

Steve Yates
Fort Worth, Texas
2022

Astronomy Log

Visual Observation Notes

Time: CST/CDT (UTC-6/-5)

Telescopes: Astro-Tech **AT102ED**, 102 mm, f/7, ED Refractor (*after Feb. 1, 2022*)
Astro-Tech **AT80ED**, 80 mm, f/7, ED Refractor (*after Oct. 15, 2022*)

Bresser Comet Addition, **AR102s**, 102 mm, f/4.5, Achromatic Refractor,
Aperture Mask 60 mm (f/7.65) if needed to meet the Sidgwick Standard (CA)
Aperture Mask 48 mm (f/10) to meet Conrad's Standard (CA)

Eye Pieces: Astro-Tech ED Paradigm, 5 mm, 12 mm, 25 mm; Stellarvue 15 mm EUW
Ultra Wide Angle 82 degrees, Celestron 8-24 mm Zoom, assorted Plössl

Barlow: Celestron 2X

Mounts: Explore Scientific Twilight I, Manual Alt/Az
Bresser, Manual Alt/Az (Same as Explore Scientific Twilight Nano)

2022-01-04

18:15-18:45

The Moon was just past being new and was only illuminated 7.1%. On my way home from my work I noticed that the earthshine was very visible so when I got home I quickly got my telescope out and took some fast photos with just my iPhone. They showed many features on the dark side of the Moon. After that I went in to eat supper and watch an Astronomy PBS show.

21:00-21:30

Since the skies were clear I turned my telescope southwest to get a glimpse of the triple star system, Beta Monocerotis again. It is located in the right hoof of Monoceros. The seeing conditions weren't as good as when I first discovered it and the two closer stars were difficult to split this time.

While scanning around in Monoceros I discovered the double star Epsilon Monocerotis located near the nose of Monoceros. The main star appeared slightly yellow but the companion seemed bluer and much fainter.

2022-01-10

19:35-21:15

The Moon was at waxing 63.1% gibbous and the skies finally cleared so I decide to take some photos and videos of it. Seeing conditions were very good and the Moon was nearly at my zenith. I captured lots of images and videos with my SvBONY SV305 camera that I'll chew on later.

I turned my telescope to the The Great Nebula in Orion (M42). The Trapezium stars cluster within the nebula were very sharp and I could count five in my 12 mm (38x) eyepiece. They are really quite beautiful and often overlooked in everyone's over-saturated photos of the nebula itself. In the same view I could see the bright double star Hatsya (Iota Orionis) and it's much fainter visible companion.

I scanned the rich star fields in Orion's Belt and then found my way north where I accidentally came upon the Open Cluster M35. I could see a great many faint stars. I moved to the open cluster NCG 2129 but all I could see were the two brightest stars HIP 28510 and HIP 28513.

It was now past my work night bedtime so I reluctantly packed up for the night.

2022-01-13

21:45-22:45

Took photos and videos of the 0.86 phase Moon with my SvBONY SV305 camera with and without my 2X Barlow.

2022-01-18

21:10-21:50

The night was clear, warm, but starting to get windy. Since the next several days were forecast to be very cold, I thought I'd sneak out my telescope before bed.

I set my sights on the constellation Aries. I quickly found the yellow star Hamel. Then I hopped west to the blue-white star Sheratan. From there I found the double star Mesarthim. Even in my wide field Astro-Tech ED Paradigm 25 mm eyepiece I could see the double. The pair really stood out at 12 mm and were like a pair of eyes staring at me at 5 mm. Both stars appeared identical though at first glance the more northeastward star may have been slightly bluer. However, I'd look again and the other star appeared bluer. I soon realized that I was partially looking through the branches of my leafless Burr Oak tree and the swaying branches were playing a few tricks on me.

While I was in neighborhood I swung over to the Pleiades, M45. I put in my Stellarvue UBW 15 mm (31x), 82 degree wide high piece and enjoy a tour around the Seven Sisters.

Before I called it quits I swung over to Perseus and to the bright star Algol. I went north from there to check out the Spiral Cluster, M34. It was quit beautiful but since the winds were getting high and 5:00 AM comes early I started to pack up for the night. Luckily, that only takes about 2 minutes.

Oh, but wait... The super bright Moon was rising over my roof so I had to take a look at it with my 12 mm (38x) and the 15 mm eyepieces before going in for the night. It was a good finish to a long work day.

2022-01-22

20:55-23:20

The skies were perfect and there was no wind. Temperature started about 44 F.

I went back to the constellation Aries and immediately found the spooky double star Mesarthim that I discovered during my last session. They look like a pair of wild animal eyes looking at me. While I scanned around in Aires I found what looked like another double star but they weren't. The brightest star was Lambda Arietis (λ Ari, λ Arietis).

I scanned the skies in the whole area of the constellation Aires and found a very distinctly orange star. I swung over to Pleiades for a reference point and star hopped back to the orange star using Stellarium as a guide. The star was HIP 15549. I'll have to investigate why it is so red.

I rotated my telescope to the east too catch Gemini rising high over my house. I took a look at the bright stars Pollux and Castor. I spent some time with Castor as it is a beautiful double star system that I can easily split with my 5 mm (92x) eyepiece. The more southeastern star is only slightly fainter than the other.

I had forgotten some targets to the west that I wanted to find so I swung back over to Pleiades as a starting base. The asteroid Ceres was to the southwest and was predicted to be a magnitude 7.45. However, I could only barely perceive it with averted vision and a nearby star of magnitude 8.75 was much easier to see.

Uranus was supposed to be at the front feet of Aries so I began to star hop down to it only to realize it was behind a tree.

I moved my telescope to get a clear view of Orion. I found the Great Nebula in Orion, put my Astronomik UHC Nebula filter on my 5 mm eyepiece, and took off my the aperture mask. I got the best view I've ever had of the Nebula! I could see lots of structure that I'd never seen before except I photos. I spent a long time viewing the nebula and letting my eyes get the best of dark adaptation.

After that grand finale and my body being sufficiently chilled I packed it up for the night. It was now 38 F outside.

2022-01-29

22:40-23:50

It was 49 F, calm, and the skies were as perfect as a Bortle 8 sky could be, maybe even clear enough to qualify as a Bortle 7.

I started in Orion since it was in full view. I first went to the Great Nebula in Orion and focused on the Trapezium Cluster. I like to observe all of the stars in Orion because I feel that they are often ignored for the sake of all the nebulosity in the region. I then went south to the Hatsya (Iota Orionis) multiple star system. I could see the main right star (Iota Orionis A) and a much fainter companion (Iota Orionis B). Upon closer look with my 5 mm eyepiece I could see (or imagine) an even fainter, closer companion (Iota Orionis C?). With my eyes more adapted to the dark, I went back to the Nebula and I see a tremendous amount of nebulosity with my eyes while no filters. I then spent some time in the pretty open cluster NGC 1981 where many stars were visible. I then went north from there to the multiple star system Sigma Orionis. The main star(s) Sigma Orionis AB was white and two most visible companions D and E were about 1/3 as bright and slightly blue. I could see the C star component but it was very faint on the south side of the star. There were another pair of stars to the west of Sigma Orionis but Stellarium says they are unnamed. I next checked out the brights stars of Orion's Belt, Alnitak, Alnilam, and Montana.

I noticed that the double star Algieba (Gamma Leonis) had cleared my rooftop so I swung my telescope east. At 5 mm I could easily split the pair. The main star, Gamma Leonis A, was slightly orange while the slightly fainter companion B was white, perhaps a little blue.

The wind was picking up and the temperature was now in the mid-40s F so I was starting to get too cold. Sadly I packed up for the night. Luckily that only takes about two minutes.

2022-02-05

18:30-20:15

The ice was thawing after a big freeze so I decided to take a look at the 26.1% illuminated Moon. Seeing not the best but it wasn't too bad. I observed and noted some cool features. The cool thing about the Moon is that different features are highlighted each day along the terminator and thanks to lunation no two "identical" phases are really the same. Some of the interesting features that I saw were, the undulating lava floor of Mare Nectaris (Sea of Nectar), mountain peaks illuminated in the dark side, and the incredibly high looking Maury Crater due to its long shadow along the terminator.

At 19:11 the ISS flew directly overhead and I got a cellphone photo as it went through Orion.

I dug out my Celestron Plössl eyepieces to play with. Both the 6 and 8 mm eyepieces provide excellent, bright images of the Moon. The addition of my No. 12 Deep Yellow filter provided some additional detail. I usually use my Astro-tech eyepieces but the light weight and inexpensive Plössls are still very good eyepieces delivery sharp, bright, and wide enough field of views.

The temperature was dropping and supper was cooking so I packed up for the night.

2022-02-08

18:30-19:00

I had first light with my brand new Astro-Tech AT102ED f/7 Refractor telescope that came in today. No clouds! Perhaps the Astronomer's Curse is broken.

First light was the 54.9% illuminated waxing gibbous Moon. Then I swung over to the Great Nebula in Orion. Both gave terrific, color aberration free views. This isn't a review of the telescope, just a report on its first light. For now I had to eat some supper.

20:30-22:10

After supper I went back out to view the Moon. The detail was incredible with my Astro-Tech 12 mm Paradigm ED eyepiece (60x). Notable features were the very detail splatter field surrounding the crater Aristillus in the Mare Imbrium, a long shadow in crater Ptolemaeus, the detailed Sea of Vapors, the Alps Mts, and the distinct Alpine Valley.

I swept around the sky and came across what looked like a double star in Perseus. It was located about where Zeta Persei (Atik) should be. I'll have to research this one, perhaps it was HIP 17735 instead or something.

Moved over to M45, the Pleiades, and the cluster was beautiful in my 15 mm Stellarvue 82 degree eyepiece (48x). The orange star just north of the cluster, HIP 17759 really stood out too.

I turned around to take a look at Gemini. Pollux was bright and red and the double stars of Castor were bright even with the 5 mm Astro-Tech Paradigm ED eyepiece (143x) eyepiece. I could see three other faint stars lined up in the vicinity on the south side of the pair that I have yet to identify.

I went back to Orion and checked the double star Sigma Orionis (48 Ori A). It looked more like a multiple star system, the main yellow/white star. A much fainter blue companion in the east side, an identical blue star further east, even fainter companion on the west side, and three other stars further out. I'm definitely going to have to study this one.

It's was a work night so I had to reluctantly call it a night. So far I really love the telescope.

2022-02-10

20:50-23:30

Received my new Explorer Scientific Twilight Alt/Az Mount to go with my new AT102ED telescope so I had to try it out.

The first things in my view were the Hyades Cluster. I zoomed in on the double star 80 Tau but I could not split it for sure.

I came across Aldebaran and it was amazingly bright. I stared at it for a long time with a 5 mm eyepiece and I swear it would occasionally flash! I'm sure that it was just atmospheric but it may be worth investigating. Seeing conditions were very good, stable, and Aldebaran was near my zenith.

I readjusted my telescope mount so that I could look straight up at the Moon. I stretched my telescope to the limit with a 5 mm Plössl eyepiece and a 2X Barlow. The surface of the Moon was still very sharp and looked as if I were only a few hundred miles above it! The only thing I had to contend with were that my eye floaters were in focus now too. 😞 The shadows of the mountains in the Straight Range in The Sea of Showers were quite impressive. Copernicus was very detailed as were the three central peaks within the crater. There was a small crater in the Carpathian Mountains that was just inside the dark side. Its crater rim was illuminated and seem to “glow in the dark” much brighter than the rest of the Moon.

I swung my telescope around to the east at about 45 degrees elevation to clear my roof top. I zeroed in on the very bright star Regulus. I hopped over to the double star Algieba and I could see the double at 12 mm and we're easily separated at 8 mm. Both stars were yellow with the more easterly star being slightly fainter.

I star hopped over to the star Asellus Australia and went straight to one of my favorite open clusters, Praesepe. It looked especially beautiful with my Stellarvue 15 mm eyepiece.

Next I swung over to The Great Nebula in Orion now that it had cleared my neighbor's tree. I put on my Astronomik UHC Nebula Filter and it made the nebula look awesome. I could see detailed structure in the nebula for the first time.

I needed to get some sleep so I packed it up for the night.

2022-02-11

18:30-19:40

I brought both my Bresser AR102S, 102 mm, f/4.5, achromatic refractor with 60 mm aperture mask to make it f/7.65 and my new Astro-Tech AT102ED, 102 mm, f/7 semi-apochromatic refractor out to do some comparisons.

The waxing gibbous Moon was at 0.81 phase. Compared both telescopes at about 35x power. Both were very good but the Astro-Tech was brighter. Of course it can go to higher powers.

Checked out Sirius with 5 mm eyepieces in each telescope. Both telescopes displayed the super bright star well but on the Astro-Tech possibly detected the Pup on the north side of the Dog Star.

Moved north to Capella with 5 mm eyepieces. The smaller Bresser telescope showed perfect Airy disk with concentric diffraction rings. The star itself was a fine point. Very minor CA. With the larger Astro-Tech telescope fainter stars were visible but Capella itself was not a clean disk or point but some diffraction rings visible, some CA, more power, and an adjacent very faint star was visible.

Swung over to the double star Castor with 5 mm eyepieces. The Bresser showed nice, sharp, stars with a clean separation and diffraction rings around each. The bigger Astro-Tech separated the stars better but one was not as clean as with the smaller telescope. Fainter adjacent stars were visible that could not be seen in the smaller telescope.

A cold front was approaching and the skies quickly became overcast and the winds increased enough to blow my light shade down. It was time to pick up I for the night.

2022-02-13

18:45-19:30

It was another perfect night for observing. Brought out AT102ED telescope and took a look at the Moon at a 0.93 waxing gibbous phase. The most notable features were the crater Aristarchus and Schroter's Valley (looked like a crack in the Moon). Tonight I could see the Moon best with my Celestron 8 mm Plössl eyepiece, the No. 58 Green filter, and my left eye for some reason.

I next swung over to Orion and hopped down from Orion's three belt stars down to the quintuple star system Sigma Orionis (48 Ori A) to check it out again.

Went inside for some supper.

20:30-21:30

Refocused on Sigma Orionis and the adjacent cluster Struve 761 to show two of my sons. We could all see 4 stars in Sigma Orionis and 3 in Struve 761. The most interesting was the faint blue star (C) just to the west of the brightest star (A/B) in Sigma Orionis.

Next, I moved down to the Great Nebula in Orion to show them. They were amazed. My Stellarvue 15 mm FMC eyepiece and Astronomik UHC nebula filter the whole region around the Orion Nebula was beautiful and detailed. I switched to my Paradigm 5 mm eyepiece and the filter and the view was amazing. The detail in the nebula was the best I've ever seen with my own, old eyes. While I was in the region I went down to the double star Iota Orionis (Hatsya). The main star was bright white with a tinge of yellow and its companion was much fainter and blue.

I hopped up to the middle bright star in Orion's Belt, Epsilon Orionis (Anilam) and noticed just northeast of it a pair of stars that looked like a double. However, Stellarium says they are both unnamed. I'll have to research them. There was an even fainter blue star more to the east of the pair on the same side as the companion.

I scanned the region of vast stars with my 15 mm eyepiece until I had to pack up for the night. Unfortunately, I had to get up very early for work in the morning.

2022-02-15

20:30-21:40

Another perfect night though the Moon was nearly full though it was still below my house so I brought my AT102ED telescope out.

I started with Castor double star in Gemini. I started with my 32 mm Plössl though I couldn't split them. I could with my 12 mm and of course they were well separated with the 5 mm.

I scanned around my zenith and came across a double star in Lynx that I've yet to identify. The main star was white and the companion was slightly fainter and bluer.

I turned to Polaris and I could see the very faint, bluish companion Polaris B to its west with my 5 mm eyepiece. For some reason, I could not seem to get a good focus on Polaris.

I went over to the full Moon using my Moon filter. The most obvious feature was the darkest crater on the south limb, Grimaldi. Of course most features were washed out. I experimented with various eyepieces while looking at the Moon and then called it quits for the evening.

2022-02-18

18:45-20:30

The weather was perfect again, cool, good seeing, no wind, and temperature of 50 F but dropping. I decided to try again with my telescope duel between my Bresser AR102s 102 mm, f/4.5 achromat refractor and my new Astro-Tech AT102ED 102 mm, f/7 ED refractor.

I decided to use the double star Zeta Orionis (Alnitak) in Orion's Belt to compare the two. The b component next to the very bright Alnitak. The Astro-Tech at 286x (5 mm, 2 x Barlow) could easily split the two though B was much fainter. Alnitak showed color separation and the addition of an 86 mm mask helps a tiny bit. A 58 mm mask cleaned up the color but the B star was sucked into the first diffraction ring. The fast Bresser at 184x (5 mm, 2X Barlow) had too much CA to see B by itself. The addition of a 60 mm mask cleaned up the CA pretty well but the B component showed up as a distinct bright spot in the first diffraction ring. With a 48 mm mask the Airy disk was clean with no CA but the B component was mostly obscured by the diffraction ring.

Next, I went to the really bright star Beta Orionis (Rigel) to compare the two. The much fainter triple-star system 9.5 arc seconds from Rigel is a good test. The Astro-Tech at 286x could easily see the star system as a single faint star to the southwest of Rigel. I could only faintly see it in the Bresser within the diffraction rings and wouldn't have seen it at all if I didn't know it was already there. I could still split them with Astro-Tech at 144x power but started to lose the faint star system at 60x.

I brought my smaller Bresser telescope inside and ate some supper.

20:50-22:00

I came back out, and it was now 44 F. I put in my wide field Stellarvue 15 mm eyepiece and 2X Barlow lens to scan around Orion again. I never run out of things to look at there. I started at the Great Nebula in Orion and star hopped up to the noticeably red star V1375 Orionis. Though it is an eclipsing binary star, I could not split it.

I then jumped over to the very bright star Sirius because it was just coming out from behind the trees. I tried at the maximum power of 286x to try and see the Dog star's pup, but I couldn't. Sirius was pretty to look at though.

From Sirius I scanned the rich star field to the north and then I came across the beautiful triple star system Beta Monocerotis (Beta Mon, β Monocerotis, β Mon). The two closest stars (B & C) were the same brightness and almost the same color except star C was slightly bluer. The brightest star A was slightly more yellow than the other two.

I was going to turn the telescope to the north into the region of Polaris to look for galaxies but I didn't have a clear shot. I chose instead to do a free-for-all scan of the Milky Way to the southeast and up about 45 degrees. The 12- and 25-mm Astro-Tech Paradigms 60 degree eyepieces are great for this. In my telescope these eyepieces provide images that are crisp all the way to the edges. My 15 mm Stellarvue has a wider apparent field of view (82 degrees) but the images start to distort after about the 60-degree view. Perhaps it would be better in this regard in a slower telescope (less field curvature).

My final stop was the bright star Procyon. By the way, Procyon looks to be a good reference star for further comparisons. It has a magnitude of 0.4 and a color index (B-V) of 0.44, fairly white as can be. It is supposed to have a companion, but it is much fainter, and I could not see it at 143x.

The temperature was now 41 F and I was getting cold (I'm from Texas) so I reluctantly decided to come in for the night.

In conclusion for the telescope duel, The Bresser AR102s is a great light sucker at the lower powers. It was literally designed for viewing comets (has "Comet Edition" in the name) but it suffers some chromatic aberration that can become bothersome at powers higher than about 30x. However, with the addition of a 60 mm aperture mask the CA is much more tolerable and the little guy becomes a pretty decent planetary telescope. I've also split many double stars with it. However, at powers over 100x the Astro-Tech AT102ED really shines. Without the need of a mask the full aperture can be appreciated. Stars can be split that can't be split with the Bresser. I'll have to wait until summertime to see how it does on the planets like Jupiter and Saturn. The better performance comes at a cost in dollars and weight. After purchasing the tripod/mount and diagonal the Astro-Tech rig costs 4 times as much as the Bresser complete setup and it all weighs twice as much.

2022-02-27

20:45-21:50

The temperature was 43 F and dropping, perfectly clear skies, and calm. It was the first clear night after about a week of freezing weather. Seeing conditions were average.

Brought my AT102ED telescope out to part of the backyard with a clear view of the southern skies. I wanted to check several targets in Canis Major.

I started with the Dog Star, Sirius. I tried various techniques, including occulting Sirius A into the edge of the eyepiece, and Moon filter to see its companion, the Pup. I think I could see it on the north side of the star but it may only have been because I wanted to see it. I was using 143x.

I went south down to the bright star Wezen. From there I hopped to the the open cluster NGC 2354 but it wasn't very impressive. Next I went to the t Canis Majoris Cluster, NGC 2362. It was very impressive with my 5 mm eyepiece (143x). From there I went up to the double star 145 Canis Majoris, the so called "Winter Albireo". It was very easy to split. The primary star was bright, dark, orange-yellow and the companion was slightly fainter and mostly white into blue. In my opinion it is now comparison to Albireo but it does make for an easy double star target.

I made my way up through the open clusters NGC 2367, NGC 2384, and NGC 2383. In my city lights they were not very impressive but I could see them enough to identify them.

As a grand finale I hopped up to M41, the Little Beehive Cluster. It was a beautiful sight and fit perfectly in the 12 mm eyepiece (60x). It was definitely worth the visit.

As I did a final scan I come upon an interesting cluster near 17 Canis Majoris. I can't seem to identify it but it appears like it could be a triple star system. One of the fainter stars was noticeably blue. Upon research it is characterized as everything from just a single star, to visual double star, to being a multiple star system. I saw two possible companions to the brightest star and the most likely close companion was faint but blue.

I brought the gear in for the night so I could get up early for work in the morning. It was now 38 F.

2022-03-05

21:10-22:40

Temperature was 70 F and the skies clear. I brought my AT102ED telescope out before the weather changes forecast hit.

I started off at the bright star Rigel. After scanning the constellation of Orion, I came upon a double star that may be new to me. It was HIP 27212. The main component was slightly orange and the much fainter companion to the southeast was blue. I could split the pair at 60x but the view was best at 143x and the 6 mm Plössl at 119x was quite good.

I moved over to the Trapezium Cluster with the The Great Nebula in Orion to see how far I could split the stars. I could see my usual four (A, B, C, and D) but the B component seemed dimmer than usual.

I started scanning towards Sirius and came upon the bright, yellow-orange star Gamma Monocerotis, (5 Mon). Next, I came to the Heart Shaped Cluster, NGC 2323. I could see many stars though the city sky appeared like I was looking at the daytime. I saw them best with my Stellarvue 15 mm, 48x eyepiece.

High level clouds began to fill the sky so I packed up for the night.

2022-03-08

19:45-21:15

The night was clear and calm with a temperature of 40 F. Seeing conditions were okay. The Moon was a waxing crescent phase of 0.37. I brought out my AT102ED to take in some views. The feature that most stood out was a very large mountain on the western edge of Rimae Hypatia along the terminator. I can't find its name. The long shadows made it look enormous. Though the view with my 5 mm (143x) was very sharp, I noticed that the floaters in eyes were less focused when I used my 12 mm eyepiece and 2X Barlow lens (119x).

Next, I moved over to the constellation Taurus to search for double stars. Starting at Aldebaran, I star hopped over to the double star Cleia, δ 3 Tauri. Though I did see a faint star about 2" south of Cleia, I don't believe it was a companion star. I hopped up to the double star HIP 20780 and I could split that pair with my 12 mm (60x). The main star was faint and slightly blue whereas the companion was much fainter. I went to the top of Taurus to the star Zeta Tau, ζ Tau. From there I found the double star HIP 26328. I split them easily at 12 mm (60x) and at 5 mm (143x) they were nearly identical though the most westerly star was slightly fainter and bluer. Since the Crab Nebula was supposed to be in the neighborhood, I thought I'd hop over to it. I could find no trace of it so I put my Astronomik UHC Nebula filter on. It didn't help, I still couldn't see it. I'll have to try again in darker skies.

My now it was about 36 F and I was getting very uncomfortable so I called it a night. I had to get up early for work anyway.

2022-03-12

20:20-23:15

The night was perfect except for it being a chilly 46 F and the Moon being at a waxing gibbous 0.74 phase. I brought out my Astro-Tech AT102ED refractor telescope.

I began in the constellation Taurus at the most easterly star Alnath with my 25 mm (29x) eyepiece. I immediately came upon the double star HIP 26781 for the first time. The main star was yellow/white while the northernmost companion was slightly fainter and bluer. From there I star hopped my way to the Crab Nebula to try and see it again. I tried with my 25 mm (29x) and 12 mm (60x) eyepieces and swung the telescope back and forth but I still could only see a faint star, no nebula.

I then continued north to the constellation Auriga and came upon the obvious Starfish Cluster. It was very beautiful and looked like a starfish but was faint. It looked best in my 12 mm (60x) eyepiece. I next moved up to the open cluster M36. It was quite pretty and while I was looking at it a very high altitude jet flew right in front of it! The contrail was lit by the moonlight but quickly drifted out of view.

Next, I put in my Stellarvue 15 mm (48x) eyepiece and scanned the rich star fields of Auriga with no particular goals. I just floated in space for a bit while enjoying the sights.

I then went south to “ground” myself at the bright, orange star Betelgeuse. I hopped to the quadruple star system μ Orionis. I could not detect any companions because they are likely too close for my telescope to resolve. I scanned south to the double star Epsilon Monoceros and I could easily split it. It was a bright, yellow main star and a dimmer, bluish companion.

I next hopped over to the Satellite Cluster to try my luck at seeing some nebulosity. I could not see any with the Stellarvue 15 mm (48x). I tried my 25 mm (29x), my 35 mm (20x) Plössl, all with and without my UHC Nebula filter with no success. The moonlight and light pollution were just too great I guess.

I hopped from the Satellite Cluster to 13 Monoceros, to 15 Monoceros and the Cone Nebula. Of course, no nebulosity was visible but the star field was pretty.

I spent the last of my views on the Moon. With and with out the Moon filter, I swapped all of my eyepieces. Interestingly the Stellarvue 15 mm (48x) showed a slight bit of chromatic aberration whereas the old Plössls should no CA at all. While viewing with my 17 mm (42x) Plössl, I noticed an unusual dark, straight line between craters Birt and Thebis. My research found it to be a rift called Rubes Recta. The detail of the Moon was exquisite but that line caught my eye. I went on to enjoy the beautiful details of the Moon with various eyepieces without trying to identify everything. I then brought my gear back inside.

2022-03-19

21:45-23:45

The night was calm, clear, and about 65 F so I brought out my AT102ED telescope.

I started off at the star Zeta Tau in the constellation Taurus. I then swung over to try my luck at seeing the Crab Nebula again. I tried everything to no avail.

I scanned around the rich Star fields of the Milky Way Galaxy and I came across what must be the open cluster NGC 2175. I could see thousands of individual stars in a sea of rich clouds of stars and/or nebulosity. It was truly an amazing sight. It looked best with my 12 mm eyepiece. The location was a third of the way from Alhena to Zeta Tau. I spent a lot of time on this target because 1, it was pretty and 2, it looked nothing like the photos I've seen of NGC 2175.

By now I was racing the bright light of the Moon that was rising over my house. Gemini was at a good viewing angle so I star hopped up to the double star Castor. It is always an enjoyable sight and I good easily split the pair with my 12 mm (60x) eyepiece. At 5 mm (143x) they were very clear. The more easterly star was slightly fainter and perhaps bluer than the brightest star. With the addition of the 2X Barlow (286x) the stars were two separate and clear Airy disks, both with diffraction rings.

I next swung up to Cancer to catch a view of the open cluster Praesepe. It is always a good sight and it was fun to view it in my wide field Stellarvue 15 mm (48x) eyepiece.

The Moon began illuminating my telescope and the temperature was now 56 F so I decided to quit for the night.

2022-03-24

20:50-22:45

I stepped out of my bright house and looked up. I could immediately see stars with my bare eyes in Orion and Gemini that I could only see with binoculars during my last session. There was no Moon and the temperature was 59 F and winds were calm. I had no work in the morning so it was a good time to get my telescope out despite almost being my bed time.

I setup my AT102ED and started with the star Chi1 Orionis (χ 1 Ori, χ 1 Orionis). I then hopped to Chi2 Orionis (Chi2 Ori / χ 2 Orionis / χ 2 Ori), to HIP 29216, and to where the open cluster NGC 2175 should have been. Though I could see many faint stars, this was not the beautiful cluster that I saw the last two sessions and thought was NGC 2175. It may be NGC 2129 but the adjacent Star patterns don't seem to match. Surely I haven't discovered a new, large, beautiful star cluster that can be seen with binoculars. 😊 Ah, it turned out to be M35! For some reason my view of the skies seemed to have had a bit of a tilt to it compared to Stellarium and was throwing my stopping hopping off. It turned out I was confusing Zeta Tau for Alnath. In reality, M35 nearly bisects a line between Alnath and Alhena. Drawing a line between Zeta Tau and Alhena as I was doing shows no big cluster. Mystery solved.

I moved down (west) to see some of the other clusters in the area and found NGC 2129. I couldn't identify it as a "cluster" until I put my 5 mm (143x) eyepiece in. Even though it was very impressive.

I went west to Betelgeuse and star hopped my way to the open cluster NGC 2169. Though I couldn't detect a lot of stars, it was a pretty cluster of bluish stars with the brightest star (HIP 29126) an obvious double. The main star was about 50% brighter than its companion.

Next I moved to the bright star Procyon in Canis Minor. As a magnitude 0.4 star it showed no color and no flicker from atmospheric disturbances at 25 mm (28.6x) This says a lot for the CA of my telescope and my seeing conditions. At 5 mm (143x) I began to only see a faint hint of red and violet on the edges of the star, way down in amplitude compared to the brightness of the star.

While scanning around the star fields I began tracking a slow, bright, high orbit satellite. While following it, another smaller satellite intercepted its path and appeared as if they were going to crash together. The new object was faster and obviously lower in altitude.

As a grand finally I turned my telescope to the west to see the Great Nebula in Orion. The Trapezium Cluster and the Nebula were as vivid as usual. At a temperature at 56 F I quit for the night.

2022-04-02

17:30-22:45

I went to my club's star picnic and party at Dinosaur Valley State Park, Texas. My wife and one son went with me. We missed the picnic but got to the telescope location early. The sun was still up and only one telescope was setup. It was a giant 8" achromatic refractor and it was being used to look at the sun. Numerous sunspots were visible. I didn't set my AT102ED telescope up yet as I didn't have a solar filter so my family and I went to the river to check out the dinosaur foot prints in the stone.

As the sun was setting we went back to the pad and others were beginning to setup. I set my telescope up while there was still some daylight.

As darkness approached my wife and son laid out a blanket in the grass and using two binoculars they had a contest to see who could see the most satellites first. As you might image in this day in age, it soon became simple a race to see who could count the fastest!

The Moon 0.03 very thin waxing crescent. I pointed my telescope to it and got a nice, sharp view of the thin crescent and as darkness approached the Earth shine was very pronounce. Before the Moon set, I went around to a few other telescopes that were viewing the same target to compare views. I was quite pleased at the color-free view my telescope had.

I help a friend find the Great Nebula in Orion with his new Celestron C8 Go-To telescope. He bought it about a year ago but had not been able to see anything. He had mistakenly been using his new 2.5 mm eyepiece with a 3X Barlow lens. The telescope's focal length was 2,000 mm so the magnification was 2,400X! I simply had him replace all of that with his longest eyepiece, a 25 mm, and he could finally see some good stars. Though he commanded it to go to the Nebula, he could not see it. I looked through the telescope and recognized the stars as those around and including Hatya. He allowed me to tweak the position just a bit and the Nebula came in bright and clear. When I showed him he was immensely excited and brought his family over to see. He said he'd never seen anything like that and he seemed very happy.

I decided to pan around the deep, dark southern skies since I cannot view this region from home. I had a lot of fun seeing things I haven't seen before.

A bit later we saw two long trails of red lights streaming towards our site. It resembled a fire ants heading towards a feast. These were two groups of kids heading to the star party!

It turned out the my telescope was at the end of the “ant trail” so by the time anyone got to me I thought I had been skipped. I was not prepared when the first of the group showed up because I was looking at the multiple star system Sigma Orionis. Even though I think the system is cool, knowing what I’m looking at is half of the fun. So I spent the next 30 minutes explaining what they were looking at and relating it to Luke Skywalker’s home planet with its multiple suns. They at least pretended to be interested.

I had a new friend come over and ask if I had seen the Cigar and Bode’s galaxies through my telescope. I said “no” since I’ve only ever since M31 through any telescope. My Bortle 8 skies at home aren’t conducive to galaxy viewing. He showed me where they were in relation to the

Ursa Major (Big Dipper) by drawing an imaginary line from the star Phad to Dubhe and continuing on the same distance to the west. Drop down (north) from that imaginary point and there were the galaxies. They were very easily to see through my telescope and I could even see structure in the Cigar galaxy. I thanked him profusely and after he was gone I noticed that I could also see a third galaxy in the same field of view! It was NGC 3077, recently nicknamed the “Garland” galaxy. These are all part of the so-called M81 Group.

So we had fun and I got to see something I’ve never seen before. The dark skies in this region of Texas are quickly going away so I hope to enjoy them while I can. We packed up for the hour drive back home and we made it home about midnight.

2022-04-05

20:25-21:45

After a 96 F day the skies were clear and warm. Transparency was about a 4 out 10. I decided to bring the smaller Bresser telescope out anyway.

I first looked at the Moon that was at a 0.21 waxing crescent phase. The most notable feature was the Pyrenees Mountains. They were casting an enormous shadow into the terminator. Soon the Moon went behind my blooming Burr Oak tree.

I next swung over to Orion and checked out the double star Mintaka. It's companion was much fainter and bluer companion star. I hopped over to the Great Orion Nebula and scanned through the adjacent star fields. I played with various eyepiece/masks combinations.

I still love this little telescope even though I haven't paid a lot of attention to it lately. Though it has chromatic aberration at high powers without an aperture mask, it is a fantastic wide field DSO telescope and a good planetary scope with the 60 mm mask. The optical alignment seems to be perfect and stars can be incredibly sharp.

I turned over to Ursa Major with my 25 mm eyepiece and the star hopped to where M81 and M82 should be. I found the adjacent star pattern but I could not see the galaxies in my city lights, unlike the great view I had at the park on Saturday. Of course this is a different telescope too but the same aperture, different focal length. I put in my 12 mm eyepiece and I could very faintly see the core of galaxy of M81. I could not see M82 though.

I went back to the west and found NGC 2244, the Satellite Cluster. It always reminds me of a rooftop outline. I also found the open cluster NGC 2301. It reminds me of a serpent.

I had no real targets, I just wanted to unwind after long work hours. I decided to pack up and go to bed.

2022-04-09

21:20-23:25

It was warm and windy. The seeing conditions were not the greatest with a lot of dust in the air. However, the Moon was straight up at my zenith at a 0.58 waxing gibbous. I wanted to try my SvBony SV-305 camera out on my new AT102ET telescope.

By itself, the camera seems to be about equivalent to a 5 mm eyepiece. Consequently, with a 714 mm focal length I could not get the whole Moon in the camera's field of view. With the addition of the Celestron 2x Barlow lens I was really zoomed in on the Moon but still with great detail.

I collected many PNG frames of the Moon. The most notable features were the 18,000 ft high Mt. Pico with its very long shadow stretching into the terminator. Also noted were the two distinct crater rims within the larger crater Clavius. Later, a third, larger crater rim within Clavius began to be illuminated.

Since the Moon was very near the constellation Gemini, I took a look at the double star Castor. I managed to capture some easily split images of the pair with the SV-305 camera.

I've been using this little camera for a while now and since I have no motion control on my mounts, images are limited to brighter targets. Though the images are impressively sharp, it does suffer from dynamic range. My iPhone in the HDR mode surprisingly gets better photos of high dynamic range targets. I did capture some phone images to this evening using the burst mode. With my Astro-Tech eyepieces, it is fairly easy to align the phone by have to capture images. My iPhone images are not as sharp as the SV-305 but the dynamic range is much better.

I could see the dust in the air being illuminated by the Moon so I packed up for the night hoping not to get dust in critical telescope parts.

2022-04-13

20:50-22:00

The temperature was in the upper 60s F, a little breezy, with lots of dust and pollen in the air. I wanted to play around with eyepieces in my AT102ED before going to bed. The Moon was a 91.4% waxing gibbous.

I started observing the Moon with my Celestron 8-24 mm zoom. This was the first time to try it in this telescope. It worked well though I did have to refocus a bit between extremes. Next, I put in my Bresser 20 mm, 70 degree eyepiece. The Moon looked great at about 36x though the image blurred towards the edges. I tried a Celestron Plössl 17 mm and though the FOV was only 50 degrees, the image was sharp except right along the edges. I next put in my 25 and then 12 mm, 60 degree wide, Astro-Tech Paradigm ED eyepieces. The images were sharp all the way to the edges. They were parfocal with themselves and even the Plössl. It is worth noting that although the views through the Astro-Tech eyepieces were better than equivalent power Plössl eyepieces in many respects, low magnitude stars just seemed to look sharper in the Plössls. It may be my imagination but the next time I'm having trouble splitting double stars I'm go to have a go with the good ole Plössl eyepieces too. I turned to the double star Castor for another check. Once again, the view through the 5 mm Astro-Tech was fabulous but the view of the double through the 6 mm Plössl seemed just a bit cleaner. I really can't put a finger on what the difference was and it may be in my head, I don't know. I put the 2X Barlow lens on both for a power of 286 and 238 respectively. The 5 mm Astro-Tech image of Castor was very good but the Airy disks of the two stars just wasn't as sharp as with the 6 mm Plössl. These minor differences are likely just a function of how much glass and interfaces there are in each eyepiece.

It was already too late for a work night so I packed things up for the evening.

2022-04-26

21:00-21:50

It was almost my work day bedtime but the seeing conditions seemed excellent except for transparency due to pollen in the air. I decided to make the open cluster M67 my target for the evening not having logged it before.

I first found the bright star Procyon. From there I hopped to HIP 38062, BU CMi, Tarf, HIP 40878, HIP 41325, HIP 41652, HIP 42049, 37 Cnc, 49 Cnc, double star HIP 43138 (nice bluish pair), and finally to M67. I could see one bright star towards the top (HIP 43519?) and a great many stars in the cluster. This was using my 12 mm eyepiece. The cluster filled my field of view with my 5 mm eyepiece. However, my tired from long hours at work causes a “looking through a bag of worms” effect to my view didn’t do it justice. It was still pretty though.

The first mosquitoes of the season were attacking in great number so after a few random scans of the skies I packed it up for the night.

2022-05-05

20:30-21:00

The weather was about 68 F with a slight breeze and skies were clear after a cool front. Transparency wasn't the best due to the world on fire and nearby dust storms. The Moon was at a 0.23 waxing crescent phase. I brought my AT102 ED out to take a look at the Moon before it slipped behind the trees.

The most prominent feature was the crater Theophilus with its bright crater wall and illuminated central peak. I took time comparing eyepieces. 5 mm worked greater but adding the 2X Barlow didn't bring out anymore detail on this night. The dark portions of the Moon were quite visible after my eyes adjusted to the darkness and the twilight subsided. I spent some time scanning the dark side with the sunlit portions out of the field of view.

Next, I hopped up to the nearby double star Castor just for fun. The pair were as pretty and bright as usual.

As the Moon went behind the trees I took a break to watch an episode of the new Star Trek Pike series.

22:12-00:00

I came out after the show and set my sights in the bright double star Algieba. I could separate the pair with my 12 mm eyepiece but it was most clear at 5 mm. Both stars were yellowish with the most northerly star appearing the biggest. I did try for some of the nearby galaxies in the region but I could not positively see them in my city skies.

I then hopped over to the galaxy clusters in Leo to what I could see. I stopped on the double star HIP 52942. The faint pair were easily separated with my 12 mm and were about the same magnitude. The slightly brighter star may have been just a bit more yellow than the other. Sadly I could not perceive any of the galaxies in the region.

I moved over to the bright star in Leo, Denebola. I pause on the double star just below it, HIP 57606 but I could not split it. From there I star hopped over to n Leo and tried to view the Leo Triplet galaxies. Once again I could not perceive them in my bright skies.

I moved over to the double star Iota Leonis (Struve 1536). The main star was yellow and the very close but very faint companion was blue. I could just split them with 5 mm and I had to put the 2X Barlow to use. I must say that this is one of the more challenging yet rewarding double stars that I've observed.

While scanning galaxy territory I came across the bright double star 24 Coma. The main star was yellow-white while the slightly fainter companion was blue-white. They were very easily split with my 12 mm.

I was now midnight so I decided to pack up for the night after a longer work night.

2022-05-25

21:00-23:30

Beautiful, calm evening, 65 F, but with occasional high, thin clouds. First descent night for my telescope in weeks.

The first star I came to in the twilight was somewhere in Hydra. I have yet to identify it, possibly 22 Hya. I moved up to bright Regulus to get my bearings. From there I went down and found a distinctive orange star, Pi Leo. Went down from there to a deep yellow star, 2 Sex.

I turned my telescope around and found the double star Arcturus. I tried eclipsing the main star with my 5 mm eyepiece on all sides but I could not detect a companion. I slid north to the double star Izar. The main star was yellow but the much fainter companion appeared white/blue. They were both very easy to discern with the 5 mm eyepiece. This pair would be good for telescope comparisons.

I then star hopped my way up to the globular cluster M3. It was easily detected and with my 5 mm eyepiece I could just barely discern a few individual stars. If my neighbor's lights were off my eyes may have adapted to see it better.

Next, I hopped down to the Globular Cluster M5. It looked about the same as M3 but after several minutes of looking at it I could detect more individual stars in the cluster. I suspect it would look great in dark skies.

I spent some time just scanning the skies with my 15 mm (48x) wide field eyepiece before bringing everything in for the night.

2022-05-26

23:15-00:35

I noticed that Hercules had cleared my roof and was in my small viewing windows in between trees. I wanted to see The Great Cluster in Hercules with my AT102ED telescope.

I first found the double star Zeta Herculis (40 Her A). The star was a bright, slightly orange star but I couldn't split it however.

I star hopped to the north and easily found the Great Cluster, M13. It was easily to see but just a cotton ball in my Bortle 8 skies. However, after intensely observing with my 5 mm (143x) eyepiece I could start to discern a "diamond dust" sprinkling of stars. It is definitely a target for darker skies someday.

I hopped east down to the double star Epsilon Herculis (69 Her). The star was a shade of blue but I could not split it. I went a little further east to the double star Rho Herculis (75 Her). This pair was easy to split with my 5 mm and the main star was slightly yellow and the companion was white and only very slightly fainter.

While I was in the neighborhood, I hopped north to the globular cluster M92. It was smaller than the others I just observed but easily seen. After many minutes of observing I began to make out individual stars. It is probably just due to its faintness but the cluster seemed to be bluer than the others of the night.

Lyra was now high above my house so I had to check out Vega. It was intensely beautiful and spark blue. My telescope provided clean images of it all the way down to 5 mm. I moved east from Vega to the double double stars Epsilon Lyrae (5 Lyr). Of course I could split the main pair but I could not see their companions.

I put away all my eyepieces except my Stellarvue 15 mm (48x), 82 degree wide eyepiece. I scanned the rich Star fields of Lyra before calling it a night.

2022-05-31

21:13-21:50

The weather was hot, muggy, and windy. The skies were as bright as day. I could only faintly see a star or two with my eyes. I had just mounted a laser onto my Bresser AR102s and I wanted to align it.

I found Regulus through the muck and tweaked the laser to be close enough. I then played with a couple of different aperture masks on and off, and then with my Celestron 8-24 mm (19-57x) Zoom lens. The setup makes a nice, lightweight (almost featherweight), star party rig.

After scanning the sky in vain for some hope of stars, I packed in for the night before the mosquitoes carried me away.

2022-06-06

20:50-22:05

It was a very hot and muggy evening. Seeing conditions were pretty good despite the humidity and breeze.

The Moon was high and at 44.7% phase. It looked quite beautiful through my Astro-Tech AT102ED f/7 telescope. I found my 15 mm Stellarvue 82 degree FMC eyepiece and 2x Barlow (95x) to be a winning combination tonight. The whole Moon fit in the field of view yet the high power brought out tremendous detail. The central peak in the crater Albategnius was awesome with its shadow across the crater floor. The Hyginus Rille was very distinct in the Sea of Vapours with its tiny Hyginus sinkhole in the middle.

For grins I put my Astro-Tech Paradigm ED 5 mm eyepiece in the Barlow (286x) for a maximum power view. Amazingly the view was still sharp. The Apennine Mountains revealed great detail. I closely observed the Alpine Valley for any signs of the tiny center rille. I do believe that I could see it (or imagine it) with the 5 mm (143x) eyepiece alone.

I viewed the Moon in many different ways. The Earthshine was very evident. This night and telescope has provided the best views I've ever had of the Moon.

It was well past my work night bedtime and I was sweating from the heat so I quit for the night.

2022-06-12

21:15-21:47

It was a very hot 96 F (35.5 C) and breezy. The Moon was near full at 97.3 % illumination. It had cooled down from the 105 F (40.5 C) earlier in the day.

I brought out my Bresser telescope to play around with some filters with and without the 60 mm aperture mask. I began with my Celestron 8-24 mm zoom eyepiece and noticed that the Moon was very near the star Dschubba, an eruptive variable double star. Given that it was only 24 degrees above the horizon and very bright, Dschubba looked eruptive indeed! The Moon had just passed it but not quite eclipsing it. The most noticeable feature on the Moon was the very bright Aristarchus Crater.

“Theorists” on various forums had said that it was better to suffer chromatic aberration rather than to lose resolution by using an aperture mask. If one must, they could use a Bader Yellow 495 nm Longpass Filter or even a No. 12 Deep Yellow filter to remove CA instead of a mask. However, it has been my experience with this very fast f/4.5 achromat that at full aperture and higher powers, I cannot obtain the resolution that a 102 mm aperture would suggest because all of the wavelengths do not focus at the same point, causing a blurring, regardless of any filter used. This night I tried various combinations of aperture mask and filters, particularly a No. 12 Deep Yellow filter. Though the filter helped, when using my 5 mm (92x) or 12 mm (38x) eyepieces, at no time were the details on the Moon better with 102 mm and a filter as they were with 60 mm and no filter. I had noticed this in the past but I had to prove it to myself again after reading more “theorists”. In reality, it likely depends on the telescope but I’m not sure folks obtain the resolution theoretically possible for a given aperture in a fast achromat. I believe they’re apertures are designed to be light suckers at low power rather than to obtain high resolutions. Therefore, as I have done, to use a wide field comet chaser as a planetary telescope one must reduce the aperture to tame CA because the resolution that you think you have isn’t there in the first place.

In the end, I still love this little telescope. It isn’t much more difficult than binoculars to take out but is much more steady. The smooth Alt/Az mount is a dream to use.

I was sweating and tired from swatting mosquitoes so I packed up for the night.

2022-06-25

11:45 - 01:50

I was participating in the ARRL Field Day activity on amateur radio. I had pretty much played out the band I was on out so I decided to take advantage of the clear skies and align my green laser with the new finder bracket that my son gave me for Father's Day for my Astro-Tech AT102ED telescope.

Spica was shining bright at a comfortable elevation in the western sky so I centered it in my 25 mm eyepiece and then fine tuned the laser alignment. It was very easy to do and now I just aim the laser where I want to go. Works great!

Next, I checked it on the red giant Arcturus. It went right to it. I hopped from there to the double star Zeta Boötis on my way to M5. I was not able to split it.

I went south to another double star, 3 Serpentis. It was a yellowish star but I couldn't split it either.

I was making my way over to the globular cluster M5. When I got to it I easily found it, though probably due to my neighbor's blinding lights, it was just a cotton ball. I could discern only a few stars.

I turned my telescope around to Vega which is just east of the zenith. To the southeast I came to Zeta 1 Lyra and Zeta 2 Lyra. They aren't listed as a double star but they appear to be and they are easily separated. Zeta 1 Lyra was white bright whereas the other was slightly fainter with a hint of blue.

I moved over to the star Sheliak in Lyra. From there I found my way over to the Ring Nebula in Lyra. On this target, my Astronomik UHC Nebula Filter helped. It was easy to see the nebula and it appeared as a smoke ring, especially with averted vision. It was quite large with my 5 mm eyepiece.

I put my Stellarvue 15 mm 82 degree FMC eyepiece in and wondered through the cosmos in Cygnus. It was quite a trip.

After seeing that it was so late, I thought I'd check to see if Saturn was visible. Sure enough, if I repositioned my telescope I could see it between the houses and trees. This was my first time seeing Saturn since last year and the first time with my new AT102ED telescope. After finding in my wide field eyepiece, I went on down to 5 mm and then added my 2x Barlow lens. I could see , structure in the clouds, the Cassini Gap in the rings, Titan, and a few other moons. This was the best view of Saturn that I've ever seen with my own equipment. The Barlow wasn't making any improvement tonight, just making it tougher to track so I removed it. I also tried out my other gift, a Baader Yellow 495 nm Longpass Filter. This filter was intended for my smaller telescope to maybe tame the chromatic aberration down without having to use an aperture mask but I thought I'd see if it would make any improvement in the view of Saturn with this telescope. It didn't, so I guess that says good things about the telescope.

After gazing at beautiful Saturn I decided to go back inside and go to bed. It was almost 2:00 AM yet the temperature was still almost 90 F (32 C), very uncomfortable.

2022-07-01

23:55 - 01:15

I noticed that to my south the super red giant Antares was shining bright. I've never spent much time in that part of the sky so I brought out my AT102ED telescope to have a look. Skies were clear, slight breeze out of the south, 85 F, and humidity at 54%. Most stars were flickering so I expected not to be very great.

I found Antares in my telescope and observed it in various eyepieces. It is of course orange and very bright to my eye. It does have a companion star but I could not detect it, even by eclipsing it in my 5 mm eyepiece.

I moved slightly west to the double star Al Niyat (σ Scorpii) in Scorpius. I found what looked like a companion star but it was on the wrong side of the main star. My star charts say it is an unnamed star but one of them has moved!

I star hopped over to the double star Rho Ophiuchi (ρ Ophiuchi, 5 Oph). It was a beautiful double, especially in the 5 mm eyepiece. Both appeared white with the more westerly companion only slightly dimmer. Just to its southwest was another double star, HIP 80461 but I could not split it.

I found my way down to the globular cluster M4. I could barely perceive it in my city lights but after staring at it for awhile I could start to make out some individual stars. I'll have to target for better skies.

I swung more to the west to the bright multiple star system Dschubba. It was bright white but I could not split it. Just a few stars above it, I came upon the beautiful double star Acrab (Beta 1 Sco A). The bright main star Beta' Scorpii was slightly yellow whereas the companion star Beta'' Scorpii was white and about 60% as bright. It is a very good double star.

I was about to call it a night when I saw Saturn rising above my neighbor's rooftop. I swung around to check it out again. Seeing conditions were not as good as my last viewing session but Saturn still look beautiful. The rings were very separated from the planet though the Cassini Gap was a little tough to discern except during moments of sunset seeing. Titan was visible as always and I could just see about three other moons. As it got higher above the roofline, the image

stabilized. I put on the 2X Barlow lens for maximum power. I could now start to discern the Cassini Gap and part of Saturn's shadow on the ring. I put in my 6 mm Plössl for comparison and it worked great too, no noticeable difference other than eye relief and field of view.

I started falling asleep at the eyepiece so I quit for the night.

2022-07-03

20:15 - 20:45

I wanted to try my new Baader 495 nm Longwave filter on my small Bresser AR102s f/4.5 telescope. The goal to be to remove the aperture mask at higher powers by reducing chromatic aberration. In the summer months the Moon hangs at low elevations behind my trees most of the time so though the Moon was at a waxing crescent of 21% illumination, it would be behind trees before it was dark. The weather was clear but very hot and humid.

I viewed the Moon with various eyepieces up the 5 mm at 92x. The CA reduced the ability of this telescope to focus at powers greater than about 25x unless the 60 mm mask is used. The mask clears the CA up completely.

At 92x, I viewed the Moon with and without the new Longwave filter and with and without the mask. The filter did make an improvement by removing any blue fringing but didn't noticeably improve the sharpness compared to the improvement made by the mask.

I also tried my Celestron No. 80A Blue filter. I had about the same results with it except at the other end of the spectrum.

21:45 - 11:00

Now that it was dark, or at least as dark as a Bortle 8 sky can get, I went back with my telescope.

I started off at the tail of Leo at the star Denebola with my low power 25 mm (18x) eyepiece. Even though it was The night before July 4th, the illegal fireworks made it feel like I was in In war zone. I worked my way to the south into Virgo with no real target in mind.

I switched to my wide field 17 mm (27x) eyepiece and panned up into Coma Berenices. I scanned the stars for a bit just to take in the beauty.

Arcturus was high a bright so I used to compare filters against the mask, especially at higher powers using my 5 mm eyepiece. After many trials, no filter really was a cure all. The mask worked great but of course reduced light and resolution. I still think that at high powers where

CA may be objectionable, I still get better resolution with the mask at 60 mm aperture than without at 102 mm aperture.

The fireworks were extremely loud and since some knuckleheads fire guns into the air I decided to come inside to avoid a hail storm of lead.

2022-07-04

21:15 - 21:45

The 30% waxing crescent Moon was visible in between my trees so I took this opportunity to capture some images with my SVBONY SV-305 camera and my AT102ED telescope.

I captured a bunch of images to process later. The Moon was soon behind my trees.

2022-07-05

20:45 - 21:15

The sky was bright and the weather extremely hot but I wanted to do some more filter comparisons with my Bresser AR102s telescope. The Moon was visible between my trees at a 39.6% waxing crescent phase.

I tried every combination of Yellow 495 nm Longpass filter, UHC Nebula filter, No. 58 Green filter, 60 mm Aperture Mask, and no aperture mask. Nothing sharpened the image of the Moon better than the aperture mask despite the theoretical loss of resolution. I posit that if you have chromatic aberration then there is no way too get a sharp focus so you can't obtain the resolution expected for a given aperture. In this case, the resolution at 60 mm is greater than any CA improvement with a filter. Perhaps a very narrowband filter tuned to a single wavelength with steep response skirts may prove to be an exception, assuming such a filter exists. Meanwhile, with this excellent travel scope I'll enjoy its exceptional views with the aperture mask when using higher powers.

Now it was time to just take in the Moon's beauty. No photo can ever do it justice. The Montes Caucasus had just recently come into their morning light so I could see the true majesty of these mountains. There was lots of detail along the terminator.

I was sweating and I had to go to bed to get up at 5:00 AM to go to work in the morning so I brought everything in. This telescope and mount is half the weight and half as cumbersome as my AT102ED so it was very easy.

2022-07-08

21:15 - 21:45

The temperature was 98 F with little breeze. The Moon was at a 71.6% waxing gibbous and I wanted to compare two different aperture masks with my small Bresser AR102s telescope.

By itself, the telescope was 102 mm x 459 mm at f/4.5 achromat. At the design, low power mode of 23X chromatic aberration wasn't a problem, especially when looking for comets as it was designed to do. However, some CA was noticeable on the bright Moon and at higher powers the CA greatly degraded the usual resolution.

The 60 mm aperture mask that I made a couple of years ago did wonders at reducing CA and actually improving resolution. It turned the telescope into a 60 mm, f/7.65 scope satisfying Sedgwick's standard for CA reduction. I've used to to great advantage into turning this telescope into a usable planetary scope and have split countless double stars with it. Except for when observing nebula or clusters in dark skies, the 60 mm aperture mask has become standard equipment for this telescope.

I recently obtained another yogurt lid and I used a Greenly Hole Punch to create a 48 mm aperture mask. With this mask my telescope is converted to a 48 mm, f/10 telescope that exceeds even Conrad's standard for CA, effectively making the telescope, if I dare say, an apochromatic telescope. While observing the Moon no CA was detectable. At lower powers of 20x or less I couldn't not detect in reduction in resolution of the Moon. I did notice some light reduction.

While comparing no mask, 60 mm, and 48 mm mask, either mask greatly helped on the Moon in regards to CA but a reduction of surface details only became apparent with the 48 mm mask at high powers, like 92x. While observing the bright star Spica with my 5 mm eyepiece (92x), no mask had pretty severe "glare" around the star. With the 60 mm mask, Spica was very sharp with the Airy disk and diffraction rings visible. There was just a little CA from one side of the star to the other. With the 48 mm mask, no CA was visible but the Airy disk was larger due to the loss of resolution.

In conclusion, no mask is useable at low powers while scanning the skies for faint, diffuse objects. For anything else, the 60 mm mask is the best comprised between CA reduction, resolution, and

brightness. The 48 mm is great for no CA views of the entire bright Moon at lower powers (<35x).

Many people shy away from aperture mask due to the calculated reduction of resolution. However, they often ignore that when CA is present, a good focus is impossible at all visible wavelengths so the theoretical resolution cannot be realized. In the case of this excellent travel scope, the 60 mm mask turns it into a very good telescope. I was somewhat surprised by how little difference aperture makes. Yes, resolution and light gathering ability increase with increased aperture but the difference doesn't match the difference in cost and weight.

It was still about 97 F at 9:45 PM so I took two whole minutes to break it all down and put it all away in the house.

2022-07-15

22:15-00:00

The night was 90 F (32.2 C) and humid but the skies were clear. I brought out my AT102ED to check out some new double stars in Boötes and neighboring constellations (ex., Serpens) that I had made a target list for using my Sky & Telescope's Pocket Sky Atlas, Jumbo Edition.

I first anchored my Alt/Az telescope onto Arcturus to get my bearings. From there I moved up to the double star Izar (Epsilon Boötis, ϵ Boötis) in Boötes. I could easily split the pair with my 5 mm (143X) eyepiece and the addition of the 2X Barlow (286X) brought them out beautifully. The main star was an orange Airy disk and the slightly blue but much fainter companion was just outside the first diffraction ring.

My next stop was the double star Delta Boötis (δ Boo). The main star was orange/yellow and the westerly companion star was about 30% as bright and appeared blue/white. They were easily split even with my 25 mm (29X) eyepiece. Given the close proximity of the pair to our solar system, the angle separation was significant.

Third on my list was Kappa Boötis (κ Boo, κ Boötis) but it was behind a tree at this particular location.

I went to the next on my list, the multiple star system Alkalurops (μ 1 Boötis, Alkalurops, Mu Boötis). Alkalurops was a yellow star and easily separated from the double star Incalunis (μ 2 Boötis). Incalunis was just barely splittable at 12 mm (60X) but was a clear split at 5 mm. The star on the side of the pair closest to Alkalurops was slightly fainter than its companion. Both appeared to be white. Alkalurops was much brighter than both. While taking a final look at the system a fast moving satellite or meteor crossed my field of view!

I swung the telescope south to the star Unukalhai (Alpha Serpentis, α Serpentis). I hopped from there to 10 Serpentis. Then to the double star 6 Serpentis. It was a yellow star and I could see a very faint star some distance to its east but I don't know if that was its companion or not. I found some information on Wikipedia about it but no comparison photos.

I moved over to the double star HIP 74895 but it was faint and I could only see one star. I can find little information on the pair so I don't know what it is supposed to look like.

I moved up to the white star MQ Serpentis and though it's not listed as a double in Stellarium or my Sky Atlas, I could see a very faint bluer star to its east. I could only see the fainter star with my 12 mm eyepiece in my bright city lights. A 5 mm the light loss made it disappear. I'll have to investigate this. Post note: It turns out that I was seeing a double star! According to Wikipedia, it is now called 5 Serpentis and the old name was MQ Serpentis when it was incorrectly thought to be a variable star.

By now a keen reader may know where I'm headed, to the globular cluster M5 of course. It looked quit large with my 12 mm eyepiece and I could almost see individual stars. I can't wait to see it in dark skies someday. I did make out a discreet star just to the west of it.

I scanned to the north of M5 until I came across a very obvious double star that looked like a pair of eyes. It was HIP 73716. The were of near equal magnitude and appeared slightly blue in my 12 mm eyepiece. The more northerly star was just slightly fainter.

I scanned around the sky for a few minutes and then decide to call it quits. It was still 88 F (31.1 C) and muggy at midnight though cooler then it has been. Still very uncomfortable. I at least found all of my planned targets, except for the one behind a tree, and had a couple of bonus finds. I don't know why I like multiple star systems so much. Perhaps it's because I usually don't know they are there until I find them and then it's like "they are all over the place!". Also, letting my mind imagine a planet where the sunsets are like those on Luke Skywalker's planet are potentially real. Thirdly, I can actually see them in my Bortle 8 skies.

2022-07-23

22:25-11:35

It was 92 F, calm, and 32% humidity. Vega was high in the sky so I took my AT102ED telescope out for some looks. This time I had in on my smaller alt/az mount, the Bresser that was equivalent to an Explore Scientific Twilight Nano mount.

I was quickly able to acquire Vega using my green laser pointer guide system. Vega was its usual beautiful, bluish diamond in the sky.

From Vega I moved down to the famous double double star system, Epsilon 1 Lyrae and Epsilon 2 Lyrae. I could split Epsilon 2 Lyrae with my 12 mm (60X) eyepiece and where two near identical stars lined up vertically when viewing the larger pair laid out horizontally. I had to use the 5 mm to split Epsilon 1 Lyrae and they were horizontally oriented while the most southerly star was about 60% as bright as its companion.

I moved down to the bright star Sadr, or Gamma Cygni. From there I hopped up to the noticeable orange star HIP 99968. I noticed that there was the double star HIP 100069 nearby so I hopped over to it. I could only split the pair with my 5 mm (143X) eyepiece. Both were bluish with the more easterly companion star being much more faint than the other and just barely outside of my telescope first diffraction ring.

I put in my Stellarvue 15 mm (48X, 82 deg.) eyepiece and swept the skies in Cygnus just to take in the beauty. I ended up on curious grouping of several stars called Omicron 1 Cygni in Cygnus consisting of 30 Cygni, 31 Cygni, and 32 Cygni. I'll have to investigate these later. (NOTE: The grouping is not a true gravitationally interacting system, they are just a chance alignment in the sky.)

I was falling asleep at the eyepiece so I called it a night and went inside.

2022-08-02

20:40-21:30

The transparency was good but it was still 100 F and breezy. Dusk was still bright and the seeing conditions were equivalent to looking over a BBQ pit. It likely was just my small Bresser telescope warming up after bringing it from my 72 F house to the 100 F outdoor oven because it got much better after a few minutes. The Moon was visible between my trees at a 25.6% waxing crescent. I decided to take in some views of it.

While looking at the Moon, I experimented with aperture masks and filters again to compare effective resolution, brightness, and chromatic aberration. At 104 mm, the Bresser, f/4.5, achromat telescope suffers from CA at higher powers (>30x) as expected. The addition of a 60 mm aperture mask removes almost all CA and greatly improves effective resolution. A 48 mm mask did not improve anything and slightly reduces the light intensity. Sadly, my new Yellow, 495 nm Longwave filter made no noticeable improvement to CA but made everything yellow. My No. 58 Green classical filter made some mild or imaginary improvement but for sure made everything green. As I determined in past experiments, the best combination is simply the 60 mm mask. Intuitively one would think the resolution would be reduced. However, without the mask the chromatic aberration means that all wavelengths are not focused the same, which in the end means that I'm looking at a high resolution, unfocused image. That's why I say that the "effective resolution" is better with the 60 mm mask. Contrary to popular belief, I can still see incredible detail on the Moon with just 60mm of CA free aperture.

The craters Theophilus and Cyrillus were the most prominent features visible on the Moon. The central peaks in both craters were very pronounced. At the southern end of the Moon and well into the dark side, a single feature lit up brightly. However, I have not identified it. The crater Pitiscus had an enormous shadow reaching into the terminator. It also appeared to have a large bolder or smaller crater embedded on the illuminated, inside crater wall closest to the terminator.

The Moon went behind my trees and the temperature had cooled down to 97 F. It was a work night so I quit and brought everything inside for the night.

2022-08-06

23:40-01:05

The waxing gibbous Moon was at 68.8% illumination and only 22 degrees above the horizon. The weather was breezy and slightly cooler with a temperature of only 87 F and it wasn't even quite midnight yet. Seeing conditions were about 3/5, probably due to the low elevation and transparency was about 1/5. The Moon was slightly orange. I decided to take my AT102ED telescope out to look at the Moon.

The most significant features on the Moon for the evening were the crater Copernicus and the fine detail of its ejecta splatter and the mountains containing the crater Maupetuis. The mountains appeared to have a shear cliff hundreds of miles high, surely a terminator illusion. The sharpest views of the Moon were with my 12 mm (60x) but it was fun zooming in with the 5 mm (143x). I had fun just exploring everything I could see o man it.

While observing the Moon I played around with my No. 58 Green filter and then my Yellow, 495 nm Longwave filter. Both filters looked fine but since chromatic aberration is almost non-existent, there was nothing to improve upon with this telescope.

I saw that Jupiter was peaking between houses so I repositioned my telescope to get this telescope's first light of Jupiter. Jupiter was bright along with its four Galilean moons. I experimented with various eyepieces and them with and without the 2X Barlow. The best view was with my 5 mm eyepiece alone at 143x. I could see several belts on the planet but it was generally washed out due to the poor transparency I assume. CA was well controlled and no combination of filter and/or aperture mask made any improvement.

I was going to work through my Cygnus hit list but I was too tired and the sky was kind of smoky anyway. I used this point to bring everything inside.

2022-08-11

21:45-22:35

The temperature began at 91 F, a Bortle 8 skies, Super Moon rising, and the smell of exhaust in the air. Oh how I long for winter. Nevertheless, the constellation Hercules was at my zenith so I thought I'd explore there again with my AT102ED telescope.

I started off with the reasonably bright double star Zeta Herculis. I could not split the star even at my highest power of 286x. Since the period is reported to be 34.45 years, they may be inline with each other at this time.

I star hopped from there to M13, The Great Cluster in Hercules. I found it easily and it looked best in my 5 mm (143x) eyepiece. I could not see much detail but I'd love to view it in much better skies.

I hopped from M13 to Pi Herculis, Epsilon Herculis, and stopped at the double star Rho Herculis. I could split the pair easily at 143x. The main star was white/yellow while the companion star was white/blue and about 75% as bright. The pair were really a pretty double.

The Moon's light was rapidly overtaking my roof and illuminating my backyard and trees.

I went back down to Epsilon Herculis because I didn't stop long the last time not knowing it was a double star. However, I could not split it.

The viewing angle and trees were making observing Hercules uncomfortable, the temperature, and the pollen made it very uncomfortable so I brought it all inside before the Moon blinded me.

2022-08-26

21:00-23:15

The weather was breezy with a few low clouds that would form and then quickly dissipate. Weather was in the 80's F and humid. I stepped into my front yard and I saw that Saturn was visible from the sidewalk and the street lamp was shielded by my tree. I invited my friend from across the street over to view it with me.

I brought out my Astro-Tech AT102ED refractor telescope and set it up on the sidewalk. I put in my 12 mm eyepiece at 60x and got a beautiful view of Saturn and a few of its moons. We next put in the 5 mm eyepiece at 143x and got an even better view. Belts were discernible on Saturn's surface and the Cassini Gap was clearly visible. In moments of clarity we could detect a slight shadow of Saturn on the rings. Titan was clearly visible as usual and I could identify Rhea at times. With averted vision other moons would pop in and out of view. I put in the 2x Barlow for a total of 286x but other than a larger size it did not offer any improvement tonight.

We spent a long time observing Saturn watching it become sharper as it rose far above the roof tops. Once it went behind my tree and streetlight we had decided to call it a night.

As I was putting the two eyepieces away we noticed something bright rising above the rooftop across the street. It was Jupiter. I had been waiting to observe Jupiter with this telescope so my neighbor and I agreed to stay out longer and check it out.

Jupiter was quite large and beautiful at 143x and three of the Galilean Moons were visible, Io and Callisto on one side and Europa all by its lonesome on the other. We watched as Jupiter quickly rose above the rooftops and its image becoming clearer and clearer. The two main belts were very visible and finer details could be seen, especially after watching it for a bit.

I played around with a couple of filters but they didn't offer any noticeable improvement. After thoroughly observing Jupiter we once again were about to put things away when I noticed a "pimple" on the northwest limb. I verified that my friend could see it too. Sure enough, it was Ganymede coming around from the backside of Jupiter! We watched as Ganymede separated itself from Jupiter's cloud tops.

Even though we only viewed two targets, they were totally new to my neighbor and beautiful to me. The view of Jupiter through this telescope was new for me too. There were a few neighborhood passerby's but they seemed oblivious to us and the telescope. My friend and I discussed the stars a bit and then packed things up for the night.

2022-09-02

21:45-22:30

It was a mild, cloudy, and very humid night. The Moon was on my western horizon at a waxing crescent phase of 42.6%. Though a poor night for astronomical observing, I brought my little Bresser 102 mm, f/4.5 telescope out. I have found that observing the Moon in partly cloudy conditions with a medium to low power eyepiece to be very mesmerizing.

In the beginning, the Moon was quite visible and low clouds were drifting across it. This is the best time and I took a lot of cell phone pics. Later, high cirrus clouds came over that just made it look like my lens was fogged over. This wasn't as cool.

The star Dschubba (Delta Scorpii, δ Scorpii) was very near the Moon in several of the clearer shots.

Once the Moon went behind the trees there wasn't much else to look at due to the clouds so I brought everything inside.

2022-09-05

00:10-01:20

It was a damp and cool night but very calm. The 66% waxing gibbous Moon looked awesome behind some thin and wispy clouds. Jupiter was high and bright in between my neighbor's trees.

I brought both my Astro-Tech AT102ED refractor and my Bresser AR102s refractor out to look at Jupiter. All three Galilean Moons were visible with Callisto very near the south pole.

I spent a lot of time comparing both telescopes with various eyepieces and filters. The longer focal length and less chromatic aberration of the AT102ED made it the winner in image quality while viewing Jupiter. However, with the 60 mm aperture mask the Bresser was very comparable. If you factor in the 50% less weight of the Bresser and it's mount it really makes the "what will I take outside" comparison a toss up.

I also spent time with my older Celestron Plössl eyepieces and the image quality of Jupiter great on all of them.

It still amazes me that after purchasing the Bresser telescope and Plössl eyepieces inexpensively and with free credit card points that it can still hold its own against the much more expensive, but still reasonable, Astro-Tech setup and eyepieces.

Clouds were obscuring much of the sky so I quit for the night.

2022-09-06

21:20-21:45

The temperature was 85 F and the humidity was 55%. Winds were calm but seeing was about a 3/5 over my neighbor's roof top. Saturn was visible between the trees so I brought my Bresser, 102 mm, f/4.5 telescope out to have a look.

Saturn was sharp with my 5 mm Astro-Tech Paradigm ED eyepiece but I believe a little more light was passed with my tiny Celestron 6 mm Plössl, a little more than what you'd expect just from the focal length difference. I could see Titan easily and Dione at times. When I removed the 60 mm aperture mask, the main image may have sharpened a bit but it became more obscured in a "fog" due to chromatic aberration. If I looked carefully I may have been able to see just a little more detail underneath the "fog" due to the much greater aperture but for the most part the image was a "night and day" difference with the aperture mask in place.

In the end, given my Bortle 8 skies, pollution warnings during the day, and the bright, gibbous Moon near the field of view, I was able to see the rings of Saturn sharply and well separated from the planet, and with the 2x Barlow lens I could at least imagine seeing the Cassini Gap.

This was planned to be a short session and the mosquitoes were out in full force so I packed it up and went to bed.

2022-09-08

23:10-00:30

It was 79 F, clear, and calm. I brought my Astro-Tech AT102ED out to try it on Jupiter without the diagonal. Short story, that won't work. Not enough focus travel. Moon at 97.6 % waxing gibbous.

I put the diagonal back in and saw Jupiter and it's four Galilean moons. Io was very close to the planet.

2022-09-10

20:25-22:00

Today I dug out my 1960's Sears Model No. 4 6333-A 60 mm, f/15 achromatic refractor telescope.

Temperature was 82 F, 44% humidity, and very calm. Seeing was good though the bright fully moon was making it look like sunrise.

I focused in on Saturn as it clear the roof lines. I soon remembered what a pain this telescope was. Things in the equatorial mount were loose with age and since the North Star was obscured, I set it using my latitude and my phone's compass. That should have been close enough but it wasn't. Saturn kept drifting out of view and it wasn't nearly as easy as my alt/az mounts to find it again.

The view of Saturn was about as I remembered it. I could separate the rings from the planet at medium powers but at high power it was just a blur. Compared to my newer telescopes, I was never real able to obtain a good focus with any eyepiece. The original yellow Kellner 20 mm eyepiece (45x) was the best for Saturn. My other choices were a Celestron 30 mm Kellner, Celestron 25 mm Kellner, Celestron 6 mm Kellner, all 0.96". I could see the moon, but only with inverted vision. With 6 mm at 150x Saturn was just a blur. Chromatic aberration was not bad but I could still detect it, surprising for an f/15 telescope.

Next, I setup my Bresser AR102s, 102 mm, f/4.5, achromatic refractor telescope on Saturn. I used my 60 mm aperture mask for a direct aperture comparison and this made it an effective f/7.65 telescope.

The difference was amazing. At 38x the view of Saturn was much sharper than through the Sears telescope and Titan could be seen straight. At 92x, Rhea was visible with averted vision and during random periods of exceptional seeing, I could detect the Cassini Gap. I didn't even think that was possible with this telescope. This Bresser telescope with my Astro-Tech Paradigm eyepieces, the 60 degree field of view with sharp images all the way to the edge of the field of view, and plenty of eye relief, this setup is worth 10 times it's inexpensive cost. Keep in mind, without the aperture mask, this fast telescope is only useful for low power, wide field viewing. It was designed as, and appropriately named, a comet hunter.

I brought the Sears scope inside and watched a show.

23:15-00:00

The Moon and Jupiter cleared the roof line. The four Galilean moons of Jupiter were lined up symmetrically and a couple of clouds belts were easily seen, 18x to 92x.

I put the Moon filter on and checked out the near full Moon, 99% waning gibbous. On the sun setting edge I could detect the very tip of the central peak in what I think is Neper Crater. Being full, the rest of the Moon was pretty boring.

I did a few wide-field sweeps of the sky and called it a night.

2022-09-13

20:40-21:10

The weather was mild, clear, and breezy. I decided to bring the little Bresser AR102s telescope out to get my astronomy fix before bed time. I put the 60 mm aperture mask to get the clearest views. It is now a 60 mm x 459 mm, f/7.65.

Saturn was in view so I took a look with my Astro-Tech 12 mm (38x) Paradigm ED eyepiece. Just as did, a satellite crossed my field of view. Saturn was sharp and I could see Titan. Rhea would pop into view on occasion. I put my Celestron 8 mm (57.3X) Plössl in and things seemed a little brighter. A few times I may have seen Enceladus.

I played around with different eyepieces and among my favorite views were with my Celestron 6 mm (76.5x) and 8 mm (57.4x) Plössls. Very sharp. I even stretched it further with the 6 mm and 2X Barlow for 153x and I could see belts on the planet and the Cassini Gap. It was still sharp. Saturn never gets old.

After Saturn rather quickly went behind the trees, I put in my Celestron 32 mm (14x) Plössl and did a few 3.5 degree wide field sweeps before bringing it all inside.

Despite my neighbor directly under Saturn having is back lights and was cooking BBQ, the seeing conditions were superb. Very stable, despite the Bortle 9 skies tonight.

2022-09-17

20:00-23:15

Temperature was 90 F and just starting to get dark. Humidity was high and the wind very low. Transparency was poor and caused lots of sky glow but seeing (stability) conditions were excellent which allowed for high power observing. My Bortle 8 skies are generally horrible, but the more often than not excellent seeing conditions here make the skies somewhat more tolerable.

My wife and I setup the Astro-Tech AT102ED telescope and two brand new lounge, zero gravity chairs. She sat in her new chair and observed with the Minolta 10 x 50 binoculars while I sat at the telescope. We saw two local bats right off the bat (pun intended). Saturn was creeping around my neighbor's tree so I focused in on that with my 25 mm (29x) Astro-Tech ED Paradigm eyepiece.

I switched the 12 mm (60x) Paradigm eyepiece and I could instantly see Titan and Rhea. I could just see Tethys for the first time.

I put in the 5 mm (143x) Paradigm and then doubled that with my 2X (286x) Barlow. Seeing conditions were good enough to use the maximum power I could muster. Saturn looked fantastic. I could see a bright equatorial band, a darker band above that, the shadow of Saturn on the rear part of the rings, and the Cassini Gap clearly. A satellite crossed my view in an ascending orbit.

I put my Stellarvue 15 mm, 82 degree wide field eyepiece in with the 2x Barlow (95x). Another satellite passed by in a descending orbit. The view of the entire Saturn system was beautiful.

I hooked my SvBONY SV-305 camera up to my laptop and using the 2X Barlow I captured several videos and images of Saturn.

I next brought out my Celestron Plössl eyepieces and compared them to the Astro-Tech eyepieces while using the 2X Barlow. As usual, other than differences in the field of view I really couldn't tell any differences. Sometimes the Astro-Tech 5 mm (143x) appeared to show a glare around Saturn compared to the 6 mm (119x) Plössl and sometimes I couldn't see Tethys as well with the Astro-Tech. However, it was more likely my allergy eyes and the fact they weren't exactly the same focal length. The Astro-Tech Paradigm ED eyepieces do have more glass than the Plössl design so they may account for the minor optical differences.

I took a break onto the lounge chair with my 10x50 binoculars. The city sky is so bright I can read a book by ambient sky light alone so binocular observing from my backyard isn't very enjoyable anymore, but the chair was nice.

I went back to the telescope and scanned the skies with my 32 mm (22x) Plössl and then my 25 mm (29x) Astro-Tech. I found myself back at Saturn and I with south fro there to the star Castra. I star hopped from there to 41 Cap to get me I. The vacinity of the globular cluster M30. I could barely perceive M30 but the neighboring star HIP106977 was bright. It could make it out the best with my low power Plössls, like the 6 (119x) and 8 (89x) mm.

I star hopped my way a little to the southeast and found the minor planet 4 Vesta. This was the first minor planet (asteroid) that I've seen myself and followed it around a bit in the past.

While scanning the skies, I came upon the double star HIP 114703 in Aquila. It was a widely space pair with the more northerly star being slightly brighter and yellower than its companion. There was a third, bluer star just to their south.

Neptune was my next target. I star hopped to the east and found Neptune, for sure this time! I had observed it in the past but my identification of it at the time was questionable. It was faint but definitely had a bluish tint. However, even at my highest power it was just a faint, star like object. I could see it just a tiny bit better with my 2X Barlow and 6 mm Plössl (238x) then I could with the Barlow and the 5 mm (143x) Paradigm.

My next target was Jupiter, but I had to wait for it to clear the trees. When it cleared, I checked it out with all my various eyepieces. The four Galilean moons were visible with Callisto being way out by it lonesome. I could see a lot of detail on the surface, with the two obvious equatorial dark belts. And interesting feature was a large gray area on the top side of the lower dark band. It was a large as the Giant Red Spot when visible. Perhaps a festoon had blossomed but some research did not confirm its existence.

I hooked the SV-305 camera back up and capture several videos and photos with and without the 2X Barlow. My videos and photos captured the large, gray, "festoon". After I was satisfied that I capture enough images, I went back to visual observing.

I tried various filters but none really improved the image. The cleanest image seemed to be with my el cheapo Celestron 6 mm Plössl by itself. I played around swapping eyepieces and then decided I was too tired to continue. My wife and I packed it up for the night.

2022-09-23

21:00-22:15

My wife wanted to lay under the stars in our new zero-gravity lounge chairs. I decided to join her to check out the skies. I thought about bringing my telescope out but unfortunately, medium altitude clouds moved in from out of nowhere. So instead, I brought out my Bresser 7x35 binoculars to catch star glimpses in between the clouds.

Amazingly, the clouds and stars had a beautiful 3D effect to them that made me feel like I was riding the large dog creature on “The. Ever Ending Story” movie.

Vega was near my zenith and I viewed the usual targets in Lyra, like the Double Double Star system, ETA Lyra.

I also checked out stars Cygnus, like Deneb, Alpha 1 Cygni, and Alpha 2 Cygni.

I found some new telescope targets in my westerly view:

- Rasalgethi, Alpha Herculis, red double star
- 95 Herculis A, double star
- 100 Herculis AA, double star

I started getting hungry so I went inside.

23:20-00:00

I read on a forum that the Great Red Spot on Jupiter was visible so I brought my AT102ED telescope out to have a look. I could see Io just coming out from in front of Jupiter but no red spot.

I observed the visually large Jovian planet with various eyepieces.

I began to feel a bit ill so my wife helped me bring everything back inside for the night.

2022-09-26

20:45-21:55

It was very clear, no wind, and about 78 F. I brought my Bresser AR102s out for a few quick looks before bed time.

I first turned my telescope to Ophiuchus. My target was the red double star Radalgethi, Alpha Herculis A (α Her A). I found it very quickly with my 25 mm (18x) eyepiece. I couldn't split the pair until I went from 12 mm (38x) down to 5 mm (92x). Because of the deep orange hue, I could see the pair clearly even without the 60 mm aperture mask. The mask only dimmed the pair. The companion star seems a bit whiter and was about twice the distance of the main star's diffraction ring. Interestingly, bring the main star slightly out of focus revealed an unusual deep red hue with a ring of green.

I put in my 25 mm eyepiece and as soon as I did a satellite past Radalgethi in an ascending orbit. I chased it across the sky until it intersected with an eastbound satellite. I chased it until it went behind a tree.

While scanning around in Ophiuchus, I came across an unnamed cluster of stars just above (east) of the bright, orange star Cebalrai, Beta Ophiuchi (β Ophiuchi). I switched to my wide field Stellarvue 15 mm (31x) eyepiece and enjoyed the view for a while. (I later researched the cluster and found it to be called Summer Beehive Cluster, Poseidon's Trident Cluster, and the Black Swallowtail Butterfly Cluster.)

Just to the south of Cebalrai was another bright star, Al Durajah, Gamma Ophiuchi (γ Ophiuchi), 62 Oph. To the northwest of it was a spooky double star pair, 61 Ophiuchi A, that has caught my eye before before. It catches my attention while scanning because the near identical, well spaced stars look like a pair of eyes staring back at me.

I turned my telescope around to check out Jupiter again at its closest opposition, since October, 1963. Three Galilean moons were on one side of Jupiter and one on the other. I could see the usual belts and I tried a couple of filters to pull out more detail without much improvement. Seeing conditions were very good and if I concentrated real good, I would begin to pull out more detail.

After that I brought the setup inside. I had already exceeded my work night, self-imposed curfew.

2022-09-29

20:15-20:26

It was a cool 74 F with a slight breeze out of the southeast. The Moon was at 18.7% waxing crescent only 13 degrees up and in a small visible window in between trees and roof tops. I setup my AT102ED refractor to take a look at it before it was obscured.

The Moon's detail was excellent though seeing conditions just above the rooftops was only about a 3/5. The view of the whole Moon with my 12 mm (60x) eyepiece was beautiful. Even the dark side was quite visible. I switched to the 5 mm (143x) to zoom in on the details. The most obvious features were the mountains associated with the crater Cappella. They looked enormous being along the terminator. I scanned along the terminator slowly and took in the sights. The moon moved behind the trees pretty quick and I had no room on my little patio to scoot the telescope over.

I took the telescope off of the mount and brought it inside. I extended the legs on the mount in hopes of another observing session at my zenith later in the night. I also put my Thermacell on charge so the mosquitoes wouldn't attack me later at night.

21:45-23:06

I brought the telescope back outside and mounted it. I was planning to explore Cygnus but I found looking at the zenith put my eyepiece too low to be comfortable. I decided to play around in Aquila instead.

I first anchored my telescope onto the bright star Altair with my 25mm (29x) eyepiece. I noticed a red "unnamed" star below Altair and below V1339 Aql. Since it is unnamed in Stellarium I could not find out what it was.

I hopped over to the orange star Tau Aql and then over to the optical pair HIP 99054 and HIP 99055. Though they look like a double, they are about 33 light years apart.

I put in my wide field 15 mm (48x) eyepiece and performed rough scans throughout Aquila.

I turned the telescope around and caught Jupiter right as Europa and Callisto were on Jupiter's edge (03:20 UTC). Stellarium (iOS version) showed Europa behind Jupiter by 03:22 UTC but it wasn't. I watched as Europa slowly went behind Jupiter while trying out a wide variety of eyepieces. While observing with my 6 mm (119x) Plössl, Europa began to look like a pimple on Jupiter by 03:47 UTC. I could see lots of details in Jupiter's cloud belts. By 03:52 UTC there was no sign of Europa. Watching the Galilean Moons revolve around Jupiter in real time is fascinating! (I later learned that on Stellarium, PC version the occultation times of Europa matched what I observed so perhaps things aren't as precise in the iOS version.)

After all that I did a few scans in Pegasus and called it quits for the night.

2022-10-02

00:15-02:10

It was 64 F and calm. Saturn was still up and Jupiter was high in the sky. I brought out my AT102ED to have a look before going to bed.

I first observed Saturn with my 12 mm (60x) eyepiece. It was very bright and clear. The Cassini Gap and cloud belts west easily visible. The moons Titan and Rhea were immediately. I then switched to my 5 mm (143x) eyepiece. I put in my 2X Barlow for maximum power (286x). With averted vision I could see Dione and possible Iapetus. I swapped in my 6 mm (238x) Plössl and the my 8 mm (179x) Plössl. With careful concentration I saw Tethys too with the 8 mm! There were two stars below Saturn that I could easily see but they weren't on my Stellarium for iOS. I'll have to look them up later. I put my 13 mm (110x) Plössl was in and I could see the five moons easier, albeit smaller.

I then star hopped my way down to the globular cluster M30 with my 32 mm (22x) Plössl. I found the nearby star 41 Capricorni but sadly I could only see M30 with 13 mm (55x) or smaller in my Bortle 9 skies.

Jupiter was clearing the trees and was high in the sky. I turned my scope with my 32 mm (22x) Plössl to it to check it out tonight. The four Galilean moons and two cloud belts were easily visible with my 13 mm (55x) Plössl.

I played around with all my eyepieces on Jupiter and I noticed something. Though I love my Astro-Tech Paradigm eyepieces in almost all respects, the Celestron Plössls have one advantage for planetary work. The bright Jupiter reflects off of my eye which reflects off the Astro-Tech lens, and then back into my eye to cause ghost images. It is quite annoying. The Plössl have no detectable reflections and their narrower field of view (~50 degrees) doesn't really matter on planetary work to me. If I spent time concentrating on Jupiter with the 6 mm (119x) Plössl, I could clearly see festoons on the upper dark cloud band.

It was 01:40 and I was about to go in when I noticed Mars rising over my rooftop. I hadn't observed Mars through this telescope yet so I had to reposition to check it out. I observed Mars mostly with my 6 mm (119x) Plössl it appeared slightly gibbous in phase and I could faintly see a

darker region in the more southerly area opposite the terminator. I tried various filters but didn't notice any improvements.

I noticed that the star Alnath, (Elnath, Beta Tau or β Tau) was just to the north of Mars. I took a look at it with my 5 mm (143x) Plössl. It was a bright, bluish star with considerable violet content when viewed outside of focus.

At this point I decided it was time to go inside.

2022-10-07

19:45-20:30

It was 79 F with a slight northern breeze. A cool front was just starting to come through. The Moon was at a 95.9% waxing gibbous phase and since there had been some clouds before the front, I had hoped to view the near full moon through passing clouds, my favorite time to observe a full moon. I brought my smaller Bresser AR102s telescope out since it is good on the Moon and is very easy to setup.

I started with my 12 mm (38x) eyepiece and observed the Moon while it was in between my house and the neighbor's. Proximity to the roofline and the temperature changes due to the front made seeing conditions about 1/5.

Though there was a lot of structure visible along the terminator, the most obvious feature was the super bright, white crater Aristarchus. The sun light most have been hitting it just right to reflect most of the light back to Earth.

I swapped back and forth between my 5 mm (92x) and 12 mm Astro-Tech Paradigm eyepieces and with and without the aperture mask. The CA is not really that bad even without the mask if I place my eyeball in the correct spot.

I next brought out my Celestron Plössl eyepieces, specifically the 8 mm (57x) and 13 mm (35x). They both offered great views of the Moon with even the 8 mm allowing the entire globe to be viewed though the 12 mm or 13 mm is best for that.

Some clouds were starting to drift in from my north. I decided on my Stellarvue 15 mm (31x) wide field eyepiece in hopes of catching some spooky views of the clouds passing in front of the Moon. While waiting, I noted that there is a lot of damn stuff flying in between me and the Moon! I've noticed this every time I view near a full moon. Bats, bugs, satellites, UFOs, no telling.

As I waited for the clouds to come, I slewed to the left to catch a glimpse at Jupiter. I could see it well with the 8 mm Plössl eyepiece. 3 Galilean moons were on one side and 1 on the other. I could see the two major cloud belts with ease. I went ahead and bumped the power up a bit with my 5 mm eyepiece. I could not see any red spot at this time. The seeing conditions had improved

but I was more limited by my eye floaters and allergy eyes than the weather or telescope at this power.

I repositioned my telescope so I could see the Moon again in between the trees. The clouds were approaching it. I switched to my 25 mm (18x) eyepiece to get a cooler view of the Moon and the clouds. It looked awesome but soon it was as if the Moon literally burned a hole in the clouds! More clouds eventually came and it was mesmerizing watching the mid level clouds drift across the Moon.

I went back to Jupiter with the 8 mm Plössl hoping to catching some clouds crossing it. Any other time cloud cover would be a given. But tonight Jupiter seemed to bore a hole right through them. I expected the clouds to act like a natural neutral density filter but instead they all evaporated.

At this point I decided to pack up and go inside.

2022-10-15

13:50-14:00

I received a new telescope from Astronomics less than 23 hours after I ordered it! I bought an Astro-Tech AT80ED Refractor Telescope. It is the little brother to my AT102ED. However, it is about the same size and weight as my small, Bresser AR102s telescope that I usually use a 60 mm aperture mask with. The new telescope should work fine on my much smaller Bresser alt/az mount (ES FirstLight Twilight Nano rebranded) just like the Bresser telescope does. My hope was that it would be as convenient as my Bresser rig (small, light weight), but I will get even better views using the whole 80 mm aperture. The Bresser has been a great telescope but it was made for wide field comet viewing. The aperture mask turns it into a good planetary scope, albeit only 60 mm of aperture then.

Of course, the forecast was for clouds and rain the next three nights and since it only rains here every 6 months these days, I knew it was the Astronomer's Curse. However, I was able to beat the curse. The Meade Glass White-Light Solar Filter SF #450 that I bought a few years ago would not fit any of my other telescopes but it fits the AT80ED perfectly! So I installed the filter on the telescope and brought it out to view the sun. The images were fantastic with no chromatic aberration visible. There were a few sunspots and plages visible that looked crystal clear.

Though it was the middle of October, this is hot Texas and the temperature was 96 F. I was too hot sitting in the sun for me to observe for long.

First light with my new telescope was the a view of the sun! Astronomer's Curse was beaten, and I felt good with the new, light weight telescope. Handling it felt no different than with the Bresser setup. My larger AT102ED and the required heavier duty ES Twilight 1 mount is twice as heavy and cumbersome. However, none of my setups compare to the complexity and weight most people haul outside. I guess I'm just lazy.

I hope to have some comparison observations at night soon, possibly tonight if it's clear enough. For now, I quickly brought everything in to cool off under a fan.

20:20-21:30

Well, it got dark and there were no clouds yet. I brought the new telescope out to take it for a spin amongst the stars.

I pointed west with my 25 mm (22x) eyepiece. I could see many pinpoint stars and I came upon a red star about the same time a satellite passed by.

I did final stop on the bright 2.05 magnitude star Rasalhague, Alpha Ophiuchi (α Oph). I went from 12 mm (47x) down to 5 mm (112x). At 5 mm I could see diffraction rings and an Airy disk. There was a very tiny bit of CA noticeable but I had to really look for it.

Next, I put the low power 25 mm eyepiece in and swung around to Jupiter as it was coming over the rooftops now. I could see three Galilean moons and just discern two cloud belts. At 12 mm I could see a darker area in the southern hemisphere. I could not tell if it was the Giant Red Spot or not. At 5 mm Jupiter was bigger but details began to compete with my eye floaters as usual.

I went inside and got my Celestron Plössl eyepieces. I tried 8 mm (70x) as a good in between value and Jupiter looked great. My floaters were out of focus and I could see lots of details. The darker region to the south was still visible though I couldn't tell what it was. CA was only visible if I moved my eye around and looked for it. A straight on, in focus view showed no CA. I then tried my 6 mm (93x) Plössl and again I could see good detail. I about convinced myself that I was seeing the Great Red Spot.

I put in my Celestron 8-24 mm (23x - 70x) Zoom eyepiece. Views were good but I did have a tiny eye reflection caused by bright Jupiter when I was zoomed in all the way.

I pushed the telescope to its limits by using my 2X Barlow with my 6 mm Plössl (187x). The image of Jupiter was still good though a bit soft. The CA with this combination was less than with the 5 mm (112x) alone. Actually, I pushed it a little bit harder by using the 2X Barlow with the 5 mm (224x). Jupiter was big but as expected, I still couldn't resolve any details better.

The 8 mm Plössl by itself probably offered the best, all around views of Jupiter with this telescope.

I did coax some more detail out of Jupiter with the addition of my 495 nm Longwave Filter and my No. 58 Green Filter. With the two on the 6 mm eyepiece and the 2X Barlow (187x), I could see the details better. By this time the spot was out of view and Europa was just about to go in front of Jupiter. However, Jupiter itself went behind a tree.

I put in my Stellarvue 15 mm (37x) wide field eyepiece and began scanning. I came across a sign post of the star Deneb Algenubi. It was at the bottom of a curious star pattern in Cetus. I next came upon the orange star 45 Cet.

I did a few more scans in Cetus through my Bortle 8 skies. It was still 84 F and the mosquitoes were horrible so I called it a night. Overall I have no complaints about this smaller AT80 ED telescope.

2022-10-18

20:10-21:15

A cold front had made the skies crystal clear and made the temperatures nice. It was 56 F when I decided to bring my new AT80ED telescope out.

I started with Jupiter and worked my way down to my 8 mm Plössl (70x) eyepiece. Though sky transparency was excellent, seeing conditions of Jupiter above my neighbor's warm rooftop was poor, about 2/5. Normally, everything is hot so seeing conditions are good. Tonight the air temperature dropped fast but the roofs had still been under the Texas sun all day. It didn't take long though for the image of Jupiter to stabilize. The 8 mm eyepiece with the 2 x Barlow (140x) brought Jupiter into view nicely and I could detect some festoons on the darker cloud belt when my eye floaters didn't get in the way. The four Galilean moons were in view with Io by its lonesome on one side and the other three on the other side.

Next, I played around with low power eyepieces. I compared my 32 mm Plössl (17.5x) to my 25 mm (22.4x) ED Paradigm eyepiece while centered on Jupiter. I could see about the same field of stars in both but the afov was pleasantly larger in the 25 mm.

I turned my telescope to the bright star Alpheratz (Alpha Andromedae, α Andromedae, abbreviated Alpha And or α And) in Andromeda. From there I star hopped over to the Andromeda Galaxy. Sadly, in my Bortle 8/9 skies I could not see the very core of the galaxy. I was recognizable though (adjacent Star patterns helped).

I scanned around Andromeda for a bit with my 25 mm eyepiece and finally stopped on the orange star Mirach (Beta Andromedae, Latinized from β Andromedae). I tried to see Mirach's Ghost but it was buried in my gray sky. I did observe Mirach at my highest power, 5 mm with 2X Barlow (224x) and I could see a clean, orange Airy disk with one major diffraction ring and several, much fainter rings outside of that.

As a work night grand finale, I put in my 15 mm (37x) Stellarvue wide field eyepiece and scanned the vast star fields in Cassiopeia.

It was now 53 F and time for me to go to bed. I put away my eyepieces and brought everything inside.

2022-10-20

20:05-23:45

The skies were clear and calm with a temperature of 71 F. I brought the RS Twilight 1 mount out to the upper part of my back yard to see Saturn. I decided I was going to have a telescope shootout. Live country music good be heard from a band playing in a nearby park.

First, I brought my new AT80ED telescope out and found Saturn with my 25 mm (22.4x) eyepiece. I next went straight to my 5 mm (112x) eyepiece. Seeing appeared to be about 3/5. I could detect cloud belts and at moments of clarity the Cassini Gap. I could see the moons Titan and Rhea without much effort. Saturn's shadow on the rings could easily be seen. I then maxed out the power with the addition of the 2X (224x) Barlow lens. It was easier to discern details now but the resolution wasn't really any better.

Second, I put on my AR102s and went through the same eyepiece sequence. At 25 mm (19.2x) the view of Saturn looked the same as the previous telescope. At 5 mm (96x) it was bright but chromatic aberration became objectionable. I put on the 60 mm aperture mask and cleaned the CA up very well. The view was good but I could not see Rhea. With the addition of the 2X (192x) Barlow the image was bigger of course but the view was not very pleasant though it may have slightly easier to discern the Cassini Gap. I could see it was there but it was not sharp. Reducing the mask down to 48 mm made no noticeable improvement, only reduced the brightness.

Third, I put on my AT102ED telescope with the same sequence. At 25 mm (28.6x) Saturn was tiny but I could already see Rhea (and Titan of course). Next, I put in the 5 mm (142.8X). I could fainter stars above and below Saturn. Once again, with the addition of the 2x (285.6x) Barlow, it was easier to discern details but it didn't appear as sharp. I believe that the seeing conditions were just not good enough for that high of magnification when any of the telescopes.

I star hopped up to the globular cluster M2 and it was easy to find with my 13 mm (54.9x) eyepiece but rough to see details in my Bortle 9 skies. I think I got the most detail with the 2X Barlow and the 6 mm (238x) Plössl. However, I turned my flashlight onto some nearly squealing rats and messed up my night vision.

So, I turned to Jupiter. Best view seem to be with my 6 mm (119x) Plössl. I could easily see details in the cloud belts and the four Galilean moons were all visible with Europa and zip being right next to each other.

I put the AT80ED back on and the view of Jupiter was identical other than Jupiter being slightly smaller for a given eyepiece due to the shorter focal length. 5 mm and the 2X (224x) Barlow looked good other than my eye floaters getting in the way.

I turned back to M2 in order to see the difference between this telescope and my larger AT102ED. M2 was slightly smaller in this telescope and 5 mm (112x) is about as high power as I could go. The 6 mm and 2X (186.7x) Barlow was useable but it was not as bright as the larger telescope. Darker skies would help these types of objects immensely. While viewing M2 I had a meteor shoot across the field of view.

Next, Neptune was supposed to be just west of Jupiter so I tried to find it by star hopping from Jupiter but I just couldn't see the correct star pattern. Stars were pretty sparse where Neptune was supposed to be.

I started just scanning around the southern sky and I came upon the bright, yellow star Diphda. I then scanned around more in the southern sky but city lights made it rough.

I turned to the east and set my sites in Mirphak in Perseus. I spent some time observing the rich star field to the south and east of Mirphak. I stopped on the double star 34 Per A. Though I could see an Airy disk at 5 mm, I could not detect a companion. I then hopped down to the bluish-white double star Selta Perseu, 39 Per A. Once again, I could not split it.

The bright, white star Capella was clearing my trees so I took a look at it. It too is at least a double but I knew I had no chance of splitting if the professionals can't.

I star hopped my over to the Double Cluster as a grand finale. With my 17 mm Plössl it looked beautiful. With my Stellarvue 15 mm (37.3x), 82 degree eyepiece the view was fantastic! Adding the 2X (74.7x) Barlow allowed both clusters to fill the view.

It was now dripping into the 50's F and some knucklehead started burning in their fireplace! Because of the bad climate nearly all trees were dripping honey dew and it coating my gear so I called it a night and went inside.

2022-10-21

13:45-14:15

The sky was clear so I thought I'd bring my AT80ED out for a bit of solar observing. The temperature was in the 90's F so it was too damn hot for much.

I installed my Meade Glass White-Light Solar Filter, SF #450. I observed with various eyepieces, Astro-Tech Paradigm ED and Celestron Plössl. Of course they looked good but 12 mm (46.7x) seemed to be about the sweet spot. 10 mm (56x) may have been even better but I only had 8 (70x) or 12 mm (46.7x). I was able to clearly see a least 3 regions of multiple sunspots and some various plages.

Next, I tried my Celestron Zoom eyepiece, 8-24 mm (23.3x-70x). I think I finally found a good use for the zoom lens. For most purposes, the reduction of field of view and the focal length increases is slightly annoying. However, for the sun I don't care much about seeing outside the solar disk because you can't see anything anyway. With the zoom I was able to size the solar disk just like I wanted it. I could still see the same detail as with the other fixed eyepieces.

I was about to melt so I called it quits for now. Solar observing is definitely better in cooler times, if we will still get any here in Texas.

2022-10-27

19:45-21:00

I had just gotten back from company travel and an impromptu star party at a work dark site location and I was anxious to get back to my own telescope before a few days of forecast rain came in. I brought out my AT80ED. There was a light breeze, temperature about 68 F, and seeing conditions were about 4/5.

Vega was near my zenith as was Epsilon Lyrae (ϵ Lyr, ϵ Lyrae), also known as the Double Double. I started with low power and worked my way to 5 mm and the 2X Barlow lens (240x). I could begin to split both with my 6 mm Plössl (93x). They were easily split with the 6 mm or 5 mm, especially with the 2X Barlow.

I next swung north and found the multiple star system Zeta¹ Lyrae (ζ^1 Lyrae) and Zeta² Lyrae (ζ^2 Lyrae). Zeta¹ Lyrae was the brightest and slightly yellow. Zeta² Lyrae appeared fainter but white. I did most of the observing with the 6 mm Plössl (93x).

I then put in my 25 mm (22x) and then my 15 mm (37x) wide field eyepieces in and just scanned the regions in Lyra and Aquila. The 15 mm had a wider FOV of course but it also had more contrast in my Bortle 9+ skies (the pipe company a few blocks away had their flood lights on).

I noticed behind me Jupiter was nice and bright so I had to take a look. The four Galilean moons were lined up to my west of Jupiter and I could detect the usual cloud belts. I preferred the view tonight that I got with my 6 mm (93x) Plössl eyepiece. I could see the Great Red Spot but it was pretty washed out. I think the detail was there, just very poor contrast. I tried various filters and the Celestron moon ND filter was the best at bringing out some detail, simply because it knocked the blinding disk down in intensity.

Jupiter started going behind a tree so I took in the telescope for the night.

2022-10-30

16:05-16:40

The weather was clear, calm, and about 72 F. I decided to bring my AT80ED, Meade Glass White-Light Solar Filter, and my SVBony SV-305 camera out to catch some images of the sun.

I first captured images and videos of the sun with camera and telescope alone. This equates to about an 80x. I could clearly see three large sun spots and several smaller ones. Plage was visible too. The largest sunspot appeared as a Halloween ghost.

Next, I installed the 2X Barlow for about 160x. I could only see a small portion of the sun at a time but I was able to zoom in on the spots. I again captured several images and videos.

The sun quickly drifted behind trees so I brought the camera and PC indoors.

16:55-18:30

I moved my setup further out in the yard to view the 34.9% waxing crescent Moon. I first put in my Astro-Tech Paradigm ED 12 mm (47x) eyepiece. It was faint since it was still daylight but made for some enjoyable viewing anyway. Despite the daylight, the large crater Theophilus was very ominous with its multi-pronged central peak poking through the daylight. I took in some closer views with my Celestron 8 mm Plössl.

While observing the Moon in the daylight, I experimented with various eyepieces and color filters. In the end, I had the sharpest view revealing no eye defects, and the most contrast with 12 mm (47x) and Celestron No. 25 Red Filter.

Decided to go inside and wait for it to get dark. I left everything setup outside.

20:20-21:15

It was now good and dark with the Moon up about 23.5 degrees. Temperature was now 63 F. Seeing was about 3/5 over the warm rooftops. I resumed viewing the Moon with my 12 mm

(47x) eyepiece. The view was beautiful with several birds flying across it. It is amazing how many high altitude birds there are in my area. They seemed to be almost on the Moon (very tiny)! I could see the illuminated peaks of the Haemus Mountains even though they were well into the dark side of the Moon, well past the crater Menelaus. I snapped a few descent cell phone photos. I think the secret is to turn the HDR function off.

Because of the grazing angle of the sun, the terraced structure of the smooth Sea of Serenity was clearly visible. The small crater Bessel was standing out in this sea. The rugged terrain of the Causacus Mountains was quite a sight too.

I next turned my telescope to Saturn. I could see the rings and Titan with my 25 mm (22x) eyepiece. I could occasionally see Rhea with my 12 mm (47x) and rings were clear and sharp. With my 5 mm (112x) eyepiece I could easily see the Cassini Gap, Saturn's shadow on the rings, and a cloud band. Seeing was much better at this angle as Saturn was rock steady.

I turned to Jupiter as it was high in the sky. With 5 mm I could see several more cloud belts than usual. The Galilean moons were spread two on a side. I did put the 2X Barlow (224x) in but it was mostly empty magnification. I don't think it helped in bringing out details. The now excellent seeing made me wish I had my bigger telescope out.

Some thin clouds were moving in so I called it quits for the day.

2022-11-01

20:30 - 21:25

The sky was clear but forecast to be cloudy for several days. I decided to take my in some views of at least Jupiter with my larger AT102ED. The temperature was 67 F with a high dew point.

I started off with low power to find Jupiter and quickly worked my way down my 5 mm (143x) eyepiece. I could see three of the four Galilean moons and noted a distinct shadow of a fourth moon on the southern hemisphere. It turned out to be Io's shadow on top of the main southern belt (01:42 UTC). I could just make out the GRS between the shadow and the western limb of Jupiter. At 01:49 UTC I could see Io separating from Jupiter. I put an 86 mm aperture mask on and it removed the very tiny bit of CA that I had noticed on Jupiter. I couldn't detect a loss in resolution at 143x.

Checking with a 6 mm (119x) Plössl, I take back my statement about the mask. It could see a tiny bit more detail without the mask and the CA was pretty much non-existent with the Plössl eyepiece. My AstroTech Paradigm eyepiece might be creating just a little CA at high powers.

Jupiter went behind a tree so I put in my 32 mm (22x) Plössl in and scanned the stars in the region. The Moon and Saturn were up but behind the trees. I had just taken out my telescope on my convenient patio and didn't want to move it way out in the yard on a work night. Besides, seeing was good but transparency was poor.

I worked my way down through 25 mm (28.5x) to my wide field 15 mm (47.6x) eyepiece. In my Bortle 9 skies, I had the best view and contrast with the 15 mm.

After that, I packed it up for the night.

2002-11-04

20:10-21:00

Storms and rain had just moved east as a strong cold front passed through. It was a little breezy but clear so I brought my big mount and little AT80ED telescope out. Jupiter and the waxing gibbous 87.7% Moon were right next to each other. The temperature was 55 F and seeing conditions were about 3/5 above my neighbor's hot roof. There was also dust in the air that had blown in from west Texas.

I used my 32 mm (17.5x) Plössl to find the Moon and Jupiter. I then switched to the 17 mm (33x) Plössl. The Moon very sharp with no CA.

I turned to Jupiter and all four of the Galilean moons were visible with Io and Europa right next to each other. Putting in the 13 mm (43x) brought in the cloud belts very well. Just below Jupiter was the yellow star BT Piscium. It almost appeared as another moon around Jupiter. I went ahead and tried my 8 mm (70x) and 6 mm (93x) Plössls. The images were very sharp and I could see a few festoons on the northern dark cloud band.

I turned back down to the Moon and enjoyed the view at 70x. The most interesting features were the multiple central peaks of the crater Gassendi, the massive Harbinger Mountains, and the rugged terrain of Montes Jura on the east flank of the Sinus Iridum (Bay of Rainbows). Just northeast of the Harbinger Mountains, I could see a rille on the terminator.

I went back to Jupiter at 93x and installed my No. 80A Blur color filter. I do think it helped with the glare and I could pull out fine details a little better.

The Moon looked cool with the blue filter too but I did notice that I could not focus as sharp with it installed. It could be the fact that our eyes don't focus blue wavelengths very well. As a side note, with this telescope the Moon fills the entire field of view with a convenient amount to spare with the 13 mm (43x) Plössl (1.2 deg. FoV calc.).

Soon both Jupiter and the Moon were behind the trees and with the dust making my Bortle 8-9 skies even worse, I decided to go to bed for the night. The temperature was now 50 F.

2022-11-05

18:55-21:00

My wife and I attended the Tandy Hills Star Party just southeast of downtown Fort Worth. I brought my Astro-Tech AT80ED refractor telescope and Explore Scientific Twilight I Alt/Az mount. The weather went from the mid-60's F to about 55 F with a steady breeze out of the south. We were exposed and got a little chilly.

I showed many park attendees views of the Moon, Jupiter, and Saturn. For several 4 and 5 year old, and possibly their parents, it was the first time they had ever looked through a telescope.

The most interesting event occurred while I was looking at Saturn with my 12 mm (46.7x), 62 degree eyepiece. The field of view was about 1.3 degrees with this setup. At 19:50 local time, I observed a small flashing light just below (south) of Saturn. I suspected a "disco ball" type satellite like I've seen before except it was barely moving. It would flash roughly for 0.1 every second. It stayed in the field of view for about 10 minutes. It did seem to wander rather erratically but then again it is hard to tell with a strobe type light. It very slowly wandered to the east. I grabbed one club member and a passerby of the public to take a look and confirm that I wasn't crazy. They too saw it too! I have no idea what it was but the only logical explanation I can come up with is an high altitude weather balloon but I didn't know they ever had strobe lights. I later found out that FAA Regulations do require high visibility strobe lights on the payloads if they are operated before sunrise or after sunset. Very cool! I am surprised that none of the group of astronomers saw it early when it would have been brightly illuminated by the setting sun.

After the visitors were all gone we packed up everything and went back home.

2022-11-06

19:00- 20:200 (CST)

The temperature was 71 F and skies were clear. I brought my AT80ED and the smaller Bresser mount out to test stability. It is much easier to handle than the larger Twilight I mount that I had brought out to the star party the day before.

Jupiter was in view between the trees so I focused on that. At roughly 100x (5-6 mm), the telescope would settle down after a swift tap on the eyepiece after 3-4 seconds, as long as my furniture pads were under each foot. That is plenty good enough for my visual use. The only thing I miss in this mount are the fine tuning knobs. I trade that for convenience in skewing to targets.

I next turned my scope towards Altair and Tarazed. I played with all my eyepieces just to compare them on a bright star and the rich star fields in the area.

I turned to the northeast and looked into Cassiopeia. It was wonderful to scan the Star fields with my Stellarvue 15 mm (37x) 82 degree eyepiece. I was able to go down as far as Ruchbah before my roof was in the way. I wanted to see the Double Double cluster but I was in a race with the Moon which was quickly rising just behind my roof. The Moon beams started piercing my side vision so I quit for the night.

2022-11-09

21:15-22:15

The sky was partly cloudy with a temp warning of 71 F. I thought I'd get some viewing in before the cold weather came in. I brought my smaller AT80ED and smaller mount out.

I first found Saturn and could see Titan, Rhea, and some unknown star below Saturn. Seeing conditions were good. I settled on my 5 mm (70x) eyepiece and the view was good.

I next turned to Jupiter and I could see Ganymede just off of Jupiter and its shadow or a dark festoon on the upper dark cloud band. I think I had the sharpest view with the most detail using my Celestron Kit 6 mm (93x) Plössl eyepiece. Clouds moved over Jupiter so I turned my telescope to the east.

My first stop was the bright star Capella. I was using my 25 mm (22x) With my 5 mm I could detect an Airy disk but the diffraction rings were broken up by turbulence. Next I played with my 6 mm Plössl and 17 mm (33x) Plössl eyepieces.

Mars was just south of Capella so I repositioned my telescope to get a clean view. I saw a large orange disk very slightly darker regions. I observed Mars with my 5 mm and 6 mm Plössl into the clouds obscured it.

The Moon was at a 96.9% waning gibbous phase and was shining somewhat through the high clouds. I observed it through my 13 mm (43x) Plössl and got a good full view of it. The clouds made for a poor neutral density Moon filter. The most distinct feature was the Mare Crisium (Sea of Crisis). It was near the terminator and revealed its dark, smooth surface with only two small craters really standing out. Putting in my 6 mm Plössl revealed a small group of mountains in the "sea" floor near the terminator. Exquisite detail could be seen all along the terminator, even more so with my wider angle 5 mm eyepiece.

I put my wide field 15 mm (37x) in along with my ND 0.9 Moon Filter and observed the whole Moon as clouds drifted past it. That is always a beautiful sight.

Soon, it became mostly overcast so I came in for the night.

2022-11-12

15:20-16:00

It was daylight, the skies were clear, breezy, and temperature was 52 F. I brought my AT80ED telescope and small Bresser mount out with the Meade Glass White-Light Solar Filter.

Though clear, the seeing conditions were about 2/5. A lot of scintillation around the sun's perimeter disk. I went through various eyepieces but my favorite of the day was my Celestron Kit 13 mm (43x) Plossl. I saw about seven grouping of many sunspots on the right limb. Even further to the right I could see some plage. The spots were crystal clear and the sun's image filled the field of view nicely.

The Sun quickly went behind my neighbor's trees so I brought everything inside, at least until dark.

21:40-23:50

It was now late night and the temperature was 41 F and dropping. I brought my setup back outside to get some views in. The seeing conditions had improved since earlier in the day.

I steered my telescope to Cassiopeia with my 25 mm (22x) eyepiece. I first stopped at the star Ruchbah (Delta Cas, δ Cas). It was a blue-white star. From there I star hopped down to the open cluster M103. With my 15 mm (37x) eyepiece I could see about 5 stars. Upon closure examination, I believe that I was lost in space and was nowhere near M103.

I scanned around and found the Double Cluster in Perseus, NGC 869 and NGC 884 (also known as η and χ Per). They looked cool in my 15 mm Stellarvue 82 Degree FMC eyepiece. I tried various eyepieces but I enjoyed the view with my 13 mm Plössl eyepiece the best. The two clusters filled it out nicely.

I saw the Pleiades, M45 rising above my roof. I swung my telescope to the east to take a look. I found it with my 25 mm (22x) eyepiece and spent time viewing it with my 17 mm (33x) Plössl and 15 mm (37x) wide field eyepiece. The later was the most enjoyable.

Jupiter came out from the trees so I spun the west to take in a view. I worked my way down to my 6 mm (93x) Plössl eyepiece. All four Galilean moons were visible with Ganymede and Io were right next to each other. Though I could see lots of detail on the planet, the southern cloud band was noticeable fainter than usual. The northern band was still distinct.

To the southeast I noticed Orion rising above my neighbor's house. I zoomed in on the Great Nebula in Orion. My favorite view was with my 8 mm (70x) Plössl. Four of the stars in Trapezium were very sharp. I could see a lot of nebulosity, even though Orion was in deep Bortle 9 skies.

Mars was coming over my roofline so I slewed over to it. I went through my eyepieces but settled on my 8 mm (70x)

Plössl. Higher powers were good but my eye floaters competed with the views. Mars was an orange disk and it was very clear. However, I could not discern any surface details.

I decided to quit for the night and brought everything in. Temperature was now 38 F.

2022-11-16

20:40-21:20

The sky was good and clear but the temperature was a chilly 43 F. I brought my AT80ED telescope out and Saturn was in clear view to my southwest. Of course, by the time I was in position to observe Saturn, some clouds started moving in but they were moving by fast.

The thinner clouds allowed me to view Saturn though they created a glare. I could see the moons Titan and Rhea during clearer periods. The clouds actually became quite thick yet the image of Saturn remain crisp, though greatly attenuated. I had gone through 3 Plössl eyepieces, 32 mm (17.5x), 13 mm (43x), and settled on 6 mm (93x). I could see Saturn's shadow on the ring but not much else.

The only other object I could see through the clouds was bright Jupiter. The clouds made for a nice ND filter that allowed me to see details on the planet better, albeit with a glowing halo around the planet. Once again I went through the 3 Plössl eyepieces and settled on 6 mm for a while. Interestingly, I could only see 2 of the 4 Galilean moons, Ganymede and Callisto with Ganymede being right next the planet. I could see a dark festoon on the upper cloud band opposite of the side Ganymede was on.

The clouds quickly became total overcast so I quit for the night. Besides, I had to get up early to go to work in the morning.

2022-11-17

21:25-23:20

The skies were clear, winds were calm, and the temperature was 45 F (7 C). I brought my AT80ED refractor telescope and my small Alt/Az mount out to get some viewing in since the weather forecast was for clouds the next several days. After a few scans of the sky, seeing conditions looked to be about perfect, 5/5.

Jupiter was high in the sky so I put in my Celestron 8-24 mm (70x-23x) Zoom eyepiece and set my telescope on it. The four Galilean moons were all on one side. I played with various eyepieces and I noticed that Jupiter was ever so slightly sharper with my 8 mm (70x) Plössl than at 8 mm on the zoom lens. 24 mm on the zoom looked very nice though. I was able to use my 6 mm Plössl and 2X Barlow (187x) on Jupiter this night. The two usual cloud belts were visible with the northern band being more pronounced with a noticeable festoon on it.

Next, I star hopped my way to Neptune with my 17 mm (33x) Plössl since it was very near Jupiter according to Stellarium. It was a tiny blue pixel star located between HIP 116402 and HIP 116265. I bumped the power up to 187x with my 6 mm Plössl and 2X Barlow but Neptune just grew dimmer, not visibly larger.

I put my 17 mm eyepiece in and scanned my western skies in between my trees. No real target, just admiring.

I was about to quit when I noticed Orion rising between the houses to the southeast. The Great Nebula in Orion was barely above the roof but still looked beautiful in my 17 mm eyepiece. The Trapezium Cluster was bright and clear and I could see nebulosity through my Bortle 8-9 skies.

I repositioned my telescope to catch Mars coming over my rooftop. It looked large even with my 17 mm eyepiece. As Mars rose, I switched to my 6 mm eyepiece and then added the 2X Barlow. This was the best I'd ever seen Mars! It appeared as a clear orange disk with an obvious dark region in the southeast quadrant. I will soon need to bring my larger telescope out to view it during opposition in a few weeks. I could see a smaller dark region in the opposite hemisphere with possibly some whitening from maybe an ice cap (05:10 UTC). I'll have to check official sites later to see how much of what I "see" is my imagination. Seeing conditions were so good that I

bumped it up to 224x using my 5 mm Astro-Tech eyepiece and 2X Barlow. The image still looked good and I confirmed the details I was seeing.

(Note: After coming indoors, I confirmed on both Stellarium and SkySafari that the details I saw on Mars were real, except for the whitening.)

I considered the awesome view of Mars the grand finale for the night and quit.

2022-11-19

21:50-23:00

The skies were clearing with no wind, and the temperature was 35 F. I wanted to view Mars with my larger telescope so I set my AT102ED, 102 mm, f/7, telescope up in my garage so that I could get a good view to the east. Mars was bright but by the time I got the telescope setup up, mid-level clouds moved over. I had to wait a bit for the skies to clear again.

The skies cleared for a bit so I found Mars with my 25 mm (28.5x) eyepiece and worked my way down to higher powers. Unfortunately, the seeing conditions were very poor, about 1/5, and the highest power I could use without Mars looking like it was on fire was 60x with my 12 mm eyepiece. After a while, the view cleared up considerably. Taking any telescope from 72 F to 35 F instantly is going to cause some internal turbulence 🤔. Soon I was able to go to my 5 mm and 2X Barlow for a maximum power of 286x. The view wasn't pretty but in rare moments of good seeing I could detect dark regions and a hint of a polar cap or northern polar hood on the northern pole.

I played with a 58 mm (f/12.3) and 86 mm (f/8.3) aperture masks just for grins. The expected loss of brightness occurred but the resolution for the night was atmosphere limited so there wasn't any noticeable loss in sharpness.

I swapped telescopes to my smaller AT80ED, 80 mm, f/7. Other than Mars being slightly smaller for a given eyepiece and the brightness being slightly less there really was little difference. In fact, at maximum power of 224x (5 mm and 2x Barlow), I could almost say that there was less chromatic aberration. At maximum power, planetary targets will sometimes show a very small bit of color difference from one side of the planet to the other. Folks often say this is atmospheric created CA, but I don't believe it. I was fighting clouds so I can't be sure in any case but I do believe that I saw more detail in the larger scope at certain moments as expected. The views are so incredibly close it really isn't worth bringing out the larger telescope and mount except for special occasions.

I did a view low power scans of the northeast star fields and then put things up for the night. The cloud cover was being a nuisance.

2022-11-21

20:45-21:00

It had been cloudy all day expected to rain all day. The clouds broke as it got dark so I thought I'd get some views in. The temperature was 45 F and calm. I brought out my AT80ED telescope.

I instantly found Saturn with my 25 mm (22x) eyepiece and quickly switched to 12 mm (47x). I could see Titan with both. Moving to the 5 mm (112x) eyepiece I could see Rhea too. With averted vision I could occasionally see fleeting glimpses of other moons too. Saturn was only up 24 degrees, near the mid level cloud deck, and I had just brought my telescope out so seeing conditions were a bit rough. I could still see the details like the shadow on the rings and a hint of the Cassini Gap, but it was all a bit jiggly.

I planned to observe later but I just wanted to check out Saturn before it set.

22:18-23:00

I came back out but the cloud cover was moving in from the south, contrary to what I thought the clouds were going to do.

Jupiter was clear from the trees so I trained my telescope on it. Seeing conditions seemed to be about 3/5. All four Galilean moons were visible, two on each side. I could see more clouds belts in the bottom half of Jupiter and a large festoon in the major dark band on the upper hemisphere. I took in the Jovian view for a bit until clouds obscured my view.

Mars was rising clear of my roof so I repositioned my telescope to check it out. I worked my way down through my eyepieces as usual until I got to 5 mm. Seeing in this direction was about 4/5 and I could see surface details on occasion. I added my 2x Barlow for a power of 224x and I could still see details a bit better. Next, I tried all of my Celestron color filters and found that only my No. 58 Green made an improvement. In fact, with it Mars looked more like the big telescope photos that I've seen. I could see a faint darkening in the strong across the southern hemisphere and a darker patch in the northern hemisphere. There was a definite whitening of the top right part of the disk. There were no significant viewing defects other than the annoying floaters in my own eyes. I took in the marvelous view of Mars until clouds moved in to obscure it.

By this time clouds covered 90% of my observable sky so I quit for the night (week? 😞).

2022-11-22

20:00-22:00

Contrary to all of the weather forecasts, my skies were clear, temperature was 50 F, and no wind. So again I brought out my AT80ED telescope.

I zoomed in on Saturn to check the seeing conditions. Amazingly, the seeing was at least 4/5 with Saturn being very stable. With my 5 mm (112x) eyepiece I could see the Cassini Hap in the rings, Titan, and cloud belts on Saturn. The view was so good that I had a visiting son and his girlfriend come out to take a look.

Next, I was going to try my luck with M33. I first found the star Almach. It is a beautiful double star and with my 5 mm eyepiece the main star was bright orange-yellow and companion was a distinctly blue star about 40% as bright. The colors were so vivid!

I hopped my way to the double star HIP 7269 that is supposed to be right next to M33 but I could not detect the galaxy. I waiting for good dark vision, used averted vision, and slewed the telescope back and forth to no avail. M33 just couldn't compete with my Bortle 8-9 skies. All was not lost even though I may have been. I found my way to the open cluster C28 (NGC 752). I could see hundreds of star though most were faint. I put in my Stellarvue 15 mm (37x) for that space portal view and the cluster looked pretty awesome.

I scanned the skies more north with the 15 mm eyepiece and found the Double Cluster, NGC 869. Of course it was beautiful but I put in my 5 mm to see the detail in each cluster.

I was in a race against clouds now so while I could still see it I turned to Jupiter. The Galilean moons were all on one side with Io very close to Jupiter. I tried my No. 58 Green filter that helped so well on Mars on my 5 mm eyepiece. It did help bring out Jupiter's cloud belts.

It now 47 F and the low level clouds were coming in fast and very bright so I stopped for the night.

2022-11-26

22:00-22:53

It had been raining for a couple of days but the clouds broke after dark. The winds were calm, temperature was 47 F, and the humidity was 92%. I brought out my AT80ED telescope.

I first chose the bright star Capella to get my bearings. The white star had a bit of twinkle so I figured that the seeing conditions weren't perfect.

Mars was just clearing my rooftop just south of Capella so I turned my telescope to it. Mars looked good at 112x (5 mm) but I went ahead and pushed it to 224x with the addition of my 2X Barlow. I added my No. 58 Green filter to make details more visible. The seeing conditions were actually real good to allow this power. I could see a swath of darkness in the southern hemisphere that started high in the right but broadened as it went to the lower left. The white region at the North Pole was not nearly as visible as it was in my last sessions.

I went through all my eyepieces and even though I far exceeded my telescope's rated maximum power of 160x, the extra magnification was not empty, it did help me pull out the surface details on Mars. However, I once again felt that the Astro-Tech Paradigm ED eyepieces revealed slightly more chromatic aberration than my el cheapo Celestron Plössl eyepieces did.

I saw clouds coming in again from my south so I swung over to Betelgeuse to have a look at the red giant. Once again I went through my eyepieces and at high power, I definitely could see more CA with the Astro-Tech eyepieces in this telescope. For instance, with the 2x Barlow my 5 mm Astro-Tech eyepiece showed a bit of color differential from one side of the star to the other at 224x. My Celestron 6 mm in the same Barlow at 187x (close as I could get to 224x in a Plossl) showed no color aberration and Betelgeuse was crisp, sharp, and a single orange color. For confirmation that it wasn't just the very high power, I put my 12 mm Astro-Tech in the Barlow for 93x and I could still see a hint of color. The CA is not bad, but it is something I've been noticing with my better telescopes for a while now. I love my Astro-Techs but I've found a new appreciation for the affordable Celestron Kit Plössl eyepieces.

At 22:52 I heard 5 rounds of gunfire to my southwest and I also now had complete cloud cover. This was a sign to come in as well as of the times we now live in the U.S.A. I'll check the cloud cover again in a bit.

23:15-23:55

I check again and the clouds were gone. I went back and took in some views of The Great Nebula in Orion. The nebulosity looked great even with my neighbor's lights on. I observed with my 8 mm (70x) Plössl and 17 mm (33x) Plössl. The Trapezium Cluster was as sharp as ever but I could only resolve four stars. I put my UHC Nebula filter on and I could see much more nebulosity that filled much of my 17 mm field of view.

I went south to check out the multiple star system Iota Orionis, Hatsya. In my 6 mm Plössl, the main star was bright white while the much fainter companion was blue. I could see an even fainter blue star to the northeast that must be the third companion.

Next, I moved up to one of favorite multiple star systems, Sigma Orionis. The main star was bright white while two fainter, bluish companions were on the east side. A fourth star, a very faint blue star, was on the west side of the main star and much closer to it. Further to the north were three other faint stars, two in a close pair, and even further the the south was a little brighter star. I don't know if these are part of the family.

Clouds moved back in so I called it a night.

2202-11-27

15:00-15:20

The skies were mostly clear and the temperature was 61 F. I decided to view the sun with AT80ED.

I first found the sun using my 32 (17.5x) mm Plössl. I then observed the sun with my 13 mm (43x) Plössl. A small grouping of sun spots were in the northern hemisphere. Two more groupings were on the east and southeast limbs of the sun. Plage was also observed at the latter locations. Overall, the sun looked to be pretty quiet.

I put my 17 mm (33x) Plössl in to take in a bit wider field of view. After observing the sun's details for a while I brought my gear back inside. It made for nice, quick, inspection of the sun and allowed me to take in some vitamin D myself.

17:52-19:25

The Moon was at a 21.5% waxing crescent and the twilight was fading so I came back out to check it out.

I decided to observe first with my 13 mm (43x) Plössl. The earth shine was easily visible. The most prominent feature had to be the Pyrenees Mountains. I switched to an 8 mm (70x) Plössl and the mountains looked enormous. Just behind them but closer to the terminator, the crater Guadibert looked strange with its crater rim appearing as a string of pearls around the perimeter. Only the peaks of the crater rim were illuminated.

I eventually switched in my 17 mm (33x) Plössl and just enjoyed the crystal clear view of the 4.5 day old Moon for a while.

I scanned around a bit while waiting for Saturn to clear the trees and came upon the dark orange star 24 Capricorni. There was some references saying it is a double star but I could only see one with the 6 mm (93x) Plössl.

Saturn just cleared the trees and I could clearly see the rings at 33x. Titan was a great distance from Saturn but bright. Rhea was in the other side but could be seen with averted vision. Seeing conditions were good enough that I could run the magnification on up to 187x with my 6 mm Plössl and 2X Barlow. The usual features were evident, the Cassini Gap in the rings, belts in the northern hemisphere, and Saturn's shadow on the rings. I spent some time gazing just at Saturn.

I noticed on my app that the asteroid Nausikaa was near Saturn. I star hopped to the adjacent star pattern, one being AU Capricorni, and was certain of my location. However, at a reported magnitude of 11.9, it was really beyond my low level detection in my city lights. I can say that with averted vision I thought (or imagined) that I could see it.

I scanned around my southwestern skies for a while with my 17 mm Plössl and then quit for the night.

2022-11-30

20:50-21:35

I took a peek outside before going bed and saw that it was perfectly clear outside. The temperature was 40 F and dropping with a slight breeze out of the north. I brought my AT80ED out for some quick looks.

I looked at the 55.3% waxing gibbous Moon first. The most prominent features were the peaks in the crater floor of Walter crater and the rugged Apennine Mountains. The Alpine Valley was very distinct too as it was coming out of the shadows.

Next, I took a look at Jupiter. Nothing out of the ordinary but I could see the two main belts well and a festoon on the northern belt.

I repositioned my telescope and found the beautiful Double Cluster, NGC 869 and NGC 884. I observed it for a while with my 15 mm (37x) Stellarvue eyepiece and the my 12 mm ED (47x). The 12 mm wasn't as wide but I could see more detail. I could perceive a massive cloud of stars in the northeast cluster, NGC 869.

I scanned around for a good while and then quit for the night.

2022-12-05

19:40-20:10

Mars was bright in the east and the weather was a warm 75 F. There were some clouds but they move fast. Seeing was okay so I set my bigger AT102ED up in my east facing garage to have a look.

I went through various eyepieces and Barlow combinations until I settled on the Astro-Tech 5 mm (143x) eyepiece alone. I could see the northern polar cap and a distinct dark region in the southern hemisphere. Chromatic aberration was a bit worse than I remembered but it was very mild and didn't take away from the view of Mars. Hopefully the CA isn't worse on the AT102ED compared to the AT80ED.

The clouds moved over Mars so I swung northeast and captured the bright star Capella in Auriga. However, clouds soon came over it too so I brought the telescope inside out of the garage.

20:30-20:40

Though it was now mostly cloudy, the 96% waxing gibbous Moon looked cool through the clouds and I had a good view of it my backyard. I brought my AT80ED and 25 mm (22.4x) eyepiece into the backyard to watch the beautiful, mesmerizing sight of the illuminated clouds drifting across the Moon. The night was not totally lost. Invited my wife out to enjoy the cool view. Soon, the clouds became too thick so I brought the telescope back inside.

2022-12-13

19:55-21:26

The skies were clear after a bad tornado day. Temperature was 59 F and the winds were calm. I brought out my AT80ED telescope out to check out the planets.

Jupiter was high and bright so I started with it. I put in my 32 mm Plössl to use as a spotting scope and immediately centered on Jupiter. Only 3 of the Galilean moons were visible with Callisto playing hide and seek. I put my 6 mm (93x) Plössl in for a closer look. Very shortly after that (02:00 UTC) Callisto began emerging from the southern hemisphere at the lower left of my view, or at least that's when I noticed it. I installed my No. 56 Light Green filter and it did help me discern more surface details, probably just due to reducing the intensity somewhat. I could faintly see several cloud belts in the southern hemisphere and the main dark belt in the northern hemisphere.

Next, with my 13 mm (43x) Plössl I star hopped my way down to Neptune which was not far to the southwest of Jupiter. It was easy to find this time and plenty bright. I could see a hint of blue. I put in my 6 mm eyepiece and it was still sharp but still just a "star" in my small telescope. It was just above the star HIP 116266.

Mars was rising about my rooftop so I repositioned my telescope to get a good view. I was only a few days past opposition so I wanted to get some more good views in while the view were good. I went through all my eyepieces up to 224x trying to get a good few and finally settled on my 8 mm Plössl with the 2x Barlow (140X). Unfortunately, even though seeing was good I could not make out any details on the planet. I also tried all of my filters to no avail. With some imagination I could sometimes see a darkening in the southern hemisphere and maybe whitening at the North Pole but nothing like previous sessions. Perhaps I was still too close to opposition and my view was suffering from the opposition spike or Seeliger effect that brightens but washes out details at opposition.

Orion was above the houses now so I scanned around it for a bit and stopped on the Great Nebula in Orion. The Trapezium Cluster was nice and sharp even at low power. Clouds were starting to move in so I put in my Stellarvue 15 mm (37x) wide-field eyepiece and scanned what sky was still visible. I soon stumbled upon the Hyades open cluster in Taurus. The bright, needle-point sharp stars were a pleasure to observe.

By this time there were more clouds than sky so I came inside, especially since it was a work night.

2022-12-15

21:20-22:35

Mars was high and bright in Taurus. The sky was clear and the temperature was 43 F. I brought my AT80ED out to have a look.

I started with my 15 mm (37x) Stellarvue eyepiece to acquire Mars. I quickly went to my 5 mm (113x) ED eyepiece. Mars was large and bright but I couldn't see any details so I installed my No. 58 Green filter. This helped with the glare but not much detail yet. I put in my 2X Barlow (226x) but now the CA was quite noticeable. I swapped out the 5 mm for my 4 mm Plössl and now the CA was barely detectable even at 280x. Still, Mars was featureless except for a small, dark region in the southern hemisphere.

I put the 15 mm back and swept through the rich star fields and found myself in Orion. I drifted through Orion's and stopped on one of my favorite multiple star systems, Sigma Orionis. I switched to my 4 mm (140x) and I could see four components of the bottom set and three on the top set. The bottom main star was yellow-white and the brightest of all. To its east we're two much fainter blue-white stars and a very faint star to the west but much closer to the main star. The upper three had the two westerly stars close together the third was further east. All three were fainter than all but the faintest star at the bottom.

I scrolled down to the Great Nebula in Orion and it was as bright as usual. I could still only see four stars in the Trapezium cluster. I moved down to the double star HIP 26345. The main star was faint blue while its northeast companion was much fainter and possibly the same color.

I moved up a bit to the bright multiple star system Iota Orionis. I could see the main blue-white star and the close, bluefish companion. Just a little further away was a similar probable companion. At one time I counted five companions but it turned I was beginning to look through my neighbor's tree branches!

I scanned north of Orion with my 15 mm eyepiece through the vast stars of the Milky Way. I came upon a pretty cluster that I believe it is M35. However, I will need to confirm at another viewing session.

It was now 41 F and I was cold so I called it a night.

2022-12-17

15:35-16:25

The skies were clear, calm, and about 51 F. I thought I'd check out the sun so I brought out my little AT80ED telescope out, Meade Glass Solar Filter, and my collection of Celestron Plössl eyepieces.

I first found the sun with my 32 mm (17.5x) Plössl eyepiece. Seeing was about 3/5 probably due to the sun being just above warm rooftops. I went through all my eyepiece focal lengths but I favored the view with my 13 mm (43x) and 17 mm (33x) eyepieces. I also played with my 8-24 mm (70x-23x) Celestron Zoom eyepiece. The zoom was very convenient in finding the best magnification and then I'd switch over to a fixed length.

There were a lot of sun spots and sunspot regions visible today. The most notable was a region was to the lower left in my L-R flipped image. It looked like a giant stingray with a long tail. The "tail" region had a great many tiny sunspots. I later found this region to be designated 3163. I saw at least 7 other sunspot regions across the entire disk. This should greatly help HF radio propagation.

At 16:14 while observing with the 13 mm Plössl, a very distant jet flew directly in front of the solar disk! It was so cool watching the jet and its turbulent contrail very clearly across the sun. At this time the sun was only up 11.5 degrees above the horizon.

After this grand finale the sun began to drift into the trees so I went inside for a while with the hopes of coming out again at dark.

18:45-19:45

Seizing conditions were now 5/5 and the temperature was 45 F. I focused in on Saturn with my 6 mm (93x) Plössl and the view was magnificent. It was crystal clear and I could easily see the moons Titan and Rhea. I soon noticed that it looked like I was looking through a tree branch. I moved my telescope but in reality it was debris in my eyepiece so I enjoyed the view with my 8 mm (70x) eyepiece and then came inside to clean the 6 mm. I couldn't find anything on it though.

I went back outside and enjoyed a nice, long steady view of Saturn with the 8 mm Plossl and 2 x Barlow (140x). I saw the Cassini Gap, a cloud belt in the northern hemisphere. Saturn's shadow onto the rings, and on occasion even a third moon on the other side that I could not identify.

I looked for the globular cluster M2 but I think a tree was in the way.

Jupiter was coming out from behind a tree and high in the sky so I put in the 32 mm eyepiece and swung over to it. I sat and observed it the Barlow and 8 mm at 140 x. Three of the Galilean moons were visible with the shadow of the fourth on the more southern cloud belt. The detail on the cloud structures were very good. It turns out that the shadow was from Io.

I came inside for a bit to warm up.

20:00-20:08

I came back out to observe Io clearing Jupiter's disk while the shadow was now evident. It is always cool watching how fast the moons of Jupiter move.

I came back inside for supper.

21:20-21:40

Mars had cleared my roof and the temperature was 37 F and dropping. Zoomed in on Mars at 140x. The image was sharp and mostly a blank, yellow disk but when I observe red carefully I could detect some whitening at the North Pole and a dark patch in the southern hemisphere.

Before going in the night, I put my 17 mm (33x) Plössl in and scanned the beautiful star fields in Orion. I observed many of my usual targets there and called it a night.

2022-12-24

18:05-18:31

It was cold and clear with a temp of 34 F and dropping. I had received my new SvBONY SV137 3x Barlow and I wanted to try it out before the Christmas Eve festivities. I brought it and my AT80ED kit out to try it.

I used my 25 mm (22.4x) eyepiece in my 80 mm, f/7 ED refractor telescope as a spotter scope and instantly found

Saturn. I then switched to my 5 mm (112x) eyepiece for a baseline view. I then installed the 3x Barlow with my 15 mm, 82 degree wide eyepiece for the Sam 112x power and I could see no degradation compared to the 5 mm only, except for perhaps a slight reduction in light transmission. The view was equivalent to the 5 mm except it took a long time for Saturn to cross the giant field of view. The image was sharp across at least 95% of the field.

I could easily see Titan in all of the views and on occasion, two more moons and/or background stars.

Next, I put in my 12 mm eyepiece with 3x Barlow (140x) and still got an incredible view. The image was sharp across the entire field, though now only 62 degrees wide.

Another possible advantage of that using the Barlow is that it appears to bring my eye floaters out of focus. When I use a 5 mm eyepiece alone, images have to compete with floaters that come into focus at that power. However, when using my 15 mm with the 3x Barlow, I do not detect any floaters. I'll need to do more tests with bright targets like Jupiter. Today's results may be purely due to chance, but I tried hard to see floaters and I couldn't.

Though the night was a perfect, albeit cold night, I quit to spend time with my family on Christmas Eve.

2022-12-26

18:05-18:50

Skies were clear, temperature 54 F and falling with a north breeze. The waxing crescent Moon was at 17.9% phase. I brought my AT80ED get out to try the new SvBONY SV137 3x Barlow out on the Moon and maybe Jupiter.

I found the Moon with my 15 mm (37x) Stellarvue eyepiece. I then put in the 3x Barlow (112x) and the whole Moon still fit in the field of view. I then swapped it all out for my 5 mm eyepiece only which should give the same power (112x) . Because of the 60 instead of 82 degree FOV, it was hard tell if the powers were really the same.

I put the Barlow/15 mm (112x) back in and observed the beautiful detail along the terminator.

I quickly checked out Saturn and Jupiter. The Barlow worked great and offered high power, wide field view with wide, medium powered eyepieces. However, after many comparisons, I feel that with my f/7 refractor the Barlow feels more like a 2.5x rather than 3x.

2022-12-27

20:20-21:00

The weather was clear, breezy out of the south, and 44 F. I received a new inexpensive Astromania 25 mm Plössl eyepiece and an Astromania Crystal Moon Filter. I thought I'd take them out for a quick spin with my AT80ED.

I first zeroed in on the waxing crescent Moon at 28.4% phase with the 25 mm (22.4x) Plössl. The FOV was considerably wider than the Moon of course but the view was nice. I put in the Crystal Moon Filter and it did make the Moon look whiter. It was pretty low to the horizon so it was starting to get a bit orange without the filter. I could not tell however if there was any improvement in the view. I will have to do more tests. There was of course a lot of detail oolong the terminator of the Moon but the thing that stuck out the most was the illumination of the central peak in the crater Piccolomini. The central peak is said to rise about 2 km about the crater floor.

I went through several combinations of eyepieces and Barlow lens but overall the seeing wasn't very good due to the telescope still cooling off, breezy conditions, and the Moon being low to the horizon.

Next, I turned up to Jupiter. I won't mention all of the combinations that I tried but I did note that I could not get a sharp view of the Jovian giant no matter what I used. Poor seeing may have been an issue but I have found that on some nights I just can't get a sharp view of Jupiter whereas other nights it is crystal clear. I've learned to compare telescope over many nights and targets, not all in just one setting.

The breezy conditions made the 44 F temperature uncomfortable so I quit for the night.