

## Early spring galaxies

*Telescope:* **AS110** (Zeiss AS110/1650 mm)

*Eyepieces:*

**TV55** - Televue Plössl,  $f=55\text{mm}$ , ( $30\times$ ,  $96'$ )

**ATC40** - ATC Kellner,  $f=40\text{mm}$ , ( $41\times$ ,  $61'$ )

**O-25** - Zeiss ortho,  $f=25\text{mm}$ , ( $66\times$ ,  $38'$ )

**PI25** - Unkown Plössl,  $f=25\text{mm}$ , ( $66\times$ ,  $44'$ )

**TMB16** - TMB Mono 16,  $f=16\text{mm}$ , ( $104\times$ ,  $18'$ )

**Del10** - Televue Delos 10,  $f=10\text{mm}$ , ( $167\times$ ,  $26'$ )

*Accessories:* Baader 1.25" prism, 2" mirror

*Telescope:* **AS80** (Zeiss AS80/1200 mm)

*Eyepieces:*

**H-40** - Zeiss Huygens,  $f=40\text{mm}$ , ( $30\times$ ,  $83'$ )

**O-25** - Zeiss ortho,  $f=25\text{mm}$ , ( $48\times$ ,  $52'$ )

*Accessories:* Zeiss revolver head 4+1

*Time:* 2014/02/24 19:45-23:45UT

*Location:* Ondřejov

*Weather:* Clear sky, slight haze.

*Seeing:* Not so good, Ant. IV



I'm still discovering the potential of 110mm lens under darker skies. This late February night had some nice pleasant surprises and I observed unexpected details in some galaxies.

Not only that, I had an observing buddy this time with me. Usually, observing with other people is for me more a social event and I can't concentrate on the observation too much. This night was different, František is dedicated night sky observer, very skillful and eager to explore the heavens wonders. I set up for him in the observatory smaller 80mm refractor. We were sharing the views, sometimes comparing the same objects in the two refractors. It was also interesting to share our impressions and observed details.

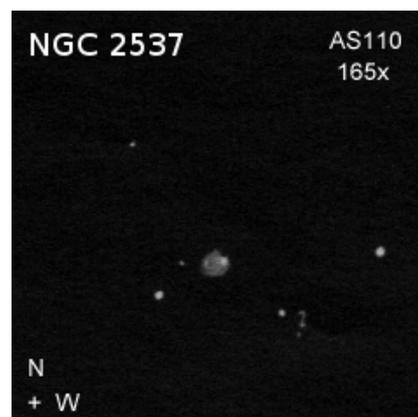
František showed me galaxy **NGC 2537** (V11.7,  $1.7' \times 1.5'$ ). I knew about the peculiar shape of this galaxy from Arp's catalogue (Arp 6) with a nickname *The Bear Paw*. But I was not aware of that this was actually quite a nice target for small telescopes.

The galaxy was already nicely visible already in the 80mm refractor as a small misty spot at  $30\times$  and  $48\times$ . I haven't noticed any details on it at these low powers.

It was more fun in the 110mm refractor. The galaxy bears magnification very well. It

was at  $165\times$  a rounded milky spot with the hints of irregularities. The easiest to notice was a tiny bright spot at the NW edge. I suspected another faint brightening at the NE edge but it was below my confidence level of the detection.

Interesting surprises arose at home when I compared the sketched star field with the images and *Carte du Ciel* (CdC) map. I could not identify one star plotted about  $3'$  WSW from the galaxy. It was probably just an error in the position, as there is  $V = 14.0$  star  $1.5'$  W from the plotted position. However, it seems too faint to be seen already at  $30\times$ .



Just 1' east of the galaxy, I plotted another faint star. This one was definitely missing in the *CdC*, probably due to its closeness to the galaxy. With the help of *Simbad* I have found its brightness, the star is of  $g = 14.8$  magnitude in  $g$ -filter ( $\lambda = 477$  nm) and  $r = 14.3$  magnitude in  $r$ -filter ( $\lambda = 623$  nm). I'm not sure, how these numbers translate to the visual magnitude. As green light  $\lambda = 550$  nm is exactly in the middle between the two filters, the linear extrapolation leads to an estimate of  $V \sim 14.5 - 14.6$ . I have spent so much time in digging out the information as this star is one of the most faint that I recorded through the 110mm refractor. It is always good to have a feeling what is the reach of your telescope.

Also the next target, nearby spiral galaxy **NGC 2541** (V11.5,  $6.3' \times 3.2'$ , PA165°), was pointed out to me by František. The trouble with this galaxy is its very low surface brightness, catalogues give  $SB = 14.6$ .

I was trying to sight the galaxy for a short period of time in the 80mm refractor. It was probably there at 30× and 48×, additional time would be needed to confirm my suspicion. Instead of that, I preferred to locate the galaxy in AS110. At 41×, it was just a very thick line at PA~ 0° faintly visible in short moments. The line seemed to be thicker at its southern end.

My main target for the night was faint irregular galaxy Holmberg II. Before jumping to this demanding object, I decided to check the conditions with another faint dwarf galaxy **Leo I** (V10.5,  $9.8' \times 7.4'$ ) that I already observed from the observatory in past. It was relatively well visible with some effort at 66×, giving the hope for the faint dwarf in Ursa Mayor.

The overall brightness of the small irregular galaxy **Holmberg II** (V11.2,  $6.6' \times 4.7'$ , PA15°) is two times smaller than the Leo I brightness, while the surface brightness is larger by about 40%. Still I had trouble convincing myself that I really saw the galaxy in the 110mm refractor. At small magnification of 41×, there was a small misty star in anticipated galaxy's position. I estimated its magnitude to  $V=11.5$ . At higher magnifications (66× and 103×), the star decayed into three stars. One was clearly more brighter than the remaining two. This was in contradiction with the image of the area that I took

with me. The trio was embedded into a faint milky area. As tight groups of stars often look hazy by themselves I could not exclude I saw just this effect.

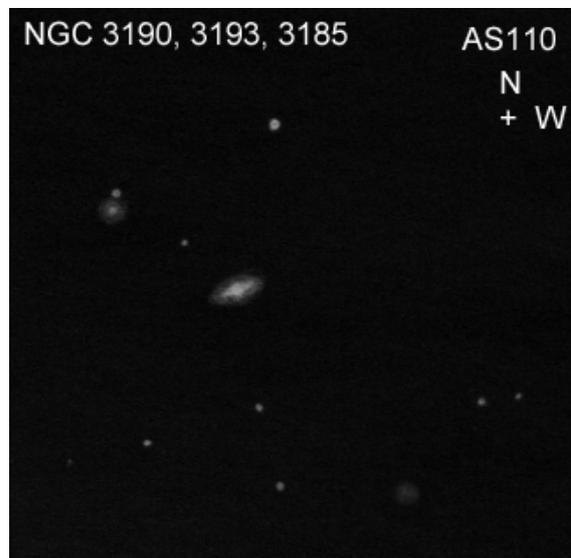
The next target, galaxy group **Hickson 44**, was again chosen by František. He wanted to compare the view in the 110mm refractor with the look he remembered from his 114/500 mm Newton under darker skies.

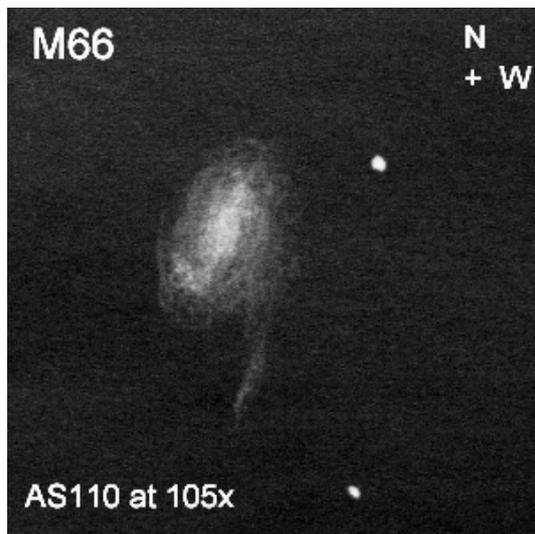
Using powers 41×, 66×, and 103×, we could see three members of the group out of four. The brightest and visually the most interesting one was spiral galaxy **NGC 3190** (V11.1,  $4.4' \times 1.5'$ , PA125°). It had strongly oval shape, PA was estimated to 110°. There were two brighter tips extending from the bright oval nucleus along the main axis.

Elliptical galaxy **NGC 3193** (V11.2,  $3.0' \times 2.7'$ ) was rounded misty spot with a strong central condensation and bright stellar nucleus. It was hiding near a 9th magnitude star.

Spiral galaxy **NGC 3185** (V12.0,  $2.3' \times 1.6'$ , PA130°) was much more difficult target. It was just a faint hazy spot hardly visible with averted vision. With more time spent at the eyepiece and with some concentration, it was not that hard to spot at the end. Interestingly, William Herschel discovered NGC 3190 and NGC 3193 but he missed NGC 3185. The galaxy had to wait for the Parsons' Leviathan 72in reflector to be discovered.

The 3rd Earl of Rosse also noticed the forth member of the group, galaxy **NGC 3187** (V12.7,  $3.0' \times 1.3'$ ). We were looking for it but with no luck.





The most exciting surprise, at least for me, came with galaxy **M66** (V9.0,  $9.1' \times 4.2'$ ,

PA173°). I was thrilled when I saw in the 110mm refractor at 103× not only the long faint arm extending south of the core. I noticed also another hook-like shaped arm closer to the bright central bulk.

Interestingly, František could see the faint arm as well but not the hook near the core. I guess, my advantage is that my eye is trained on planets. Some techniques for observing planets and deep sky objects are quite similar. I wish we had more time to study this interesting galaxy but it was time to go home. I made at least this quick sketch.

I wish that we can find with František more time for common observations. It was definitely a pleasant experience.

**Alexander Kupčo**