Night school

One of the pleasures brought by winter weather, in the part of Scotland where I live, is the darkness and transparency of the night sky. At these latitudes, summer nights are useless for star-gazing because the sun is never that far over the horizon; it gets too dark to read, certainly, but not dark enough for seeing faint nebulae and galaxies against the crepuscular light that remains even at midnight. By autumn, this problem has gone but I live very close to the coast, and this means that cloudless nights usually feature mist that forms when water evaporates from a still-warm sea and condenses in the rapidly cooling night air. It's not enough of a mist to bother drivers, but is enough to blot out faint objects. By winter, though, the sea has cooled down and the sky becomes truly, sparklingly clear. The street lights of the inappropriate coastal over-development that now plagues East Lothian have, alas, reached within a few miles of me, marring the Northern horizon, but the skies of home remain dark to the South, East and West. This is a big compensation for the meteorological inconveniences that winter can otherwise bring.

Last night, I went out of the house to collect more fuel (my house is heated by an open fire), and noticed that the moonless sky above, recently covered with cloud, was now full of stars. With the fire banked up, I went back out with my ancient naval binoculars and just enjoyed looking about. I did a quick tour of my usual favourite places; the Andromeda galaxy, the Orion nebula, the Pleiades, and then just wandered semi-randomly through the constellations. When I was a kid, I used to know the sky as well as the lanes where I lived, but I know that this knowledge is getting very rusty, and part of this wandering was just re-familiarising myself with what is where.

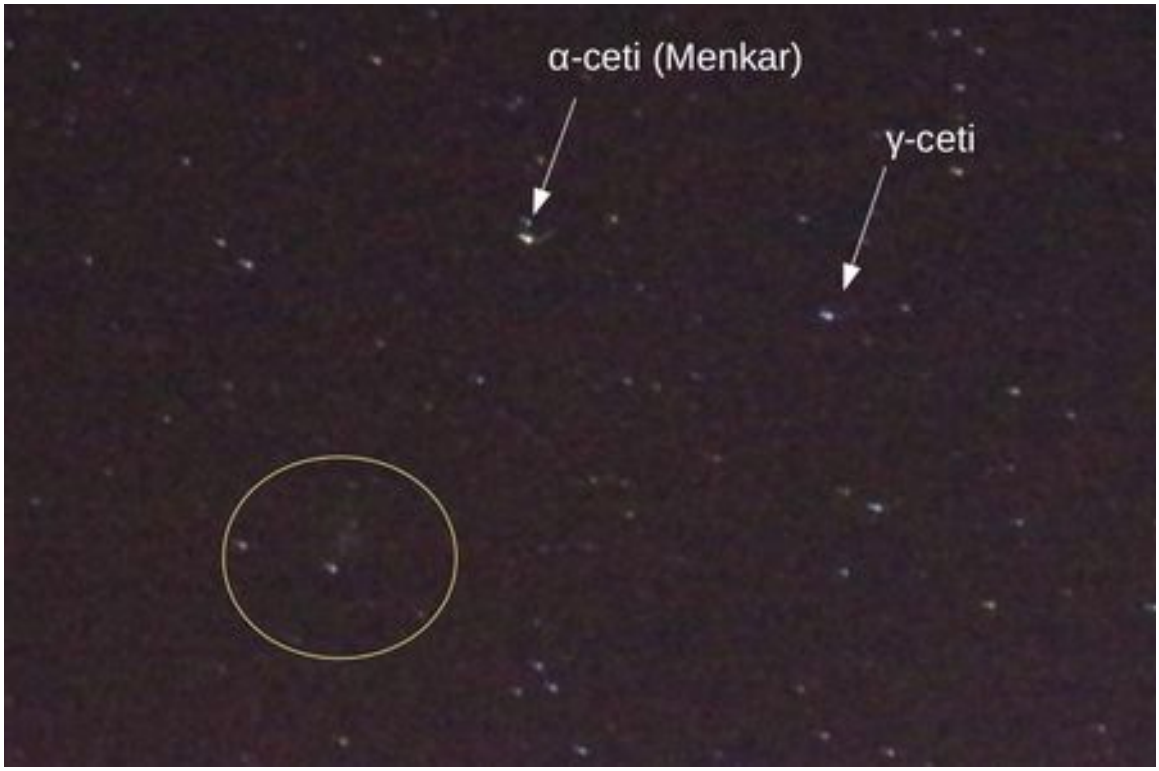
While sweeping between the loose star cluster of the Hyades, in Taurus, and that long, straggly constellation Cetus, I came across a nebula I did not remember at all. Nothing with much of a shape - just a fuzzy presence, south-south-east of alpha-Ceti. Feeling somewhat ashamed, to my younger self, that I had forgotten so much over the years, I went inside, intending to warm up and resolving to revise the night sky over the next few months so that I would not just forget things like that.

My thawing out was interrupted by a phone call from Katie, who was telling me about her choir's singing earlier in the evening, and then about standing in a park with her friends Neil and Kathryn, trying to see a comet that Neil had read about, which was to be close to Earth this month. The comet was, 46pWirtanen, but was not really showing up against the sky glow from Edinburgh

lights. Neil knew where it was meant to be, told her to look just south of Menkar to try to find it. Hearing this part of the story, something clicked in my brain: Menkar is the old name for alpha-Ceti.

“Oh!”, I said, “I think I may have seen it without realizing”.

Phone call over, I went back outside with a camera and, propping it up on a wall, took the snap below. It's by no means a great photo, being taken with a hand-held SLR camera rather than a telescope, but it is enough to show the faint blur on which I had stumbled accidentally.



Comet 46pWirtanen (ringed), 23:10 UTC on 09-12-2018.

None of this was at all important for anything, of course, but it did act as a kind of warning. When I saw this blur, I had jumped to the conclusion that it must be a well-known, permanent object that I had simply forgotten. I did not for a moment consider that it might be unusual. It was a classic example of 'seeing with the eyes but not the brain'.

When I am teaching students about the 'cell suicide' process called apoptosis, I point out that the morphological hallmarks of it are easy to see even in old-fashioned histological stains. I also tell them the story of how these signs were plain to see for thousands of people for over a century, but only when someone took the trouble to understand them (mainly in the 1980s) and make a story out

of them did people notice them in their own slides, and realize they had been seeing apoptosis in their samples all along. The problem was that everyone had been assuming the little spots of stain were just meaningless artefacts. They were not assuming this in a clear, write-it-down sort of way, but in the informal, barely realized way that goes with seeing with the eyes but not the brain. I have told this story to students so many times over the years as a cautionary tale… and here was I falling into exactly the same kind of trap.

I may have forgotten some of the map of the night sky but, more more importantly, I had forgotten the foolishness of dismissing something potentially interesting simply because I was not expecting to see anything unusual. It was a good reminder that interesting things tend to hide in plain sight, unappreciated not because human eyes do not see them, but because human brains choose not to pay them enough attention. And it was a very good reminder that telling stories about failures of people to see interesting things right under their noses is no protection, to the story-teller, from making exactly the same error. This may be early for New Year's resolutions, but I feel one coming on, at least for lab life….

It you happen to be reading this in December 2018- January 2019, you can look for the comet, which is *just about* a naked eye object at the moment but may brighten. It looks great in binoculars. It will move quickly across the sky, being in a slightly different position every night, but there are plenty of websites that show where it will be (see Links for an example).

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Links:

https://theskylive.com/46p-info