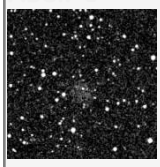
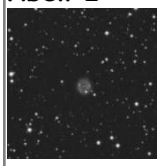
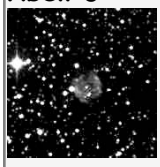
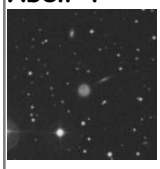
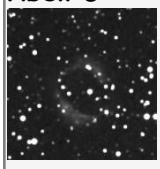
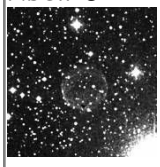
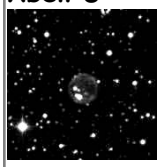
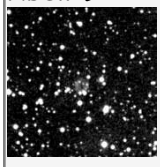
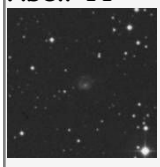
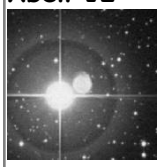
The Abell Planetaries

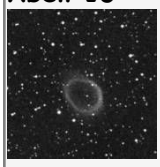
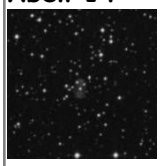
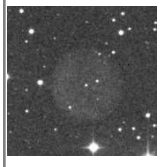
Already in the year 1966 Geoge Abell arranged a list of 86 planetary nebulas, which he had discoverd on the photographic plates of the large 48" Schmidt Telescope on Mount Palomar. Two of these planetary nebulas are registered in the well-known NGC catalogue (Abell 50 = NGC 6742, Abell 75 = 7076) and two in the IC catalogue (Abell 37 = IC 972, Abell 81 = IC 1454). Four of these objects were not confirmed as PN (Abell 11, 32, 76, 85) and three were not taken up in the SEC (Abell 9, 17, 64). A very informative and complete compilation of all Abells which shows several observations with different apertures, you can find on the page of Stathis Kafalis. The Abell PN applies as notorious, but very interesting deep-sky-objects. That's because of the visuell challenge to detect as many as possible faint surface brightness Abell planetaries. Apart from patience and observation experience, most Abells need very good sky conditions. The use of [OIII] filter is also important than dark skies.
Inspired by Stathis Kafalis and Martin Schoenball, I would like to present my observations of these interesting PN. The observations were accomplished to the largest part with a 16" Dobson (others with apertures from 2" to 24") under good to very good sky conditions.

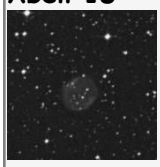
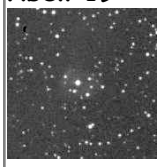
Object (DSS)	Aperture, Magnification, Filter, Faintest Star - Description
Abell 1  DSS 5' x 5'	**16", 51-129x, [OIII], fst 7m0** not visible **27", 172x, [OIII], fst 6m5+** difficult star field; E faint star group; no sure observation
Abell 2  DSS 5' x 5'	**8", 114x, [OIII], fst 6m5+** even without filter a very faint glow can be suspected but can not be hold; with [OIII] a small, round glow with well defined edges is visible; this disk can hold with direct vision with difficulties but can hold easy and steadily with averted vision; structureless **16", 300x, [OIII], fst 7m0** bright, circular, can hold PN with direct vision, faint star at the SW edge, fainter to the middle **27", 419x, o.F. + [OIII], fst 7m+** easy and direct vision Abell; already visible with 113x as a small patch of light; with 419x and without filter two faint stars at the SW edge of the PN; with [OIII] the ring structure is visible - the middle of the PN seems to be much darker; no CS visible
Abell 3  DSS 5' x 5'	**8", 47x-80x, [OIII], fst 6m5+** with 47x + [OIII] extremly faint stellar like glow, can not hold glow with averted vision; with 80x glow can be hold with averted vision as a round but small disk with sharp edges; without filter no star is visible at the position, also not the DS at the PN edge which is visible with larger aperture **16", 129x, [OIII], fst 7m0** only with [OIII], round disc, double star at the edge of the PN, sharply defined **16", 180x, [OIII], fst 7m+** faint PN, not visible without filter, near 13mag DS, W of the DS faint, round nebula, 1' diameter, structureless, can hold PN with averted vision sketch **27", 172x, [OIII], fst 6m0+** nothing visible without filter; with 419x CS is popping in and out of view; with [OIII] but bad transparency very faint glow which can not be hold steadily with averted vision; round and structureless **27", 172x, [OIII], fst 7m0+** nothing visible without filter; CS is steadily visible with averted vision; with [OIII] and 4mm EP (172x) faint, but steadily visible round, structureless glow; PN to small for 113x and to faint for 293x

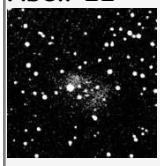
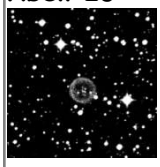
Abell 4  DSS 5' x 5'	**4" Binotelescope, 55x, [OIII], fst 6m5+** without knowledge of the exact position a small glow is popping in and out of view with averted vision; can not hold steadily; difficult but sure positive observation **5" Binotelescope, 98x, [OIII], fst 6m5+** surprisingly easy with that aperture, round laminar spot, can hold it with averted vision **16", 257x, [OIII], fst 6m4** [OIII] shows no big improvement, small, round disc, cannot see the faint edge-on galaxy PGC 10427 (16,59 bmag), PGC 2816330 is visible as a faint glow **27", 419x, without filter, fst 7m+** bright PN even without filter; darker to its middle; round; PGC 2816330 (16,9bmag) 1,9' N easy with direct vision; 2:3 N-S elongated; fainter PGC 2201333 (17,1bmag) 45" NW; can hold it with averted vision; 3:1 NW-SO elongated **27", 586x, ohne Filter, fst 6m5+** with higher magnification and no filter SE and NW edge of the PN are better defined and the middle seems to be a little bit darker; no CS visible, even with the CS filter sketch
Abell 5  DSS 5' x 5'	**16", 100x, [OIII], fst 7m0** hardly noticable PN, after 30 minutes of observing I notice a faint hint of light, NE of the 14,1mag CS, not round, unsure observation **27", 113x-172x, UHC, [OIII], fst 6m5+** very difficult; with 113x and UHC a very faint disc popping out in and out of view around a 14mag star, can not hold it steadily; with higher magnification (172x) and [OIII] the round disc disappears and a faint spot get into the view SE of the star; but could not hold it again
Abell 6  DSS 10' x 10'	**8", 80x, [OIII], fst 6m5+** excellent transparency; 47x to little power to seperate any glow from the near star group and the 6,6mag star; with 80x a very faint round glow is popping in and out of view and can be hold for several seconds; glow is betwenn two 10mag stars, the star group and the bright 6,6mag star; a rough sketch confirm the exact position which was not known before; edges not hard defined; right size is visible **14", 80x, [OIII], fst 7m0** faint, perfectly circular disc, sharply defined, can not hold steadily with averted vision, sure observation, disturbing star group SE **27", 172x, [OIII], fst 6m5+** 6,6mag star 7' SW disturbs observation of the faint PN; PN itself is easy to detect, can hold glow with averted vision; exactly round with good defined edges sketch

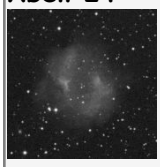
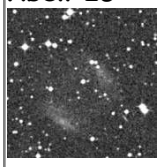
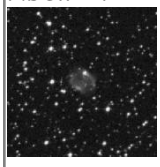
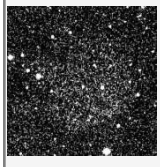
Abell 7  DSS 30' x 30'	**4" Bino, 23x, [OIII], fst 6m5+** without filter a small triangle with 11-12mag stars is visible inside a larger triangle with 8-9mag stars, no nebula is visible; with [OIII] a diffuse and very faint glow is visible just N of the small triangle; the round 10' large glow seems to be smaller than the photographic size; nebula is popping in and out of view with averted vision; sure observation, no confusion with the stars of the small triangle which are visible through the filter **8" 47x, [OIII], fst 6m5+** with 4mm AP and [OIII] a very faint round nebula can be seen with averted vision; the glow is disturbed by a group of 12mag stars which shines through the filter, but the glow continues to the north; no hard edge or structute within the glow **16", 51x, [OIII], fst 7m1** only with max. AP and [OIII], large, round PN, faint but can hold PN with averted vision, some faint structure, fainter to its middle, dark wedge from the west, PGC 16611 easy to detect, 10' NW of the PN, elongated 1:2 **27", 113x, [OIII], fst 6m5+** very large PN, with 12' diameter one of the biggest; faint but can hold PN easily with averted vision and max. AP; round with better defined edges at the E and W; E edge wider; W edge smaller and shifted to the N; N and S side open; PN is filled with nebula
Abell 8  DSS 5' x 5'	**16", 129x, [OIII], fst 7m2** only with [OIII], very faint, round disk, double star NW **27", 172x, [OIII], fst 7m+** without filter decentralized DS; no PN disk, no CS; with [OIII] faint round disk with good defined edges; can hold PN steadily; DS visible even trough filter sketch
Abell 9  DSS 5' x 5'	**14", 200x, [OIII], fst 7m5** also under perfect skies not observable, difficult star field with many dangerous faint stars, other observer and I only suspect faint glow, but could not hold or confirm the glow **16", 225-360x, [OIII], fst 6,5** now with [OIII] from Lumicon and Astronomic, again nothing to see **16", 51x-225x, fst 7m2** at the north edge of M 38, not visible without filter **27", 293x, [OIII], fst 7m+** only assumed; N of a faint DS, which is visible even through the filter; can not definitely hold the faint glow; unsure observation

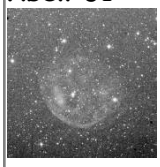
Abell 10  DSS 5' x 5'	**4", 63x, [OIII], fst 6m5+** not visible without filter, with [OIII] and 44x small spot of light, with 63x more easy and laminar, can hold PN with averted vision, 2' SW very faint star **8", 47x - 80x, [OIII], fst 6m5+** starting with 47x nothing is visible without filter; with [OIII] a small laminar glow is visible; with 80x glow is visible just without filter; with filter glow is round and bright and is visible with direct vision between two 12mag stars **16", 360x, UHC, fst 7m2** bright, also without filter, round disc, [OIII] shows no big improvement, best view with high power and UHC, faint structure, can not hold the structure **27", 419x, fst 7m+** bright disk even with low power; visible easily with direct vision; round disk somewhat mottled but difficult to resolve; good defined edges; CS very difficult but certainly popping in and out of view; dark lane S of the CS, W of it brighter part sketch
Abell 11  DSS 5' x 5'	**16", 129x-225x, fst 6m5** reflection nebula?, not visible **27", 419x, without filter, fst 7m+** faint reflection nebula; with higher magnification a faint but sure observable glow; can hold the glow with averted vision; round without any detail; smaller than on the blue POSS plates
Abell 12  DSS 5' x 5'	**4", 154x, [OIII], fst 7m+** with higher magnification the small round disk is easily visible and can seperate easily from the glow of mu Ori, no ring structure visible **4,5", 110x, [OIII], fst 6,4** amazingly easy with [OIII] and higher power, round, structureless **8", 160x, [OIII], moon (54%)** despite moon and bad seeing visible as direct vision object directly NW of mu Ori; round glow without ring structure **16", 230x, [OIII], fst 6m6** positioned in the direct neighbourhood of the 4mag star mu Ori, only with [OIII], round disc, difficult ring structure **16", 450x, [OIII], fst 6m8** min. UHC filter, better view with [OIII], sharply defined, SW part little brighter sketch

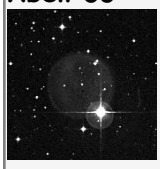
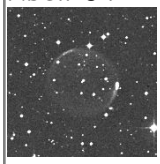
Abell 13  DSS 5' x 5'	**16", 129x, [OIII], fst 6m8** NW-part of the PN popping out in and out of view, can not hold it with averted vision, unsure observation **20", 62x - 121x, [OIII], fst 6m5+** very difficult observation, nothing to see with lower magnification, with 121x and [OIII] a saw very faint nebula the position of the brighter NW part, without filter there are a few 15mag stars exactly at this position, with filter I'm not sure whether stars or nebula **27", 105x, [OIII], NPB, fst 7m+** PN only 13' S of 5,6mag bright 66 Ori; with narrow field eyepiece, [OIII], NPB filter and 6,6mm AP an extremly faint glow is suspected at the position of the brightest part at the W border of the PN; glow can not be hold with averted vision; uncertain observation despite 27" aperture and very good transparency
Abell 14  DSS 5' x 5'	**16", 225x, [OIII], fst 6m5** close star group of faint stars at the position of the PN, with [OIII] faint glow, difficult to decide, but I think the glow shows the stars and not the PN **27", 293x, NPB, fst 6m5+** with finder eyepiece a faint nebula can be seen as a result of faint 16mag stars near the PN; the star group can be resolve in individual stars with about 300x; can hold CS with averted vision; a faint nebula remains but is shifted to the E where the highest desity of the stars is; with [OIII] the stars and the glow disappears; no PN glow can be seen; with NPB filter the situation changes - a few star shines through the filter and the very faint glow move exactly on the PN position; because of that and the fact that no or only a few background stars are at this position a regard the observation as positiv but at the limit of perception sketch
Abell 15  DSS 5' x 5'	**16", 225x, [OIII], fst 6m5** with [OIII] and higher power very faint nebula, can not hold it with averted vision, I'm sure that the glow shows the PN, no CS visible **27", 293x, fst 7m+** visible just without filter around faint CS; nearly no positive raction with UHC and [OIII] filter; best view without filter; ring structure with inside filling; exactly round with good defined edges sketch
Abell 16  DSS 5' x 5'	**16", 129x, [OIII], fst 6m7** not visible **16", 100x, [OIII], fst 6,9** with [OIII] round disc, 3' glow with sharp edges, best AP around 4mm, difficult PN, pops in and out of view with averted vision sketch **27", 113x, [OIII], fst 7m0+** visible even without filter as a very faint glow, without seeing the exactly position and size; 419x shows the faint CS with averted vision; UHC and [OIII] brings similar positive reaction, [OIII] border the PN a little bit better; PN is steadily visible with averted vision as a round, sturctureless glow, which is better defined at the E site

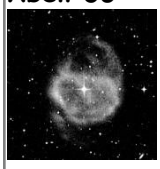
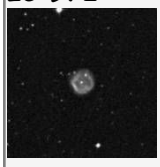
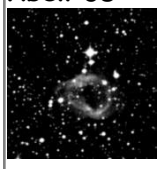
Abell 18  DSS 5' x 5'	**8", 47x-80x, [OIII], fst 6m5+** not visible **16", 129x, [OIII], fst 6m7** PN more simply than I expected, can hold the PN with averted vision, round disc without structure **27", 113x-172x, UHC + [OIII], fst 7m0+** nothing visible without filter; UHC and [OIII] brings similar positive results; with max. EP and 4mm EP a 3:2 N-S elongated glow is visible; not steadily visible with averted vision; no detail, size difficult to define; even under good transparency and large aperture not to easy
Abell 19  DSS 5' x 5'	**16", 129x, [OIII], fst 6m4** remarkably CS without filter, 2-3 very faint stars around CS, with [OIII] a faint halo around CS, can hold halo with averted vision **27", 293x, [OIII] fst 7m0+** CS bright and easy with direct vision trough finder eyepiece; nothing visible from the PN itself even with mid power without filter; dangerous faint stars around CS; with filter glow easy visible as a round, diffuse glow; steadily visible with averted vision; faint stars shines through the filter Zeichnung
Abell 20  DSS 5' x 5'	**8", 47x-80x, [OIII], fst 6m5+** with 47x + [OIII] a very faint glow is visible, lies between faint 14mag trapezium; with 80x glow is a little bit easier to observe and can be hold with averted vision; round without any structure **16", 129x, [OIII], fst 6m7** 1' north of a small triangle, faint without filter, with [OIII] faint, round disc, structureless **27", 172x-293x, [OIII]/UHC, fst 6m5+** visible even without filter near a faint star group; CZ is popping with 172x and steadily visible with 293x; moderate filter response to UHC and [OIII]; best view with 4mm AP 172x) and filter; round, hard edges and darker in the middle; direct vision object

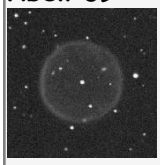
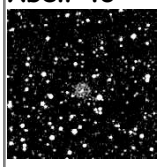
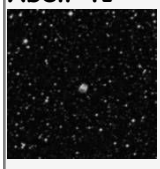
Abell 21  DSS 20' x 20'	**3", 14x, [OIII], fst 7m2** nebula also visible with 3" and [OIII] under perfect sky conditions, can hold PN with averted vision, round, structureless **4", 31x, [OIII], fst 6m4** SW-NE elongated disc with [OIII] and 14x, faint crescent shape with 31x **4" Bino, 23x, [OIII], fst 6m5+** visible even without filter 0,5° SE of the unremarkable OC NGC 2395; good reaction with [OIII] filter; object is still not bright but can be hold steadily with direct vision; more concentrated observations shows the shape of the nebula; the SE half seems to be better defined, while the NW side runs out diffuse; the brightest round and laminar peak is visible at the eastern end; another smaller and E-W elongated peak is visible at the southern end **16", 100x, [OIII], fst 6m4** famous Medusanebula, large, crescent-shaped nebula, shape open to the W, brighter condensations SW and NE, many structures, difficult to hold, best view with AP 4mm and [OIII]-filter, faint view without filter sketch
Abell 22  DSS 5' x 5'	**20", 155x, [OIII], fst 6m5** faint 3:2 SW-NE elongated disk SW a 13mag star, difficult to see, can hold it with averted vision, faint knots at the SW and NW end sketch **27", 172x-293x, UHC/[OIII], fst 6m5+** nothing visible without filter; UHC and [OIII] shows similar positive response; with filter and 172x the SW part is the first visible detail and could be hold steadily with averted vision; with 293x the NE part is also visible and seems to be smaller but somewhat brighter, sits directly NW of a disturbing 13mag star
Abell 23  DSS 5' x 5'	**12", 94x, [OIII], fst 7m+ (Namibia)** no sure observation, difficult star field arround, negative observation **16", 100x-129x, [OIII], fst 6m5+** PN because low declination (-35° DEC) only 5 minutes of observing window, during short time not visible **17", 140x, [OIII], fst 7m+ (Namibia)** now with 17" apperture, now the faint star can also be seen through the filter, NO an faint, 1' round glow, can hold it with averted vision

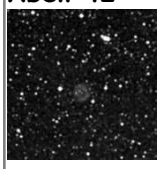
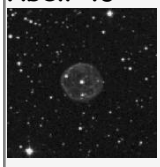
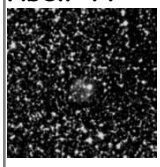
Abell 24  DSS 10' x 10'	**4" Bino, 23x, [OIII], fst 6m5+** not visible or suspected **8", 47x, [OIII], fst 6m5+** at best a very faint glow suspected; can not hold the glow sure enough, thats why negative observation **20", 66x, [OIII], fst 6m5** very faint round disk, hardly noticable only with max. AP, not sharply defined, structureless **27", 113x, [OIII], fst 6m5+** nothing visible without filter; similar poositive response to UHC and [OIII]; with max. EP and filter alarge, diffuse glow can be hold steadily with averted vision; middle somewhat darker; W shell overall easier to see, wider and a little bit bent; E shell shorter, thinner, but with higher surface brigthness; no peaks within the shells sketch
Abell 25  DSS 5' x 5'	**16", 129x, [OIII], fst 6m5** very faint PN, SE part popping out in and out of view, can not hold PN with averted vision **27", 113x-172x, [OIII], fst 7m0+** with max. EP PN looks like a round, filled glow without shell structure; only visible with [OIII] and averted vision; with 4mm EP a little bit fainter but with both shells; SE shell a little bit easier, between shells PN seems to be filled; [OIII] better than UHC sketch
Abell 26  DSS 5' x 5'	**12", 150x, [OIII], fst 7m+ (Namibia)** small and round, difficult, also with averted vision, no structure **16", 100x-129x, [OIII], fst 6m5+** PN because low declination (-33° DEC) only a few minutes of observing window, during short time not visible
Abell 27  DSS 5' x 5'	**12", 63x, [OIII], fst 7m+ (Namibia)** no exact map to search PN (only Uranometria), at the exaxt position a very faint glow, can not hold it, the reinforcement shows, that I was at the right position **16", 100x-129x, [OIII], fst 6m5+** PN because low declination (-32° DEC) only a few minutes of observing window, during short time only a very faint hint of light, could not hold it, uncertain observation
Abell 28  DSS 5' x 5'	**16", 51x, [OIII], fst 6m5** not visible **27", 113x-172x, [OIII], fst 6m5+** more simply than expacted; round, large glow at the exactly PN position; can not hold glow, but it plobs in and out of view always at the same place; movement of telescope helps; edges are diffus; no other detail

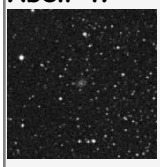
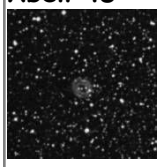
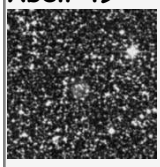
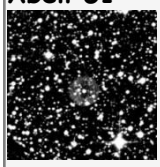
Abell 29  DSS 10' x 10'	**16", 69x, [OIII], fst 6m8** very difficult PN, observation together with another observer, can not hold PN with averted vision, round without defined edges, only with max. AP and [OIII], observed disk is only the SW part of the ring structured PN sketch **27", 113x, [OIII], fst 6m5+** only visible with max. EP and [OIII]; both shells steadily and simultaneous visible with averted vision; NE shell wider, longer and brighter at the N end (because of washed stars); SW shell shorter and straight going
Abell 30  DSS 5' x 5'	**16", 51x, [OIII], fst 6m5** faint PN, can hold it with averted vision, best with max. AP, not sharply defined sketch **27", 172x, [OIII], fst 6m5+, Seeing IV** with 4mm AP + [OIII] PN disk itself can hold steadily with averted vision; sharply defined; around CS brighter but small 15" Halo; only visible with filter; CS Halo without structure
Abell 31  DSS 30' x 30'	**4" Bino, 23x, [OIII], fst 6m5+** with [OIII] filter visible as a round and diffuse glow around the 10mag bright GSC 8112166; the 10' large glow seems to be a little bit brighter towards the SW edge; steadily visible with averted vision **8", 31x, [OIII], fst 6m5+** large nebula with [OIII] filter along trapezoid of 10mag stars; bright, can hold it with direct vision; brightest part east of the eastern star, elongated 1:2 N-S; west following another fainter part; difficult to find the borders, because of very diffus edges; whole nebula approx 14' large **16", 51x, [OIII], fst 6m5** moderately bright PN with max. AP and [OIII], around 10mag star, some structures, brightest part W and SW of the star, diffus end, NE second part, smaller sketch **27", 113x, [OIII], fst 6m5+** even without filter a faint glow can be detected around a 10mag star; positive response to [OIII], moderate to UHC and no response to Hß filter; with max. EP (and field) plus [OIII] a stained structure is visible, broken with some difficult to locate dark lanes; brightes part SW of the star, following with a longer NW part; a fainter part is visible at the very SE end of the PN; the fainter Ha shell at the SE ende is not visible in all filters

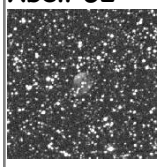
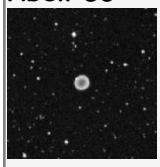
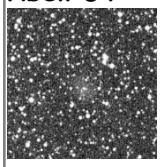
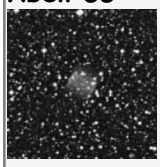
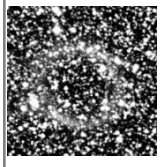
Abell 33  DSS 10' x 10'	**4" Bino, 23x, [OIII], fst 6m5+** with [OIII] filter visible as a round glow directly NE of the 7mag bright HD 83535; good defined edges and 4' large; steadily visible with averted vision **8", 31x-80x, [OIII], fst 6m5+** with 31x (AP 6,5mm) faint glow directly NE of a 7mag star; looks like a ghost of the star, but the offset position and the missing at other stars makes it clear that the glow is the PN; still visible with averted vision with higher power (80x = AP 2,5mm); exactly round disc with 4' diameter and well defined edges; at the NW border a faint 12mag stars shines through the filter; another 12mag star is 2' N; structureless **16", 129x, [OIII], fst 6m4** also noticable without filter, with [OIII] and 129x a large, round glow, can hold it with direct vision, no structure within the glow, sharply defined sketch **27", 172x, [OIII], fst 6m5+** round glow visible even without filter; middle positioned DS (with CS) visible with averted vision with 172x; higher power cannot split the DS; very good response to [OIII]; PN is round, sharply defined and structureless filled; thin edge ist not brighter than the filling
Abell 34  DSS 10' x 10'	**16", 51x, [OIII], fst 6m4** very faint round glow with max. AP, not sharply defined, can not detect the ring structure **16", 75x - 180x, [OIII], fst 6m5+** best with higher AP, at 75x 2:3 N-S elongated, W side better defined, no ring structure, without filter and with higher magnification faint galaxy PGC 3081651 at the W edge, very faint, can not hold it steadily sketch **27", 113x-419x, [OIII], fst 6m5+** nothing visible without filter; with higher magnification a tight DS in the middle can be resolved from which the fainter SE star is the real CS; the brighter galaxy PGC 3081651 within the W rim can be hold steadily with direct vision as a 1:2 elongated glow; 1,6' S another fainter galaxy can be detected, visible with averted vision as a round glow; PN gives good response to [OIII] and is steadily visible with averted vision as a round glow with structureless filling; at the NE end the rim is better defined and visible as a short shell part; other brighter rim sections are not visible
Abell 35  DSS 10' x 10'	**8", 47x, [OIII], fst 6m5+** nothing visible without filter; with [OIII] easy and direct vision glow around bright CZ; N and E two other faint stars at the edge of the PN; glow seems to be round with diffuse edges; no other detail visible **16", 51x-100x, [OIII], fst 6m4** faint, large PN around 9,5mag CS LW Hyd, visually much smaller than photographically, at the south edge brighter 1:2 E-W elongated part sketch

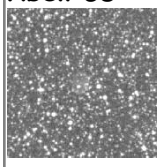
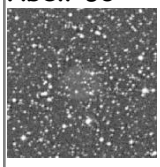
Abell 36  DSS 10' x 10'	**8", 47x-80x, [OIII], fst 6m5+** nothing visible without filter; with [OIII] a 1:2 N-S elongated glow could be seen; can hold glow steadily with averted vision; bright CZ; with 80x the S part looks a little bit brighter **16", 51x-100x, [OIII], fst 6m4** easy Abell PN, can hold it with direct vision, with max. AP 2:3 N-S elongated disk around 11,8mag CS, with AP 4mm southern part much brighter **16", 75x, [OIII], fst 6m5+** easy, can already see the PN without filter, 2:3 E-W elongated PN, disk is shifted to the S side, flatly N side, S of the CS faint dark hole, brightest part at the W side, very faint outer parts at the NW sketch
Abell 37 - IC 972  DSS 5' x 5'	**8", 114x, [OIII], fst 6m5+** visible with averted vision even without filter; very small; from 80x the glow started to be laminar; round with good defined edges; only small filter effect; with [OIII] the PN can be seen with direct vision; no CS or ring structure **16", 129x, [OIII], fst 6m4** small planetary, best with 129x (AP 3mm), can hold it with averted vision, structureless, no CS **20", 450x, UHC, fst 7m+** without filter bright, round glow with brighter edges; no CS; good reaction to [OIII], best view with UHC; ring breaks at the E edge; brightest part at the SE; ring seems to be open to the N; W edge is better defined; stellar spot (star) at the NW sketch
Abell 38  DSS 5' x 5'	**16", 100x, [OIII], fst 7m5** extremly faint PN, the faint, round glow sits directly south on a 11mag star, difficult to estimate the size and structure, the two 14mag neighbour stars are visible trough the [OIII] sketch **28", 120x, [OIII], fst 7m5+** even under the best conditions (Gamsberg/Namibia) and large aperture difficult to observe and much fainter then the red POSS plate indicates; with averted vision and [OIII] filter a very faint 3:2 E-W elongated glow can be hold steadily; no sign of a ring structure or the brighter rims; not visible without filter and only suspected with UHC

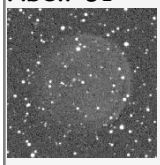
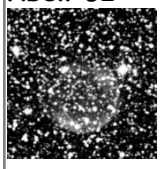
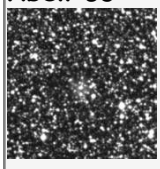
Abell 39  DSS 5' x 5'	**4", 31x, [OIII], fst 6m2** extreme PN with 4" , PN is popping in and out of view at the right position with 3,5mm AP and [OIII], can not hold it with averted vision, no CS without filter, structureless round glow **4" Bino, 23x, [OIII], fst 6m5+** nothing visible without filter; with 4,3mm EP and [OIII] a round glow is steadily visible with averted vision; faint but visible without problems; with 55x view to dark, PN not visible any more **16", 129x, [OIII]** large, round disc with [OIII], can hold PN with averted vision **20", 121x, [OIII], fst 6m3** faint glow without filter and max. AP, with 4mm AP round, bright disk, darker to its middle, CS without filter sketch **27", 113x-172x, [OIII], fst 6m5+** faint glow with AP 6mm and 4mm even without filter; with [OIII] easy target; best view with 172x (AP 4mm); exactly round with good defined edges, edge visible as a thin frame around the direct vision glow of the PN, frame a little bit segmented, brightest segment in the E, following with a smaller segment in the NW and S; CS direct vision without filter, even visible trough the [OIII]; did not try the galaxy within the PN
Abell 40  DSS 5' x 5'	**12", 150x, [OIII], fst 7m+ (Namibia)** can hold PN with averted vision, round and laminar, faint star in the neighbourhood (without filter) **16", [OIII], fst 6m4** not visible
Abell 41  DSS 5' x 5'	**16", 225x, UHC, fst 6m4** faint Abell despite bright POSS-images (blue and red), could not see the PN without filter, best view with 225x and UHC, small, round, not sharply defined, structureless, could hold PN with averted vision sketch **27", 419x, [OIII], fst 6m5+** with higher magnification CS is visible steadily with averted vision, faint glow around CS even visible without filter; with [OIII] CS disappears and brings out the glow clearly; glow steadily visible as a small, round nebula with averted vision; good defined edges but without showing the shell structure

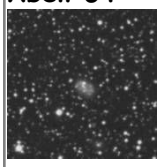
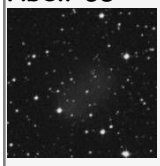
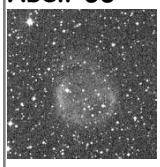
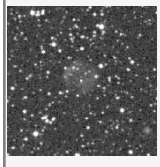
Abell 42  DSS 5' x 5'	**16", 100x, [OIII], fst 7m5** extremly faint spot of light, only visible with AP 4mm, PN is popping in and out of view with averted vision, round, without any structure, faint stars near the PN on the E and W side could be detect through [OIII] sketch **20", [OIII], fst 6m3** not visible **27", 113x, [OIII], fst 6m5+** without filter very faint glow suspected with 113x and 172x; [OIII] brings out a very faint glow which could barely hold steadily with averted vision; glow is round and structureless; UHC does not help
Abell 43  DSS 5' x 5'	**20", 155x, [OIII], fst 6m3** with [OIII] and 155x round glow, can hold it with averted vision, some difficult structure, could not hold it, 3 stars within the PN without filter sketch **27", 293x, UHC, fst 6m0+** even with bad transparency conspicuous in the finder eyepiece without filter; 3 stars within the PN, CS brightest one, S star faintest; [OIII] filter only slightly improvement; UHC best solution; round glow with good defined edges; implied shell structure but no ring structure; brightest part NW; no inner structure
Abell 44  DSS 5' x 5'	**16", 225x, [OIII], fst 6m5** best view with 225x + [OIII], can hold PN with averted vision, round glow without sharp edges, faint 12,5mag star at the SE edge sketch **27", 293x, [OIII]/UHC, fst 6m5+** nothing visible in the searching eyepiece; with 293x even without filter faint glow E of a 12mag star; similar positive reaction with [OIII] and UHC; now the PN is steadily and easy visible as a small and round glow
Abell 45  DSS 10' x 10'	**16", 51x, [OIII], fst 6m5** extreme PN, 3' NW of 12,5mag GSC 56983731 3' x 2' E-W elongated glow, can not hold it with averted vision, unsure observation **27", 113x, [OIII], NPB, Hß, fst 7m+** only suspected as a extremly faint glow when moving the telescope; no exact size or position observeable; not sure visible when telescope stands still; tried all filter, only suspected with [OIII]; no brighter regions or edges visible; no certain observation even under nearly perfect transparency
Abell 46  DSS 5' x 5'	**20", 206x, [OIII], fst 6m6** faint glow around CS even without filter, with [OIII] and 206x the PN is round with diffus border, 1,5' large around CS, can hold PN with averted vision **27", 293x, [OIII], fst 6m0+** even under bad transparency faint glow visible around direct visible CS; good [OIII] reaction; with this filter PN easy visible with direct vision; round and diffuse edges; CS visible trough filter sketch

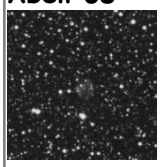
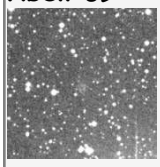
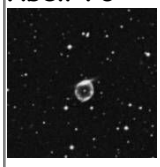
Abell 47  DSS 5' x 5'	**16", 129x, [OIII], fst 7m2** extreme object, very hard to detect, popping in and out of view on the right position, round, diffus spot of light, can not hold it with averted vision **27", 293x, NPB, fst 7m+** region poor of stars without near; after a long observing session a very faint small glow pops in and out of view with NPB filter just a few times; could not hold the glow, no certain observation even under neraly perfect transparency
Abell 48  DSS 5' x 5'	**16", 129x, [OIII], fst 7m+** difficult PN, can not hold PN with averted vision, round with diffus edges **16", 150x, [OIII], fst 7m+** also under very good alpine skies difficult PN, can not hold steadily with averted vision, round, small, obersvation together with another observer sketch **27", 172x, [OIII], fst 6m0+** bad transparency; not visible without filter; with UHC only suspected; with [OIII] also difficult but I can hold PN for several seconds each; diffus edges; fainter stars within nebula not visible without filter
Abell 49  DSS 5' x 5'	**16", 225x, [OIII], fst 7m3** very faint PN, small spot of light without structure, can not hold it with averted vision sketch **27", 293x, [OIII], fst 7m+** nothing visible without filter; with [OIII] easy to see with direct vision; round without structure; diffus edges; nice star field with lots of DS and star groups
Abell 50 - NGC 6742  DSS 5' x 5'	**4", 55x, UHC, fst 6m5+** visible even without filter, with 55x small and round, best view with UHC, can hold PN easily with averted vision **16", 51x-450x, [OIII], fst 6m4** bright, also visible without filter, round, sharply defined, structureless **27", 586x, ohne Filter, fst 7m0+** bright even without filter and low magnification; filter doesn't help much; at the W edge a faint star is visible; round PN seems to be filled homogenous, but S part is a little darker; no CS sketch
Abell 51  DSS 5' x 5'	**8", 47x-80x, [OIII], fst 6m5+** nothing visible or suspected with and without filter **16", 129x, [OIII], fst 7m3** large , round disc, sharply defined, can hold PN with direct vision, no ring or other structure sketch **27", 172x, [OIII], fst 7m0+** steadily visible with the searching eyepiece even without filter; from 293x up the CS is visible with direct vision; best combination is [OIII] + 172x; PN now direct visible object with good defined edges; with 293x the ring structure is clearly visible; UHC filter gives poorer reaction

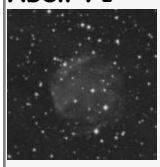
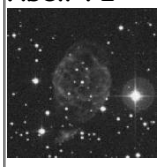
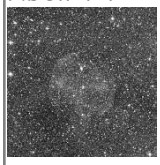
Abell 52  DSS 5' x 5'	**16", 225x, [OIII], fst 6m7** extremly faint PN, can not hold it with averted vision, after intensiv observation with 225x and [OIII] the PN is popping in and out of view **27", 172x, [OIII], fst 7m0+** not visible without filter; with [OIII] round disk with sharp edges; can hold disk with averted vision; NE part brighter
Abell 53  DSS 5' x 5'	**8", 114x, [OIII], fst 6m5+** higher magnification needful for precisely seperation from a neighbor 13mag star; star (1,6' N) itself visible with averted vision trough filter; but absolute nothing visible from the PN **14", 200x, [OIII], fst 7m3** faint, round disc, can not hold it with averted vision, typical Abell **27", 293x, [OIII], fst 7m+** visible even without filter as a round glow; weak response with [OIII] filter, no response with Hß; with filter ring structure visible with sharp defined edges; PN visible with direct vision sketch
Abell 54  DSS 5' x 5'	**16", [OIII], fst 7m+ (21,50)** not visible **27", 172x, [OIII], fst 7m+** compact star group 1,2 NW (can be seen also with filter), PN not difficult, can hold it with averted vision, round with soft edges, 1' diameter, structureless
Abell 55  DSS 5' x 5'	**8", 80x, [OIII], fst 6m5+** without filter extremly faint nebula suspected; with filter clearly visible, can hold plob steadily with averted vision; round with diffuse edges **16", 180x, [OIII], fst 7m+ (21,50)** easy Abell PN, very faint glow even without filter, with [OIII] PN can hold with direct vision, with AP of 2mm PN the PN is round with structureless disc sketch **27", 293x, [OIII], fst 6m0+** without filter and 113x faint, small glow between some fainter stars at the edge; with 172x edge stars could be resolved and the glow is steadily visible with averted vision; very good filter reaction; with [OIII] the nebula is is bright, direct vision object up to 293x; round with diffuse edges and somewhat brighter center
Abell 56  DSS 5' x 5'	**16", 129x, [OIII], fst 7m+ (21,50)** extreme PN, together with another observer I see a large, extremly faint nebula, can not hold the exact position and size **27", 122x, [OIII], fst 6m5+** very difficult PN, with max. AP very faint, round 3' large disk, darker in the middle, brightest part 1,5 SW from 11,2mag GSC 4672006, similar fragment on the other side, faint star groups make the observation not sure, brighter on the red POSS plate

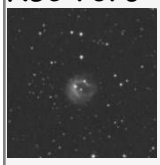
Abell 57  DSS 5' x 5'	**8", 80x-114x, [OIII], fst 6m5+** very small for Abell PN (47x to small for verification); with filter a very faint glow pops in and out of view each for several seconds; can not hold glow steadily; seems to be brighter to its middle with diffus edges; very faint but clearly positive observation **16", 225x, [OIII], fst 6m8** round, can hold PN with averted vision, diffus, brighter to its middle, like a faint GC sketch **27", 293x, [OIII], fst 6m0+** nice star field around PN; under bad transparency suspected between 172x and 293x; with 419x glow is not visible any more but the faint CS is blinking trough; good [OIII] reaction; easy and direst vision object with round, diffus edges and brighter middle; small for an Abell PN
Abell 58  DSS 5' x 5'	**16", [OIII], fst 7m+ (21,50)** not visible **27", 172x, [OIII], fst 6m5+** difficult but sure positive identification, 1' NW from a faint 13mag parallelogram, compact but with 172x small disk, with 0,5' smaller than on the POSS, brighter on the red POSS plate
Abell 59  DSS 5' x 5'	**16", 225x, [OIII], fst 6m7** very faint PN, disturbing 6m5 star 3' NE, can hold PN with averted vison for 2-3 seconds, best view with 225x, [OIII] and the star outside the field, I saw the PN as a round glow with little brighter central part? **27", 113x, [OIII], fst 6m5+** under averange transparency very hard object; only visible with max. AP (6,1mm) as a small glow at the position of the brightest part of the PN at the N edge; could not hold PN with averted vision; pops in and out of view only fpr seconds; not visible with 4mm AP; disturbing star NE **27", 113x, [OIII], fst 6m5+** under very good transparency sure to see; already visible with max. AP (113x) as a very faint glow with better defined N edge; best view with 4mm AP (172x); round glow with brighter N egde; can hold glow with averted vision; only visible through [OIII], NPB filter poorer choice but also visible
Abell 60  DSS 5' x 5'	**16", 129x, [OIII], fst 7m0** medium sized Abell PN, round, only with [OIII], can hold PN with averted vision, PN is mottled, fore ground stars? **27", 113x-293x, [OIII], fst 6m5+** visible even without filter as a very faint glow from 172x up; very faint stars within the PN area; next to the PN faint star chain E; with filter direct vision object; round without any structure; star group visible trough the filter, fainter stars within the PN very dimm; easy Abell PN

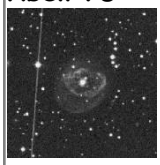
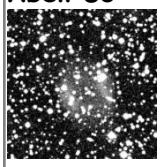
Abell 61  DSS 5' x 5'	**8", 47x-80x, [OIII], fst 6m5+** with 4mm EP a very faint glow can be seen 5' N of a 11mag star chain; small but laminar glow can be hold with averted vision; an increase of the magnification to 80x brings out the position and size much better althrough the glow is a more difficult to see; glow is exactly round and around 4' diameter **16", 75x, [OIII], fst 6m5+** rich star field, best view with 75x (AP 5,3mm) and [OIII], easy to hold with averted vision, no sign without filter, circular with better defined W side sketch **20", 62-155x, [OIII], fst 6m5** beautiful PN, not visible without filter, with [OIII] large, round planetary, can hold it with averted vision, perfectly circular, NW-edge a little brighter **27", 113x, [OIII], fst 7m0+** PN could be seen even without fiklter as a very faint glow; with [OIII] bright, exactly round with nebula inside the PN; NW a little bit brighter; good defined edges; with 586x and without filter CS can be seen
Abell 62  DSS 5' x 5'	**16", 100x, [OIII], fst 7m3** best view with 4mm AP, faint glow around star group, 2:3 E-W elongated, S is brighter and better defined, faint but can hold it with averted vision **27", 172x, [OIII], fst 6m5+** faint visible even without filter; good reaction with [OIII]; direct vision object; SW side a little bit brighter; SE side better defined against the background because of missing stars; difficult star filed with star chains in the directly near of the PN edges sketch
Abell 63  DSS 5' x 5'	**16", 180x, [OIII], fst 7m+ (21,50)** typical Abell PN, with [OIII] small, round disk, faint star on the W border of the PN which is visible through the [OIII] sketch **27", 293x, UHC; fst 6m5+** not visible without filter with 113x; faint glow visible without filter with 293x around a small square star group; CS with direct vision; practically no positive reaction with [OIII]; UHC much better filter; with this filter a small round and diffuse glow is visible around the CS with averted vision

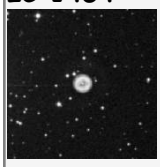
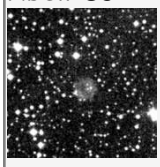
Abell 64  DSS 5' x 5'	**10", without filter, fst 7m1** faint, round mark, can hold it with averted vision, no reaction to filters **14", without filter, fst 7m1** bright, no elongation, faint star near the middle **16", 225x, without filter, fst 7m0** bright, 1:2 elongated; faint HII region near the middle; Glx not visible with filter **27", 488x, without filter, fst 7m+** Glx already visible with low power; higher power shows several HII regions within the Glx; brightest knot at the N tip; dobble system with a fainter companion to the S; further S at the S edge another stellar HII knot; fainter knots also at the W and E edge sketch
Abell 65  DSS 5' x 5'	**8", 47x-80x, [OIII], fst 6m5+** nice star field without filter; both adjacent 13mag stars visible with 80x; CZ not visible; with [OIII] and 47x a faint 1:2 SE-NW glow can be hold with averted vision without problems; glow is also visible with 80x; diffuse edges; nice and for 8" easy Abell PN **16", 129x, [OIII], fst 7m2** brighter PN, oval shaped sketch **27", 172x, [OIII], fst 6m0+** easy visible even without filter with low power; with 172x CS visible with averted vision; good filter reaction; with [OIII] bright and direct vision object; 1:2 SE-NW nebula with brighter section to the SE **27", 172x - 293x, [OIII], fst 7m0+** direct vision object with 1:2elongation without filter; good [OIII] reaction; with filter three brighter sections visible; whole SE edge brightest part of the PN, also brighter NW edge has two knots at its edge itself; outer halo arc only suspected, best pop with 293x as a peak at the middle of the long NE side, a little bit off the PN itself, no sure observation
Abell 66  DSS 10' x 10'	**16", 51x, [OIII], fst 7m2** faint, only with max. AP and [OIII], large, round, structureless sketch **27", 113x, [OIII], fst 6m0+** without filter only suspected as a very faint glow; good filter reaction; with [OIII] round glow with brighter parts to the E and W; both shells connected trough the center like a "bone"
Abell 67  DSS 5' x 5'	**16", 129x, [OIII], fst 7m2** only with [OIII], medium sized round disc, easy to hold with averted vision, structureless **27", 172x, [OIII], fst 6m0+** visible even under bad transparency as a very faint, large glow without filter; UHC better, visible with averted vision for seconds each; [OIII] again better; PN now steadily visible as a large, diffuse glow with averted vision; sometimes the PN seems to be constricted in two halves, difficult to see for sure

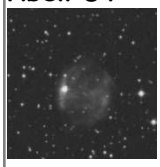
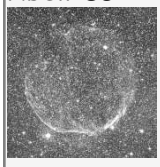
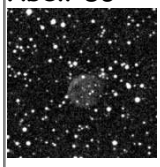
Abell 68  DSS 5' x 5'	**16", [OIII], fst 6m2** 1° south of M 27, not visible **16", 129x, [OIII], fst 7m0** now successfully with better scaled star plot, with [OIII] small, faint, round, double star in the east sketch **27", 113x-172x, [OIII], fst 6m5+** nothing visible without filter; with [OIII] easy object; with 6,1mm AP (113x) visible with averted vision as round glow with diffus edges; with 4mm AP visible with direct vision!
Abell 69  DSS 5' x 5'	**16", 225x, [OIII], fst 7m2** extreme PN, very small, very faint, star chain in the east, hardly noticable, can hold PN with high power for seconds **27", 293x, [OIII], fst 7m0+** extremly difficult Abell; without filter near PN position 16mag star, can hold star with averted vision; with Astronomik [OIII] I could detect a very faint glow at the posion of the PN, could also be the star through the filter; Lumicon [OIII] shows less stars, but the glow stay at the detected post; exremly faint, could not hold the faint glow
Abell 70  DSS 5' x 5'	**8", 80x-229x, fst 6m5+** with 80x and without filter a small and nearly stellar glow can be seen; up to 160x glow can be hold with averted vision as a small laminar glow without any detail (galaxy); best view with [OIII] and 114x; up to 229x glow can be hold with averted vision as a small structureless (no dark hole in the middle) disk with good defined edges **16", 360x, fst 7m0** with [OIII] faint ring structure, very faint without filter, elongated spot in the ring sketch **20", fst 7m2** with [OIII] beautiful ring structure, 1:3 elongated galaxy easy to detect without filter **24", fst 7m0** galaxie easy to detect, elongated 1:3 - 1:4, easy ring structure with [OIII], no CS **27", 172x, fst 7m+** without filter PN looks bright, round with darker central region, can hold with direct vision, galaxy 1:3 elongated, fantastic object!

Abell 71  DSS 5' x 5'	**16", 51x, [OIII], fst 6m8** confound by a faint star group 10' north, accurate star plot very important **20", 155x, [OIII], fst 6m5** now successfully, PN hard to detect even with 20", faint, round disc between many faint stars of the Milky Way **27", 172x, [OIII], fst 6m5+** rich star field; already visible through searchig eyepiece + [OIII] filter and max. AP as a large glow; best view with 4mm AP; slightly N-S elongated glow with better defined E edge; near central position a 14mag star is visible through the filter which is not the real CS sketch
Abell 72  DSS 5' x 5'	**8", 80x, [OIII], fst 6m5+** nice triangle of stars at the position of the PN; with [OIII] and 47x a laminar glow can be seen with direct vision within the triangle; better view to see the exactly size and position with 80x; with that mag glow can be hold easily with averted vision as a 3:2 N-S elongated glow **16", 129x, [OIII], fst 6m3** PN faint also without filter, 8 mag star in the west, with [OIII] large, round, structureless sketch **27", 244x, [OIII], fst 7m0+** PN could be seen even without filter; with 293x the galaxy PGC 65491 S of the PN could be seen as a small glow; with [OIII] the PN could be detected with direct vision as a bright, round glow with better defined E and W edges; bright CS is visible even through filter
Abell 73  DSS 5' x 5'	**16", 129x, [OIII], fst 7m0** very faint PN, only with [OIII] and AP 3mm, can hold it with averted vision **27", 244x, [OIII], fst 6m5+** moderate easy PN; visible as a faint glow with direct vision in searching eyepiece; best view with 2,8mm AP (244x) and [OIII]; in the first overview PN seems to be exactly round with sharp defined edges; deeper observing shows a darker middle; both cups E and W are only implied and not directly visible sketch
Abell 74  DSS 30' x 30'	**16", 51x, [OIII], fst 7m2** very faint and large PN, only with [OIII] and max. AP (7mm), round, 3 stars + faint galaxy PGC 66471 (15 bmag) are superimposed on the large disc (without filter) sketch **27", 113x, [OIII], fst 7m+** without filter a very faint glow can be suspected when moving the scope through the field (rich star field around PN can also be the reason for this); with [OIII] and 6,1mm AP (113x, 0,7° field) a very faint glow around the bright CS is visible; but no edge or exakt form is visible; galaxy north of the CS is visible as a stellar glow without filter; difficult PN!

Abell 75 - NGC 7076  DSS 5' x 5'	**4", fst 6m5+** not visible **8", 160x, [OIII], fst 6m5+** with for 8" high magnification 3 14mag stars can be seen in a N-S line; southern star seems to be laminar; but laminar character can be a result of a not resolved 15mag star; with [OIII] all faint stars disappear and a faint glow remain; structureless glow can be hold with averted vision and has good defined edges **12", 167x, [OIII], fst 6m5+** quick and dirty observation; PN can be seen as a brighter, round spot of light, direct vision; hard eastern edge **16", 330x, [OIII], fst 7m0** faint, small, oval shaped PN, only with [OIII], a little bit brighter at the NE, dark wedge from the west, 2 stars are superimposed sketch **27", 113x-419x, [OIII], fst 6m5+** without filter visible as a glow around 15mag star; CS steadily visible with averted vision with 419x; good reaction with filter; [OIII] plus 293x-419x best combination; brighter arc over the N stars; from the E star arc bends to the S; fainter arc parts put on the brighter arc and close the Pn like a drop with the sharp end to the W; center is clearly darker
Abell 76  DSS 5' x 5'	No PN - Ringgalaxy PGC 85185 **14", 200x, fst 7m+** small, exactly round, without any structure, no reaction with filter, very similar to a PN **27", 586x, fst 7m+** bright, direct vision, roundhard edges, no ring structure, faint star within PN not visible
Abell 77  DSS 5' x 5'	No PN - HII region Sharpless 2-128 **16", 129x, [OIII], fst 6m8** faint, round disc around the CS without filter, with [OIII] faint, round disc without structure **27", 293x, NPB, fst 6m5+** even without filter a faint round glow is visible around 14mag bright "CS" with direct vision; positive response with [OIII] and NPB; no response with Hß; best results with NPB; E-W elongated glow with diffus edges; N side a little bit brighter sketch

Abell 78  DSS 5' x 5'	**8", 114x, [OIII] fst 6m5+** 13mag CS visible even trough [OIII] filter; a very faint halo pops in and out of view around CS; halo is not visible around neighborhood 13mag stars; difficult but positive observation **16", 225x, [OIII], fst 7m1** only with [OIII], large, round disc, somewhat mottled (Ring?), bright CS **16", 180x, [OIII], fst 6m+** brighter PN with [OIII], 1:2 E-W elongated, somewhat brighter at the N and NE, bright CS, no ring structure sketch **27", 172x-293x, [OIII], fst 6m0+** without filter faint halo from 172x up around bright 13mag CS; with 419x nice star chain NW with 7 stars; beside bright CS another fainter star is popping in and out of view; with [OIII] filter 1:2 E-W elongated glow with shell structure E and W; E shell a little bit brighter; fainter halo around shells not visible (bad transparency)
Abell 79  DSS 5' x 5'	**4", 44x-88x, [OIII], fst 6m5+** not visible **8", 114x, [OIII], fst 6m5+** faint 14mag star at the S edge visible without filter; with filter star disappear but a faint glow remains; glow can be hold with averted vision for several seconds; difficult but positive observation **16", 225x, [OIII], fst 7m1** bright, also visible without filter, 1:2 elongated disc with [OIII], faint star at the south edge **27", 419x, fst 7m+** even without filter visible as a faint glow; no good filter reaction; bacause of the rich and beautiful star field observation and sketch without filter; most easiest detail is a bend at the E side; W of it a very faint glow 3:2 is following to the W; red bend to the NE side is not visible; CS ist visible with averted vision and only without filter sketch
Abell 80  DSS 5' x 5'	**16", 51x, [OIII], fst 7m2** not visible **16", 100x, [OIII], fst 7m2** faint PN very hard to detect, only with AP 4mm and [OIII], medium sized, round disc, can not hold PN with averted vision sketch **27", 172x, [OIII], fst 7m0+** nothing without filter; with [OIII] PN easy visible as a faint, round glow; sharply defined edges; could hold glow easy with averted vision; structureless

Abell 81 - IC 1454  DSS 5' x 5'	**4", 55x, UHC, fst 6m5+** visible even without filter, with 55x small and round, UHC filter with hardly improvements, best view without filter **8", 80x, fst 6m5+** not visible with 31x; with 80x visible just without filter; nearly no positive filter reaction; round glow with good defined edges but without drak center **16", 51x-450x, [OIII], fst 6m5** bright, also visible without filter, round, circular disc, sharply defined, faint double star at the NE **16", 250x, [OIII], fst 6m8** PN with faint ring structure, thick ring **27", 586x, fst 6m5+** bright object; asymmetrical and structured ring; faint CS sketch **27", 293x, [OIII], fst 7m0+** bright even in the unfiltered finder eyepiece; with [OIII] and 293x 5:4 E-W elongated; first knots within the ring; halo suspected with 172x and [OIII] but not sure visible
Abell 82  DSS 5' x 5'	**8", 80x, [OIII], fst 6m5+** without filter two faint star; with [OIII] a noticeable glow is visible; glow seems to be round with diffus edges; glow is just visible with direct vision and easy with averted vision **16", 150x, [OIII], fst 7m0** small planetary with structure, best view with AP 2,7mm (150x) and [OIII], a little bit brighter at the NW, 4 stars are superimposed on the disc sketch **27", 172x, [OIII], fst 6m0+** even under bad transparency visible without filter directly north of a trapezoidal star group; northernmost star CS; weak reaction on UHC and [OIII] filters; with these filters glow becomes bigger into the star group; southern half still fainter also because of the disturbing stars; nice sighting because of the star goup and the different difficulty of the PN parts
Abell 83  DSS 5' x 5'	**16", 129x, [OIII], fst 7m0** only with [OIII], can hold PN with averted vision, trapezoid of stars at the east **16", 180x, [OIII], fst 7m+** typical PN, not visible without filter, with [OIII] faint, round light 1,5' SW of a trapezoid of 15mag stars, 1' diameter, can hold PN with averted vision sketch **27", 173x, [OIII] + NPB, fst 7m+** not visible without filter; nice star filed with many DS around PN position; with [OIII] or/and NPB a faint, 3:2 E-W elongated disk without structure is visible with averted vision

Abell 84  DSS 5' x 5'	**8", 80x, [OIII], fst 6m5+** nothing visible without filter; with [OIII] a very faint glow is visible directly W of a 11mag star which is visible even trough the filter, the glow can be hold with averted vision and shows no structure **16", 129x, [OIII], fst 6m8** very faint without filter, better view with [OIII], dark lane dividing PN from the north to the south, eastern part a little bit brighter, 12mag star at the eastern edge sketch **27", 172x-293x, [OIII], fst 6m0+** without filter even visible in the searching eyepiece as a faint glow E of a 12mag star; with 172x easy and steadily visible with averted vision; with [OIII] filter bright and direct vision object; bightest parts round with E and W shells which are connected like a "bone"; with averted vision fainter extensions to the N and S which gaves the nebula a slighly N-S elongated look
Abell 85  DSS 45' x 45'	No PN - Supernova Remnant CTB 1 **16", 110x, [OIII], fst 7m+** no sign of SNR, difficult star field with star chains **27", 113x-172x, [OIII], fst 7m+** brightest [OIII] part east of the 9,5mag "starting star" GSC 42853095, extremly difficult and rich star field with many star chains, best view with 172x (AP 4mm), nebula can only detect indirectly as a step in brightness, the GSC forms a 5'x3' N-S oval, which is seperated in an brighter and less brighter part, brighter in the east, another similar step can be found 7,5' S from the GSC star, otherwise no other part could be detect
Abell 86  DSS 5' x 5'	**16", 129x, [OIII], fst 7m2** very hard to detect, only with [OIII] and AP 3mm, can not hold PN with averted vision, visible only 20% of the time sketch **20", 128x, [OIII], fst 6m5+** E of an faint 14mag star group, PN itself is very faint, round, can not hold it with averted vision **27", 172x, [OIII], fst 7m0+** difficult Abell even with 27" aperture; with [OIII] a very faint, round glow can be seen; can not hold glow steadily with averted vison; position is ok; pops in and out of view always for a few seconds