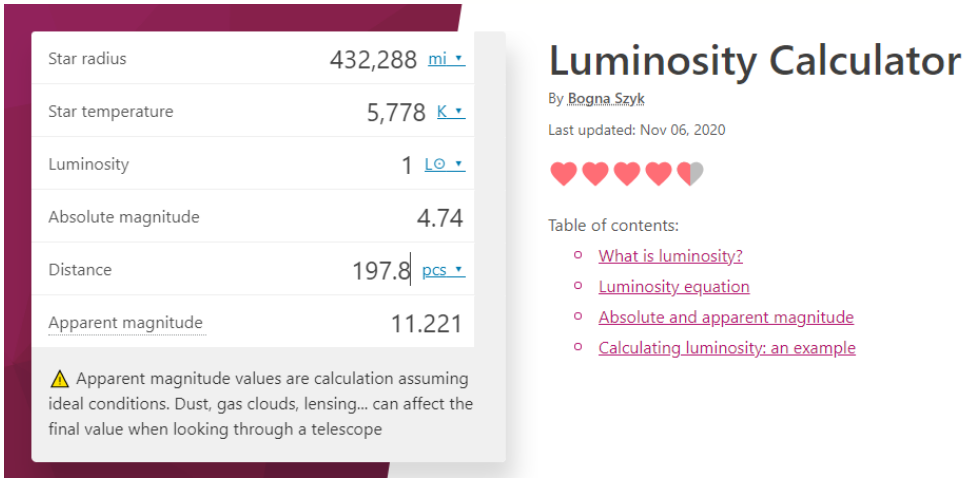


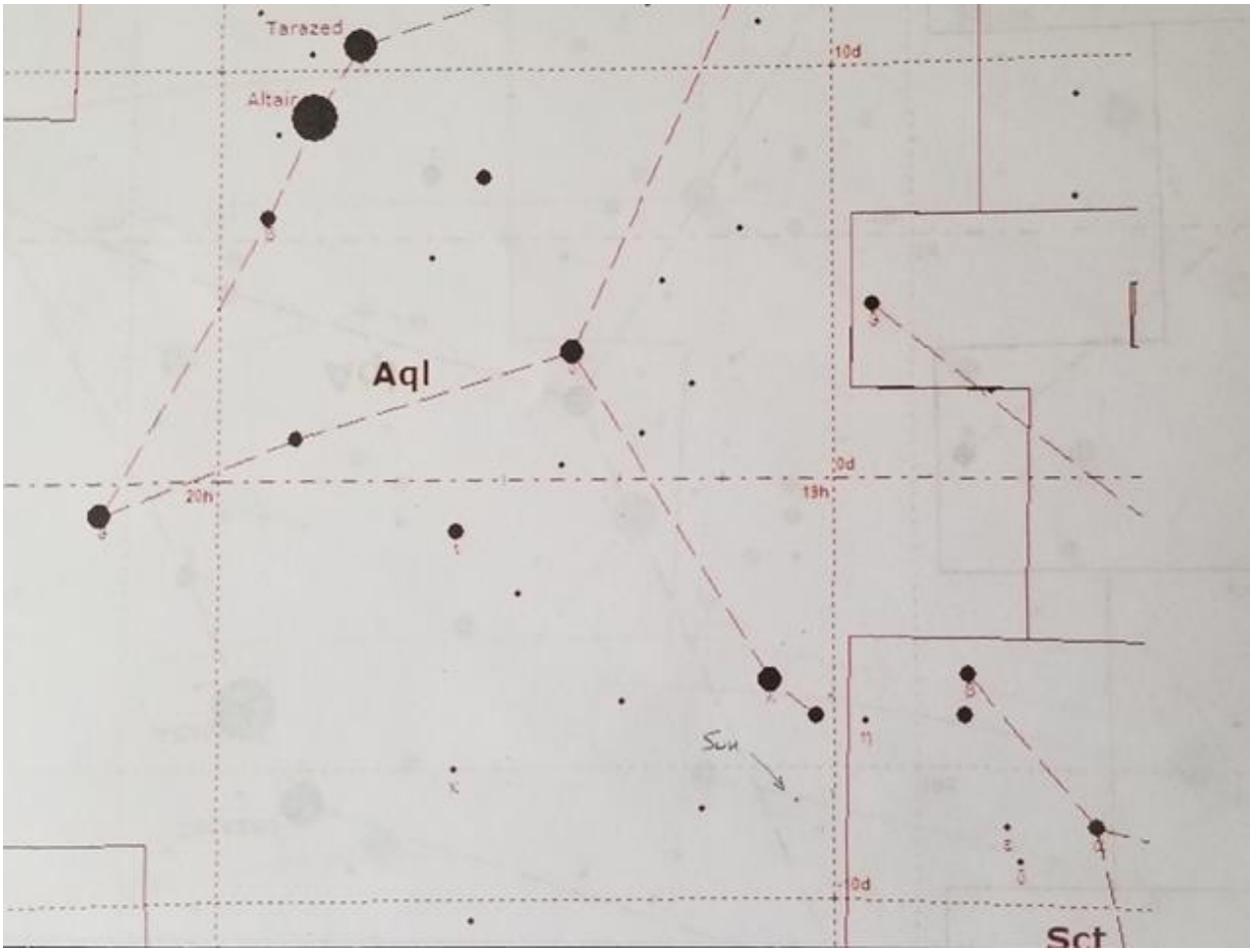


Arrow marks the new star, our Sun. Definitely a telescopic object.

iii. Betelguese

1. Betelguese coordinates: 5h 55m 10s +7° 24’ 25” of Mag +0.5 with spectral classification of M1
2. Anti-coordinates: 19h 5m 50s -07° 24’ 55”
3. The Sun would be in Aquila would have a magnitude of +11.22





Arrow marks the new star, our Sun. Maybe a binocular object. Definitely a telescopic object.

b. 12,000 years ago, at the dawn of agriculture, the precession of the equinoxes not only gave us a different celestial pole star (Vega (38.5 deg N declination)) but caused some of the constellations we see easily now to be invisible from around 40 deg N latitude (90 deg N declination). For simplicity, ignore any changes that may have occurred over the centuries due to star proper motion.

I made a celestial sphere with Vega as the NCP as it would appear in today's sky.

The blue tape at top is RA around the sphere. The blue tape at right is negative declination. Alpha Arae is just on the horizon. Beta Arae is just below. AC is Alpha Centauri and Ant is Antares.

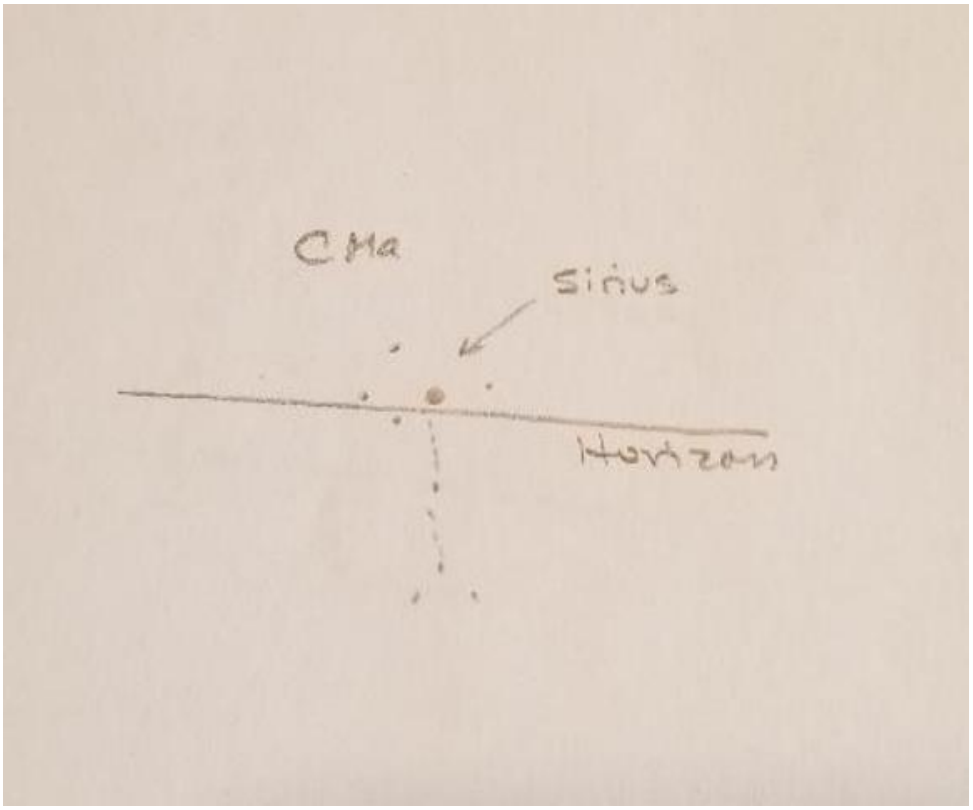
Blue tape from top to bottom is RA. Blue tape to right is positive Dec and blue tape to left is negative Dec. The middle great circle through the diameter of the sphere is the horizon.

Another view of sphere. The V is Vega.

Another view of sphere. The V is Vega. The air fill hole is Polaris.

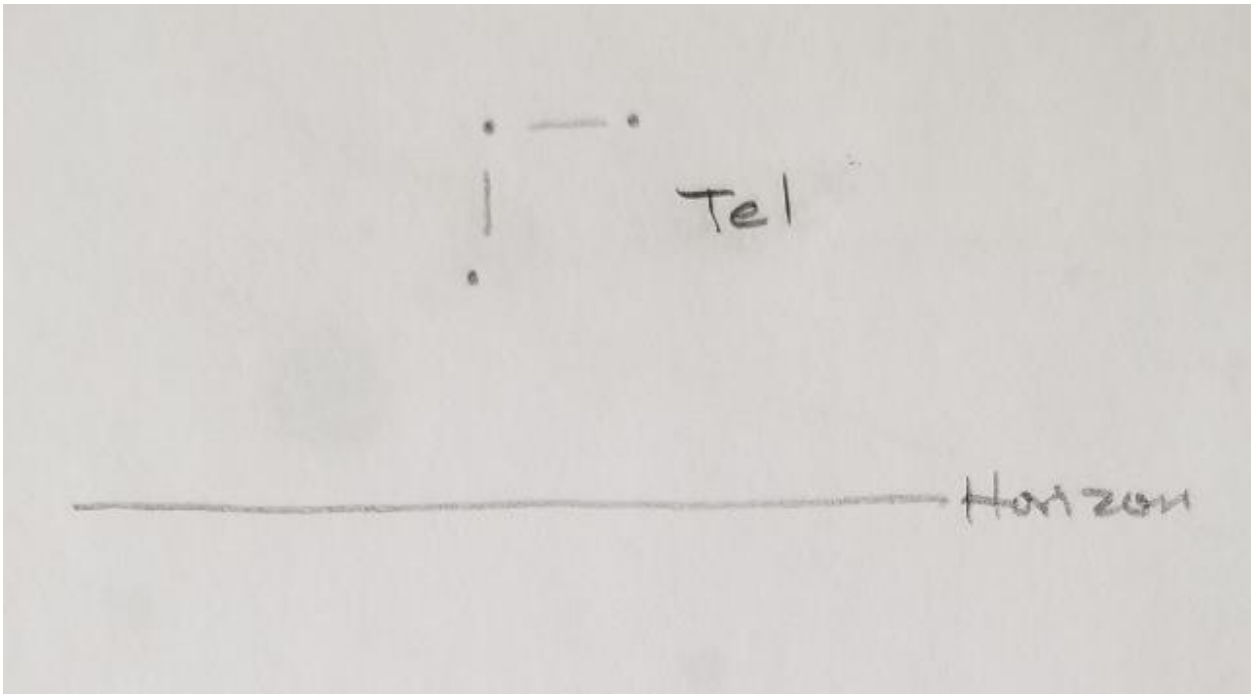
i. Name 2 official or alternate constellations we see now that were probably hard to see then, and sketch the southern horizon at their highest point, including both groups in the sketch

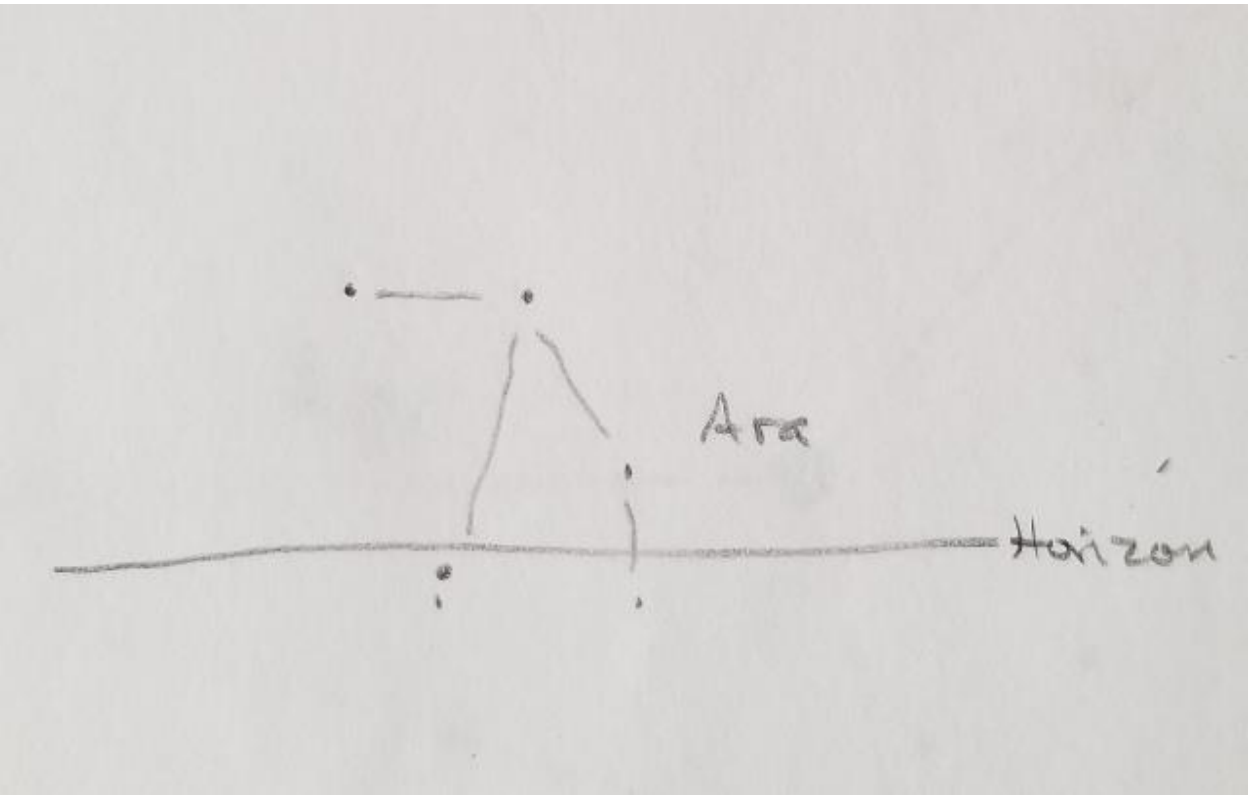
The constellations of Orion and Canis Major are very near the southern horizon now.


CMa
Sirius
Horizon

ii. Name 2 official or alternate constellations we have difficulty seeing now that would have been easy then, and repeat the sketching exercise for those 2 groups.

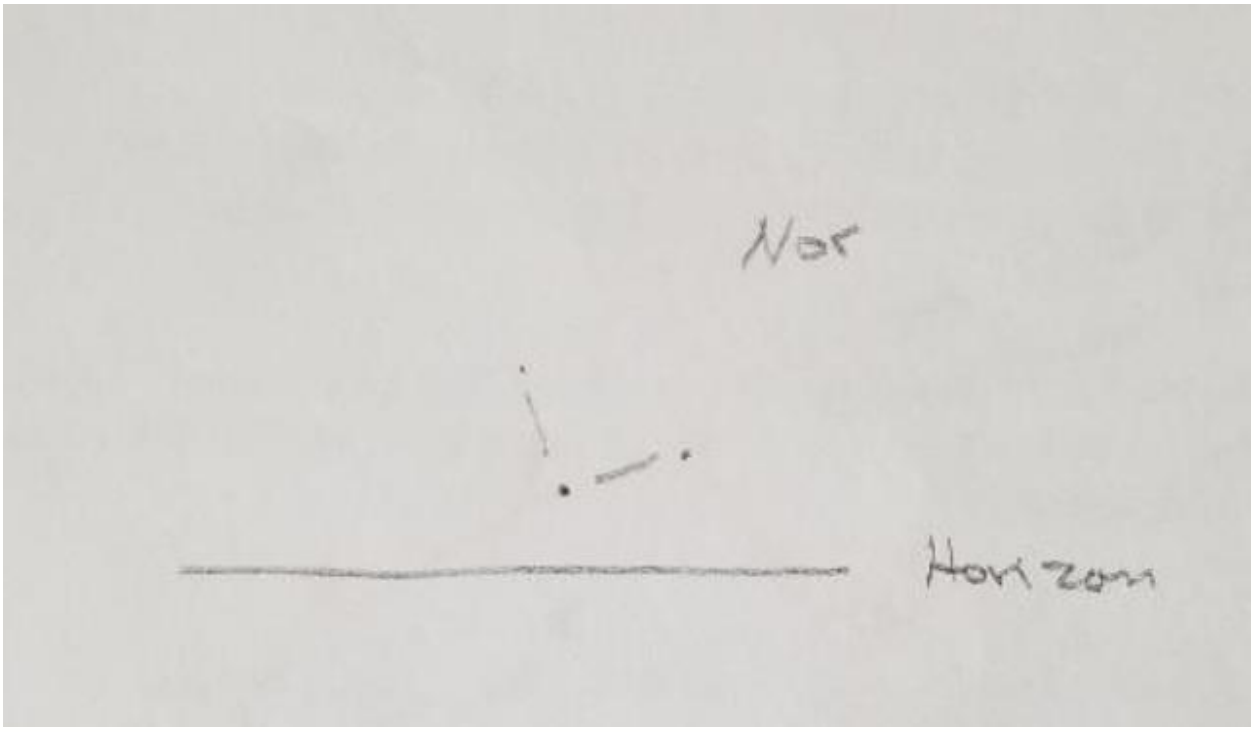
Telescopium would be higher in the sky and Arae would be on the southern horizon.





iii. Given this, are there any alternate, official or non-European groups that make more sense if we consider that they may have been "discovered" long ago? If so, name it and indicate (with a separate sketch) how it looked at its highest point 12,000 years ago.

Yes. The major stars of Norma would be completely above the horizon.


Nor
Horizon