06 August 2018, FOA-60

Lyra's Messiers and Dusty Mars

Telescope: **FOA-60** (60/530mm doublet)
Eyepieces:
ATC40K - ATC Kellner, f=40mm, (13×, 3.1°)
XF12 - Pentax XF12, f=12mm (44×, 1.4°)
XO5 - Pentax XO5, f=5.1mm (104×, 25′)

Time: 2018/08/06 20:50-22:10UT
Location: Říčany
Weather: Very good transparency.
Seeing: Average, near horizon bad.
Mount: Zeiss T1
Accessories: Baader 1.25" zenith prism

This is very hot and dry summer. On Sunday, we were experiencing finally a mild temperature drop, from regular 34 °C down to 28 °C. More importantly, the temperature drop was accompanied with some rain, which cleared the dust from dry atmosphere. This resulted in a nice sky clear all the way down to horizon. I was able to see the major stars in Sagittarius. A rare sight.

I had this summer numerous short planetary sessions with my new acquisition, Takahashi fluorite doublet FOA-60Q. The version with the extender has similar specifications as my trusty Telementor. To get a taste of shorter refractor, I was observing recently without the extender. Riding on Telementor mount, it is very light and enjoyable setup.

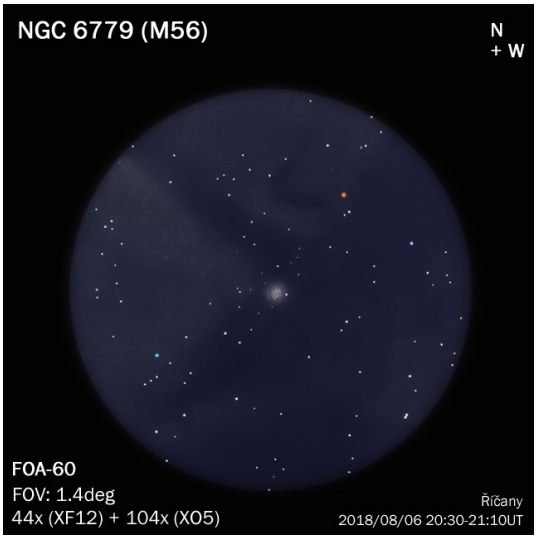
I started at twilight with double stars. First came Kuma, $\boldsymbol{\nu_{1,2}}$ **Draconis**. This pair of equal stars is hypnotizing at 13×. Its nickname, *Dragon eyes*, is indeed appropriate. Both stars were of same brightness and white color. Like twins.

Nearby Arrakis, $\boldsymbol{\mu}$ **Draconis**, was another equal pair. This one is more tight, Stelle Doppie gives current separation of about 2.6″. At 104×, I saw two almost touching equally bright discs at PA∼ 10°. They were again white, with slight indefinite color contrast. Sometimes one component seemed to be a little bit bluer than the other, in few second it was opposite.

There was nothing exceptional on **Saturn** as seeing was definitely not good. I got just a regular sight as in previous numerous sessions.

Then came Lyra. The main target of the night was globular cluster **NGC 6779 (M56)**. It is placed in wonderful star field and I can enjoy this cluster in all my telescopes, from 8 × 40 binocular up to 150mm Cassegrain. Aperture of 130mm is enough to show many individual stars scattered across the whole cluster surface.

I wanted to capture this beauty on a sketch. For this, I prepared a template with brighter stars. In the field, I added all stars I could see with a reasonable effort at 44×. In the vicinity of M56, I went a little bit deeper using 104×. In 40 minutes, I filled more than hundred stars. I noticed some colors for the three brightest ones. One star was deep orange. This was red giant of spectral type M0 III (BD+30 3491) as I found out later. The other two were bluish.



As for the M56, it was at 44× a small circular glow with a mild central concentration and with a faint halo. Higher magnification 104× showed some hard to detect mottling and few nearby faint stars. I'm not sure these were the cluster members.

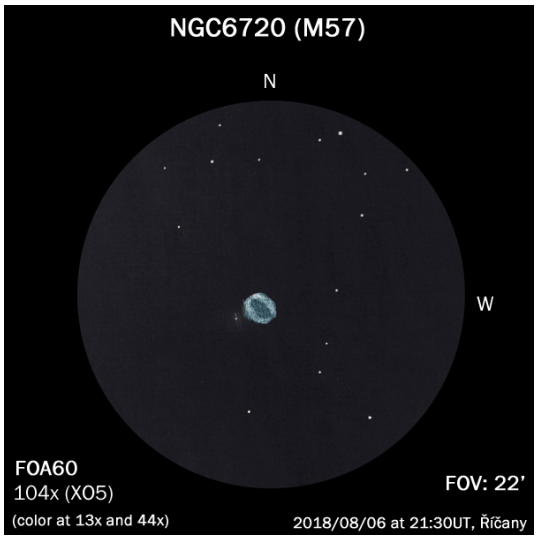
I also recorded perceived variations in sky background. These were very difficult to notice and even more difficult to put them on sketch. Don't take them too seriously. This was my best attempt.

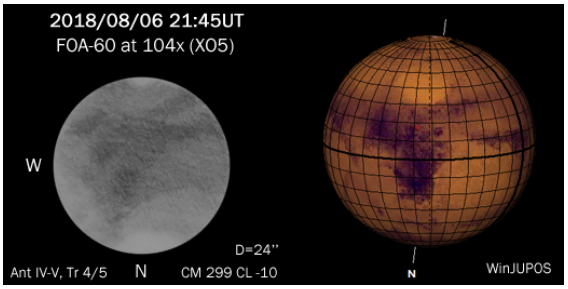
At home, I put all the stars into computer to create a template for the final sketch. I needed several attempts to obtain satisfactory capture of sky background. I also added the observed colors.

Mars was still behind trees which gave me a time to sketch the second Messier in Lyra, famous Ring nebula **NGC 6720 (M57)**. The sketch went much faster as there were not that many stars in the narrow field of view of Pentax XO5 eyepiece. I paid special attention to $V = 13.0$ star at the eastern edge of nebula. I glimpsed it only twice for very short moments, even below what I would consider normally a detection threshold. It looks like magnitude 13.0 is limit of my vision in this 60mm refractor. The star is much easier in 63mm Telementor. I saw it on many occasions and with more certainty.

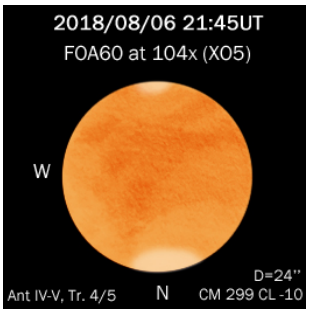
Planetary nebula was at 104× nice bright ring, more like two touching half-circles. There was definitely some nebulosity inside. The ring was showing some light blue-greenish color at 13× and 44×. I tried to put it on the final sketch.

Finally, **Mars** got above the trees. Seeing was horrible, after five minutes of sketching and observing I got for a fraction of second a very sharp image and I realized that I was starring all the time at Syrtis Major. This was confirmed immediately after the session in WinJUPOS.





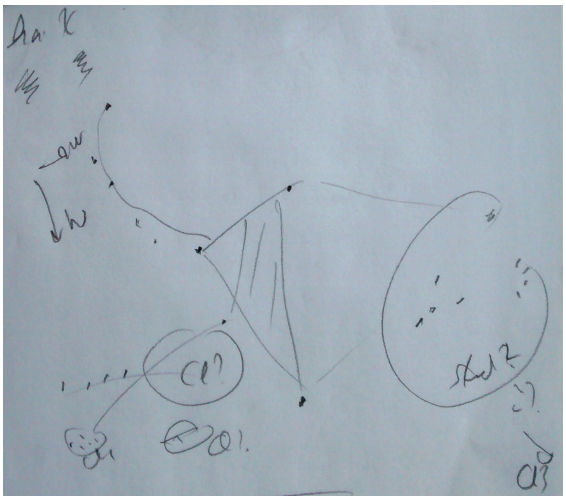
Mars could have used some rain as well definitely. The atmosphere was still quite dusty and darker albedo features were pale and hard to notice. In addition, I saw whiter caps on both poles. Here is the color version of the original pencil sketch.



The rest of the session was more relaxing. I visited quickly **NGC 224 (M31)**. Both companions, **NGC 221 (M32)** and **NGC 205 (M110)**, were visible at 13×, although I was just guessing the position of M110. Power of 44× showed this galaxy with no problem. I also had a short look at nearby galaxy **NGC 404** (Mirach ghost). It was invisible at 13×. I saw at 44× a small glow just outside the Mirach's halo.

Then I decided to pay a short visit to **h** and **χ Persei**, my first view with this scope. It was so perfect at 13×. So many tiny colorful stars!

I was scanning the sky around, trying to find out the nearby cluster **Stock 2**. I was too lazy to open Pocket Sky Atlas that I had out with me. I was surprised to see actually three cluster candidates and I made a sketch to identify them later on.



There were two large clumps of stars. One, made of numerous fainter stars, was actually Stock 2. I noticed that at the eastern edge of Stock 2 there was another, smaller grouping of stars, which was looking as a separate open cluster. I have found out from Interstellarum Deep Sky Atlas that I made an independent *discovery* of open cluster with designation **ASCC8**. It is one of 109 galactic clusters found by N. V. Kharchenko and colleagues by analyzing the ASCC-2.5 (All-Sky Compiled Catalogue of 2.5 Million Stars) data. WEBDA puts this cluster to the distance of 2200 pc, much further than 303 pc in case of Stock 2. It is also much younger, being only 6 million years old compared to 170 millions of Stock 2. So, unlike the case of h and χ Per, it is just a random pair.

The third candidate was west of real Stock 2. It was made of brighter stars and it was a little bit larger than Stock 2. At the eyepiece, I thought that this was actually Stock 2 I was looking for. There is no cluster plotted in the Interstellarum Atlas in this position. Although the star group stands quite well even in the atlas. There is just a small open cluster NGC 743, which I did not notice at 13×. A little bit further away from h and χ Per, I run on a forth cluster which I identified as **NGC 663**.

At the end, this blind cruising was not only relaxing but quite rewarding as well.

Alexander Kupčo