

Palatable Deep Sky Objects

Connoisseur Observation Scale:

FS ☺☺☺ = Filet Mignon steak: wow, awesome, spectacular, unbelievable, must see to believe!

NS ☺☺ = New York steak: nice, ok, satisfying, good.

GS ☺ = Ground steak: yawn, will do, give me aperture or give me Nagler eyepiece!

SL 🍴 = Galactic salad: on photon diet, real *tough* object to observe. See also [The Light Cup holy grail](#)

Symbol: ® - seen by TV-102 Light Cup ® - other observers with 4-inch TV refractor
 ® - other observers with 4" refractor ⊕ - other observers with 85mm, 80mm or less
 J - other observers with 4½" Newtonian ✕ - visible only with nebula filter
 NGC - part of Herschel 400 List³ TV-102 favorite (color coded)

Updated: 06/03/03

Total non-Messier objects bagged by TV-102: 215. Herschel-400 objects: 111.

Total non-Messier objects harvested by 4-inch refractor: 408.

Object ID	Cons	Typ	Scale	Comments
Messier Objects	-	-	-	See the Ambrosial Messier Objects.
NGC 1 ?	Peg	GX		This has got to be an interesting object, <i>being #1</i> on the NGC list I mean. Although this galaxy is listed at magnitude 13 and a minimum aperture of 8 or 10 inches have been stated, it may be within a striking distance of a 4-inch. So let us 4-inchers give it a try!
NGC 23 ®	Peg	GX		
NGC 40 ® J	Cep	PN	FS	A grand planetary nebula with great view all the way up to 293x! Most interesting in that the <i>central star appeared to be much brighter than the nebula itself!</i> A must see!
NGC 55 ®	Scl	GX		Houston noted that NGC 55 reminded him of the better known, but smaller, M82.
NGC 128 ?	Psc	GX		Houston saw it through his 5-inch, but wrote "it is beyond the grasp of his 4-inch Clark." If he were still here with us today, I bet he would challenge us to see if we can nail it through the 4-inch.
NGC 134 ®	Scl	GX		
NGC 147/185 ®	Cas	GX		
NGC 188 ®	Cep	OC		
NGC 246 ® ® J	Cet	PN	FS	A very interesting and strange planetary nebula <i>in that there are a few stars "embedded" in it!</i> A must see!
NGC 247 ® ®	Cet	GX	NS	Best view at 110x, which looks like a <i>comet tail</i> with the star GSC 8549:2326 as the coma.
NGC 253 ® ®	Cet	GX	NS	"Sculptor Galaxy". Alas, light pollution sculptured out some of the beauty of this galaxy. A darker sky may make it taste like FS ☺.
NGC 255 ®	Cet	GX		
NGC 281 ® ® ⊕	Cas	EN	NS	Some dubbed it " <i>Pacman Nebula</i> ". The TV-102 couldn't detect any shape. But with UHC filter, it became a more pleasing object.
NGC 288 ®	Scl	GC		
NGC 404 ® ®	And	GX	NS	Also known as " <i>Mirach's Ghost</i> ". Ed Ting used this galaxy to compare contrast between the FS102 and AP Traveller. Very interesting galaxy as it contrast with the very bright star Mirach.
NGC 436 ⊕ J	Cas	OC		
NGC 457 ® ⊕ J	Cas	OC	FS	"ET Cluster". Definitely looked like an ET through the TV-102, <i>not</i> an Owl! The "eyes" are the most striking feature, which gives the impression of being <i>crossed-eye</i> : the 5 th magnitude 34 Phi Cassiopeiae being a much brighter "eye" than the 7 th magnitude SAO 22187 eye". Hence, my Light Cup has re-christened this favorite cluster to the " <i>Crossed-Eye ET Cluster</i> " ☺.
NGC 467/470/474 ®	Psc	GX	SL	Not at all easy. Walter Houston only wrote about NGC 470. The toughest one for the TV-102 was NGC 467.
NGC 488 ® ®	Psc	GX	GS	Another galaxy in close proximity to a star.
NGC 520 ®	Psc	GX	GS	Another galaxy in close proximity to a star.
NGC 524 ®	Psc	GX		

NGC 578 ®	Cet	GX		
NGC 584/596 ®	Cet	GX		
NGC 604 ⊕	Tri	EN		
NGC 654 ®	Cas	OC	GS	Same FOV as M103. Dimmer than its mag 6.5.
NGC 663 ®	Cas	OC	GS	Same FOV as M103. Dim.
NGC 720 ®	Cet	GX		
NGC 752 ®	And	OC	NS	Large, almost fill the 3° FOV at 22x, even though it is listed at only 50'. Two bright yellow stars of equal magnitude to the south.
NGC 772 ®®	Ari	GX	GS	This galaxy is extremely faint smudge like M74 but perhaps smaller.
NGC 821 ®	Ari	GX	NS	Another galaxy in close proximity to a star.
NGC 869/884 ®®	Per	OC		"Double Cluster". How can an observation be written for such a beautiful cluster? There are two interesting yellowish white stars of equal brightness in NCG 869 that looked like eyes: 6.6 mag SAO 23178 and 6.6 mag SAO 23182. The eyes looked like they belong to a face hidden behind a veil. Above SAO 23178, there is a group of stars that forms a semi-circle that looked like an eyebrow (at 60x). The eyebrow is very notable at 110x. The stars that made up the eyebrow are: 9.4 mag GSC 3694:1772, 8.1 mag GSC 3694:3804, 8.6 mag GSC 3694:3807, and 9.3 mag GSC 3694:2324. An all-time favorite and a required observation!
NGC 891 ®®	And	GX	SL	This galaxy almost got put into my 4-inch holy grail, but perseverance paid off. Torturously dim and very difficult. This was the galaxy that convinced me that tough galaxies can be kidnapped by a meager 4-inch aperture.
NGC 925 ®®	Tri	GX	SL	Large and much dimmer than NGC 972 and not a piece of cake as I thought before observing.
NGC 936 ®	Cet	GX		
NGC 972 ®	Ari	GX	SL	Prior to NGC 972, my TV-102 and I had a dimmo-phobia from dim galaxies. I used to limit my list to galaxies brighter than 10th magnitude. The magnitude 12.2 NGC 972 was the dimmest galaxy the keen-eye TV-102 caught last year and source of encouragement to include magnitude 12 galaxies into my list!
NGC 1022 ®	Cet	GX		
NGC 1023 ®⊕	Per	GX		
NGC 1032 ®	Cet	GX		
NGC 1055 ®	Cet	GX		
NGC 1084 ®	Eri	GX	GS	Definite oval shape with brightening toward the center.
NGC 1232 ®	Eri	GX		
NGC 1300 ®	Eri	GX		
NGC 1316/1317 ⊕	For	GX		
NGC 1332 ®	Eri	GX	GS	Very elongated with bright core.
NGC 1365 ⊕	Eri	GX		
NGC 1432 ®	Tau	RN	SL	"Maia Nebula." RASC Deep Sky Challenge Object. Round shape is quite evident.
NGC 1435 ®®®	Tau	RN	SL	"Merope Nebula." RASC Deep Sky Challenge Object. The fan shape is quite evident.
NGC 1491 ®⊕	Per	EN	NS	Christened by the Light Cup as the "Fan Nebula". A fan shape is well seen under an 8mm TV Radian (110x).
NGC 1499 ®®	Per	EN	?	"California Nebula". I spent a lot of time on this nebula last year without filter and I thought I caught a glimpse. Alas, the astro-wagon train to California stopped short ☹ for the Light Cup. But we're due for a rematch in Episode II: Attack of the Filter ☺.
NGC 1501 ⊕	Cam	PN		
NGC 1502 ®	Cam	OC	FS	"Kemble's Cascade". A must see for a 4-inch and use a wide field eyepiece for a 3° panoramic FOV; otherwise, it can't be fully appreciated! Did you dive into the waterfall?
NGC 1514 ®	Tau	PN		"Crystal Ball Planetary". Houston noted that the central star can be seen in his 4-inch Clark stopped down to 2-inch!
NGC 1535 ®J	Eri	PN	FS	"Cleopatra's Eye". I dare assert that this planetary nebula is as beautiful as Elizabeth Taylor in her movie Cleopatra! Bright and green color (like Elizabeth's eyes) through my TV-102 all the way up to 293x! I glimpsed the 12.1 magnitude central star (3 times) at 293x; could this be the "Cleopatra's Eye" as its name suggest? If the Light Cup ever chair the Royal Astronomical Society, this nebula would have been renamed to the "Elizabeth's Eye" nebula ☺.

NGC 1555 ®	Tau	RN		"Hind's Variable Nebula". This one just wouldn't get into the cup of the Light Cup last year. A definite rematch in Episode II.
NGC 1569 ?	Cam	GX		Houston wrote that it is "well within the range of an 8-inch instrument, but I wouldn't be surprised if it were picked up by a skilled observer using a 4-inch." We 4-inchers accept the challenge.
NGC 1637 ®	Eri	GX		
NGC 1644 ®	Aur	OC		Some dubbed it the " <i>Kite Cluster</i> ".
NGC 1788 ®	Ori	RN	FS	This is one incredible nebula. Two knots could be seen through only 4-inch of aperture! Can take magnification well up to my 5mm TV Radian (176x). Some observers mentioned a <i>peanut</i> shape. Another must see!
NGC 1807/1817 ®	Tau	OC		
NGC 1851 ®	Col	GC		
NGC 1857 ®	Aur	OC		
NGC 1883 ®	Aur	OC		
NGC 1893 ®	Aur	OC		
NGC 1999 ®	Ori	RN	NS	The photo shows a small "T" shape dark nebula? inside this reflection nebula. Very nice view with the 5mm Radian (176x) and amazingly still bright with the 3mm Radian (293x). Alas, the "T" shape could not be seen ☹. A must see nebula nonetheless.
NGC 2017 ®	Lep	-	NS	Who says stars are dreary? A pretty asterism of 5 stars with 3 contrasting colors.
NGC 2022 ®	Ori	PN	NS	Dim gray at all magnification.
NGC 2023 ®®	Ori	RN	SL NS	Need maximum contrast between background sky such as from the TV-102 to catch this one. With UHC filter, it's considerable easier.
NGC 2024 ®⊕	Ori	EN	SL	"Flame Nebula", also called " <i>Tank's Track Nebula</i> ". Incinerated by the TV-102 with UHC filter. 12mm TV Radian (73x) gave the best view; dark rift could be seen!
NGC 2071 ®®	Ori	RN	NS	John Mallas noted that it is visible through his 4-inch Unitron refractor. A great double reflection nebulae with M78 which is still in the same FOV with the 8mm TV Radian (110x).
NGC 2126 ®	Aur	OC		
NGC 2158 ®®⊕	Gem	OC	NS	Many observers reported as difficult. More <i>puzzling</i> are these comments I found by Houston and Burnham . Houston wrote "it is generally too difficult for apertures of less than 5 inches, and I have only one other report of it being seen in a 4-inch. Burnham wrote "A very rich and distant galactic star cluster, located about half a degree southwest of M35, looking like a faint nebulosity in a 6-inch glass... Inconspicuous in the small telescope, resolvable only in large instruments..." Well, this cluster was <i>easily</i> caught by the TV-102 at 22x and looked like a dim, hazy galaxy! It was also seen by Tom Trusock's TV-102 . One extremely experienced observer told me that he had seen it through his 70mm Tele Vue Pronto - Wow!
NGC 2194 ®®	Ori	OC	GS	Very dim, about 10 stars seen, many more with averted vision. Pretty good consider the brightest star is this OC is mag 13.
NGC 2174/2175 ⊕	Ori	O/N		Open cluster NGC 2175 seen by an 80mm ST refractor.
NGC 2207/IC 2163 ®	CMa	GX	SL	"Kissing" galaxies. Quite difficult, extremely dim, near the edge of detection. Could not detect IC 2163 ☹.
NGC 2237/2244 ®⊕	Mon	O/N	SL	"Rosette Nebula". Most of the time, my TV-102 Light Cup feels like a light mug . But if there is one nebula that seems to make it feel like a light "copita" (a tiny glass for imbibing tequila), this must be it ☹. Zero, zip, nada (without filters of course). Worse off, a few observers with an 80mm ST refractor with UHC or O-III reported as having seen it! Talking about being astro-embarrassed big time! A clear object for Episode II: Attack of the filter.
NGC 2261 ®	Mon	RN	FS	"Hubble's Variable Nebula". After having failed at " <i>Hind's Variable Nebula</i> ", my expectation was low. Boy, was I wrong! This nebula is spectacularly unusual with only 4-inch. A fan shape clearly seen by the TV-102 ! Even with my 4mm TV Radian (220x), it retains its shape and still bright to see. My Light Cup sure likes Mr. Hubble more than Mr. Hind ☺. A must see showpiece!
NGC 2264 ®	Mon	OC	NS	"Christmas Tree Cluster". After 3 astro-strikes ☹, the " <i>Cone Nebula</i> " went into my 4-inch holy grail.
NGC 2335/2343 ®	Mon	OC	GS	A very dim double looking clusters
NGC 2346 ®	Mon	PN	NS	"Hourglass Nebula". Nice view through the TV-102 with the 5mm TV Radian (176x). Alas, the "hourglass" shape was not seen ☹.
NGC 2353 ®	Mon	OC	GS	Loose open cluster (about 20 stars) with outer stars in the NW forming a

				"helmet".
NGC 2359 ®	CMa	EN	-	" <i>Duck Nebula</i> ", never did like the " <i>Thor's Helmet</i> " name. I was hoping the TV-102 would be served a roast duck. Well almost, it ate everything except for the "duck bill" shape ☹. Ok, maybe filter would help.
NGC 2360 ® J	CMa	OC	GS	Look a lot like M13 with my 20mm TV Plossl (44x) but no where near as dense.
NGC 2362 ® ⊕	CMa	OC	FS	If anyone in the astro-audience still thinks that open clusters are boring (as I used to until I read Sue French's <i>Small Scope Sampler</i> column), the TV-102 invites you to emerge into NGC 2362. You'll see a strong 3-D resemblance to looking at a small glass pebble with a bubble at the center and tiny little bubbles scatter around inside the pebble at this magnification. The cluster using a 12mm TV Radian (73x) gave a strong impression that Tau Canis Majoris exploded and is spitting out stellar matter (those pin pricked surrounding stars)! A must see for open cluster heretics of all ages and experience!
NGC 2371/2372 ®	Gem	PN	FS	Some called this the " <i>Micro-Dumbbell</i> ". As Bud Abbott would have said, "I get it, Lou [Costello]. With the 6mm TV Radian (146x) and the TV-102 , there - a hint of a tiny dumbbell."
NGC 2392 ® ® J	Gem	PN	FS	" <i>Eskimo Nebula</i> ". If the Light Cup were to be asked to choose the best planetary nebula from the NGC Catalog (and it would be one heck of a tough choice), it would choose the "Eskimo". For with only 4-inch of aperture, not much details can be seen in the NGC planetary nebulae, except this one! For on one <i>excellent</i> night, grainy texture could be clearly seen from 352x (5mm Tak LE eyepiece and 2X Ultima barlow) all the way up to an incredible 586x, That's 146X/inch folks! The central star is child's play! Blue-green color like jade all the way up to 220x! Much, much brighter than M57! Oh, let's not forget his "wife", a yellowish 8.2 magnitude star SAO 79428 "standing besides him! If you haven't seen any NGC planetary nebula, this one is a must see!
NGC 2403 ® ®	Cam	GX	FS	This is one large galaxy that can be seen so well through a 4-inch. Looking like an amoeba (most elongated spiral galaxy looks like amoeba to me), it is very large, bright and easily found at 22x; elongation is obvious. At 30x, it reminds me of M78 with 2 eyes embedded in the galactic ghostly face staring at me! The 2 eyes are mag 9.9 GSC 4120:1000 and mag 10.3 stars. However, this ghost seems to have one weak eye (the mag 10.3 star) that kept winking at me. Since there is no name for the galaxy, the TV-102 christened NGC 2403 as the " <i>Weak-Eye Ghost</i> " ☺.
NGC 2419 ®	Lyn	GC	SL	" <i>Intergalactic Wanderer</i> ", the most remote globular cluster known in the Milky Way. Very dim, the dimmest globular cluster through the TV-102 in 2001. Well, until the Light Cup met up with NGC 5053 which makes NGC 2419 feel like a child's play by comparison!
NGC 2438 ® ® J⊕	Pup	PN	FS	This is one fun planetary nebula! It is small, but actually a lot larger than many of the NGC planetary nebulae. What makes it tough is because it is well hidden inside the open cluster M46. The TV-102 spent some fun time playing hide-and-seek without filter and finally tagged the nebula "you're it" ☺. Note that most observers use nebula filter, which exposes it right away, ruining all the fun!
NGC 2440 ®	Pup	PN	FS	The TV-102 made an astounding realization that seem to match an observation made from a 18-inch reflector! There are two bright knots that appeared at 352x and 440x, about ½ as bright as the photo on this (favorite) web site . I guess luck + excellent seeing helped a great deal. A must see for a 4-incher aficionado!
NGC 2451 ® ⊕	Pup	OC	NS	Looks a lot like faced on spiral galaxy with spiral arms without the dusty clouds of course, especially when defocused. Try it.
NGC 2452 ®	Pup	PN	GS	A very dim planetary nebula, so dim I wasn't sure of its shape!
NGC 2467 ®	Pup	DN	FS	Normally, the TV-102 doesn't do well with diffused nebula, but this one is a gem. It has an orange star in the middle of a round nebula! Might easily fool a 4-incher into thinking it is a planetary nebula! Henceforth, the Light Cup christened this nebula as the " <i>Fool's Gold Planetary</i> " ☺.
NGC 2477 ® ⊕	Pup	OC		
NGC 2506 ® ®	Mon	OC	GS	Dreary view until 176x; doesn't look like a dense GC.
NGC 2509 ®	Mon	OC		
NGC 2537 ®	Lyn	GX	SL	" <i>Bear Paw Galaxy</i> ", most of the most unique looking galaxy! Quick difficult and very dim through the TV-102 . The Light Cup was unable to see the 3 claws ☹, but with fierce determination, a rematch has been scheduled. See this wonderful photo .
NGC 2539 ®	Pup	OC		
NGC 2655 ®	Cam	GX	NS	This galaxy looked like it got trapped inside a triangular belly of the Giraffe

				which are made up of the stars: SAO 6692, SAO 6656, SAO 6687 at 73x.
NGC 2672/2673 (R)(R)	Cnc	GX	GS	"Kissing" galaxies. Very dim, don't think I saw NGC 2673.
NGC 2681 (R)	UMa	GX		
NGC 2683 (R)(R)J	Lyn	GX	NS	This galaxy is still bright at 146x. Begin to see graininess within the galaxy central portion
NGC 2692 (R)	UMa	GX		
NGC 2749 (R)	Cnc	GX		
NGC 2764 (R)	Cnc	GX		
NGC 2768 (R)	UMa	GX		
NGC 2775 (R)(R)J	Cnc	GX	GS	Dim overall.
NGC 2782 (R)	Lyn	GX		
NGC 2784 (R)	Hya	GX		
NGC 2841 (R)	UMa	GX		
NGC 2855 (R)	Hya	GX		
NGC 2859 (R)	LMi	GX		
NGC 2903 (R)(R)	Leo	GX	FS	Large, graininess seen. Can take high magnification of 220x!
NGC 2962 (R)	Hya	GX		
NGC 2976 ⊕	UMa	GX		Can be seen through a 60mm Unitron refractor!
NGC 2985 (R)	UMa	GX		
NGC 2997 (R)	Ant	GX		
NGC 3003/3021 (R)	LMi	GX		Houston noted that NGC 3021 is easy while NGC 3003 requires an excellent night.
NGC 3077 (R)⊕	UMa	GX	NS	Lies in the same FOV as M81/M82 at 30x. Grainy texture seen at 146x and more at 176x.
NGC 3109 (R)	Hya	GX		One of Houston's favorite galaxy.
NGC 3115 (R)(R)	Sex	GX	NS	"Spindle Galaxy". Very nice. Rough texture detected at 220x, very bright and grainy appearance of galaxy with averted vision
NGC 3132 (R)	Vel	PN	FS	"Eight-Burst Planetary", a must see if you live far enough south! Burst with green color with central star easily seen.
NGC 3166/3169 (R)	Sex	GX		
NGC 3184 (R)	UMa	GX		
NGC 3185, 3187, NGC 3190, 3193 (R)	Leo	GX	FS	"Hickson 44 Group". NGC 3185 and 3187 are quite tough for the 4-inch.
NGC 3198 (R)	UMa	GX		
NGC 3201 (R)	Vel	GC		
NGC 3226/3227 (R)(R)	Leo	GX	FS	"Kissing" galaxies. Through the TV-102 at 110x, definitely two elongated shapes more like a peanut, with brightening toward the center, especially with averted vision.
NGC 3242 (R)(R)J⊕	Hya	PN	FS	"Ghost of Jupiter". Similar another one of the best NGC planetary nebula! Very bright and green all the way up to 293x through the TV-102! Enclosed by 4 stars: mag 9.8 GSC 6065:589, mag 11.1 GSC 6065:765, and mag 12.3 GSC 6065:706, and a mag 12.5 GSC 6065:720. Why is it called "Ghost of Jupiter?" 4 moons around Jupiter, 4 stars around NGC 3242. Get it ☺? If you like Jupiter, you've got to see this nebula!
NGC 3245 (R)	LMi	GX		
NGC 3344 (R)	LMi	GX		
NGC 3367/3377 (R)	Leo	GX		
NGC 3384/3389 (R)(R)	Leo	GX	FS	Mallas noted that it is a gray circular patch in the 4-inch refractor. NGC 3389 is the most difficult. During moments of steady seeing, it appears as small, soft, oval film of light. Indeed, the TV-102 showed grainy texture in NGC 3384 starting at 220x! Core of NGC 3389 seen at 146x.
NGC 3412 (R)	Leo	GX		
NGC 3432 (R)	LMi	GX		
NGC 3504/3414/NGC 3486 (R)(R)	LMi	GX	SL	Incredulously, Houston could use 400x with his 4-inch Clark refractor stopped down to 3-inch! So I call this the "Scotty's Challenge". NGC 3504 is the dimmest of the three. All three can be seen through the TV-102 with some difficulty.

NGC 3521 (R)(R+)	Leo	GX		"B[ee]'s Cascade" christened by the Light Cup . The galaxy appears to be at a 45 degree angle with an imaginary line formed by star GSC 4921:290 and SAO 118661, angle toward the GSC star
NGC 3585 (R)	Hya	GX		
NGC 3593 (R)	Leo	GX	NS	Large, graininess seen. Can take high magnification of 220x!
NGC 3606, 3608, NGC 3605 (R)	Leo	GX		M65/M66 lies within same FOV.
NGC 3610, 3619 (R)	UMa	GX		
NGC 3628 (R)(R+)	Leo	GX	GS	Less impressive than M65/M66. Large, filled 30% of the FOV of 12mm TV Radian.
NGC 3631 (R)	UMa	GX		
NGC 3675 (R)J	UMa	GX		
NGC 3681, 3684, NGC 3686 (R)	Leo	GX	SL	"Lion's Stool" christened by the Light Cup . You must read this to really appreciate the sight and the smell of these object. Beware, they are really tough for the 4-inch.
NGC 3726 (R)	UMa	GX		
NGC 3842 (R)	Leo	GX		
NGC 3893 (R)	UMa	GX		
NGC 3938 (R)	UMa	GX		
NGC 3941 (R)	UMa	GX		
NGC 3953 (R)	UMa	GX		
NGC 3982/3998 (R)	UMa	GX		
NGC 4013 (R)	UMa	GX		
NGC 4027 (R)	Crv	GX	GS	Extreme dim smudge.
NGC 4038/4039 (R)	Crv	GX	NS	"Ring-Tail Galaxy". Didn't see the "comma" shape.
NGC 4051 (R)	UMa	GX		
NGC 4088, 4100 (R)	UMa	GX		
NGC 4102 (R)	UMa	GX		
NGC 4125 (R)	Dra	GX		
NGC 4214 (R)	CVn	GX		
NGC 4236 (R)(R)	Dra	GX	FS	<i>Huge</i> is an understatement! Some sited that the minimum aperture required is 8-inch. Well, the TV-102 Light Cup did fine, filling 1/2 of the FOV of the 20mm TV Ploss! Check out this interesting comment by Todd Gross.
NGC 4244 (R)(R)	CVn	GX	NS	Called " <i>Silver Needle Galaxy</i> " by some.
NGC 4274/4278 (R)	Com	GX		
NGC 4361 (R)(R)	Crv	PN	NS	Central star steadily seen at 146x. Glimpse of roughness in nebula at 176x.
NGC 4365 (R)	Vir	GX	GS	A dim gray puff with no core, slightly brightening toward center.
NGC 4394 (R)	Com	GX		
NGC 4395 ?	CVn	GX	SL	Brian Skiff's surface brightness test for low brightness galaxy! Light Cup failed on 1st try.
NGC 4402 (R)	Vir	GX		
M84, M86, NGC 4438,4435,4461, NGC 4473,4477 Also NGC 4387 (R)	Vir	GX	FS	The " <i>Markarian Chain</i> " (NGC 4387 not part of chain). Unbelievably bagged by diminutive 4-inch aperture! NGC 4438/4435 is called " <i>The Eyes</i> ". I failed to look for this feature until after observation ☹.
NGC 4449 (R)(R)	CVn	GX	FS	Mottling inside the galaxy observed with glimpse of multiple knots. Rectangular shape in photo not seen.
NGC 4485/4490	CVn	GX	FS	" <i>Cocoon Galaxy</i> ". A must see, really look like a cocoon! Failed to see NGC 4485 companion
NGC 4494 (R)	Com	GX		
M49, NGC 4526 NGC 4535 (R)	Vir	GX	GS	NGC 4526 is known as the " <i>Lost Galaxy</i> ".
NGC 4559 (R)(R)	Com	GX	FS	" <i>Koi Fish Galaxy</i> " christened by Light Cup. Look for the two eyes of the fish, a must see!
NGC 4564 (R)	Vir	GX	NS	
NGC 4565 (R)(R)	Com	GX	NS	Looks for a star pattern resembling miniature Coma Berenices. Seen by a 90mm Tak Sky90; so give the 80-85mm a try.

NGC 4567/4568 (R)	Vir	GX	NS	The "Siamese Twin". A "bud" is glimpsed at 110x with great difficulty
NGC 4605 (R)	UMa	GX		
NGC 4631	CVn	GX	FS	As the name " <i>Whale Galaxy</i> " suggested, staring at NGC 4631 and its surroundings gave the impression that a very long bulging whale was swimming in the ocean of space followed by a group of tiny star fishes. Another way to look at it is the whale swimming and secreting its stool ;-)) of these 5 stars, given its tilt angle. Which view can you see? A must see!
NGC 4656	CVn	GX	NS	Close the "Whale Galaxy", but definitely no fillet mignon ☺.
NGC 4638 (R)	Vir	GX		
NGC 4647 (R)	Vir	GX		
NGC 4754/4762 (R)	Vir	GX		
NGC 5005, 5033 (R)	CVn	GX		
NGC 5018 (R)	Vir	GX	GS	Attempted to look for SN2002sj supernova. But a combo of light pollution and skyglow proved impossible. Found the galaxy ok.
NGC 5053 (R)⊕	Com	GC	SL	Beware - really tough! A real goblin globular cluster! Smallest aperture: seen by highly skilled observer through 70mm TV Pronto in Anderson Mesa!
NGC 5097 (R)	Dra	GX	GS	Needle looking. But too dim to get an NS rating.
NGC 5128 (R)	Cen	GX	?	"Centaurus A Galaxy". Must see if you're far enough south! The Light Cup has not yet seen it well enough due to light pollution.
NGC 5139 (R)	Cen	GC	FS	The "Great Globular Cluster Omega". Must see if you're far enough south!
NGC 5350, 5353, NGC 5354, 5355, NGC 5358 (R)	CVn	GX	FS SL	"Hickson 68 Group". NGC 5350 is tough. Note the kissing NGC 5353/5354 and when seeing isn't staying, you may see the throbbing lover's hearts in the two knots. A must see! The inhumanly dim NGC 5355 and 5358 are extremely tough for the 4-inch. They are listed as magnitude 14! Be forewarn.
NGC 5371 (R)	CVn	GX		
NGC 5466 (R)(R)	Boo	GC	SL	I used it for practice before the NGC 5053 encounter.
NGC 5660 (R)	Boo	GX		
NGC 5676 (R)	Boo	GX		
NGC 5689 (R)	Boo	GX		
NGC 5694 (R)	Hya	GC		
NGC 5812 (R)	Lib	GX	GS	Dim and small, but an interesting stars forming a triangle nearby.
NGC 5850 (R)	Vir	GX		
NGC 5866 (M102) (R)(R)⊕	Dra	GX	FS	"Spindle Galaxy", possibly is also M102. Reputed to be an easy object through a 60mm refractor; so get your 60mm Tasco out of your basement! Very nice through the TV-102 and a glimpse of the dark lane at 146x. Note that two bright stars at either side of the galaxy.
NGC 5897 (R) (R)	Lib	GX	GS	Quite dim.
NGC 5907 (R)(R)	Dra	GX		
NGC 5921 (R)	Ser	GX		
NGC 5986 (R)	Lup	GC		For observers in the Sun Belt.
NGC 6058 J	Her	PN		
NGC 6072 (R)	Sco	PN	GS	Don't let the listed magnitude of 14 fooled you! It's easier than it seems, despite being quite low from my place in addition to the sky glow from the south.
NGC 6118 (R)	Ser	GX	SL	Reputed to be the most difficult object in the H400 list. Failures after failures from my backyard and christened the "H400 Admission Test" by my Light Cup. Extremely difficult is an understatement! Slaughtered by the TV-102 Light Cup at 6000 ft. on top of Mt. Laguna dark sky!
NGC 6124 (R)	Sco	OC	GS	Dim cluster, 73x brought out about 20 stars.
NGC 6144 (R)	Sco	GC	GS	I now see why it's often missed 'cause it's very dim and near the very blindingly bright Antares. In the same FOV as M4.
NGC 6153 (R)	Sco	PN	GS	Couldn't be seen at 22x. At 73x, it is non-stellar, very dim round glow and form a diamond of spade with 3 dim stars.
NGC 6192 (R)	Sco	OC	GS	Very dim, loose, unimpressive.
NGC 6207 (R) (R)	Her	GX	GS	Ed Ting uses this galaxy for contrast testing. And a contrasty view under the TV-102 at 73x ☺.
NGC 6210 (R)(R)	Her	PN	FS	"Turtle Nebula". Seen by other TV-102. Finally, seen by TV-102 Light Cup too. The "ansae?" was not seen yet.
NGC 6217 (R)	UMi	GX		

NGC 6231 (R)	Sco	OC	FS	Known as the <i>"Table of Scorpius Cluster"</i> . No table seen. But because of the number of orange stars in Zeta1/Zeta2 and the clusters and of its position on the tail and close to the "stinger", the TV-102 Light Cup re-christened it as the <i>"Venom Sack of Scorpius"</i> ☺.
NGC 6281 (R)J	Sco	OC	FS	Look for Orion the Hunter chopped in half at the waist.
NGC 6293, 6284 (R)(R)	Oph	GC	NS	An object from Sue French's Small Scope Sampler column. Houston noted that NGC 6293 can be seen in a 2-inch aperture! Only NGC 6293 gets the NS rating; the NGC 6284 gets the GS rating by the TV-102 .
NGC 6302 (R)	Sco	PN	FS	<i>"Bug Nebula"</i> . But if you ask the TV-102 Light Cup, it would be called the <i>"Phony Baloney Galaxy"</i> because it looks so much like an elongated galaxy. A definite favorite and a must see.
NGC 6309 (R)	UMi	PN	NS	<i>"Box Nebula"</i> . Up to 220x possible. Elongated dim smudge. The nebula was brighter than the 12.9 magnitude star GSC5652:1465
NGC 6337 (R)	Sco	PN	GS	Ring shape not detected, but definitely worth a look.
NGC 6366 (R)	Oph	GC		
NGC 6369 (R)J	Oph	PN	SL	Example of planetary nebula at the limit of the 4-inch.
NGC 6384 (R)⊕	Oph	GX		
NGC 6397 (R)	Ara	GC	GS	Oh, was this globular, grovelling low! If it has been higher, it would have been dazzling.
NGC 6441 (R)	Sco	GC	FS	A real hidden jewel! It first forms a "double star" look with mag 3.2 star HD 161892. As magnification goes up, it turned into a "triplet" and then quartet! A must see.
NGC 6445 (R)J	Sgr	PN	FS	Also known as the <i>"Box Nebula"</i> (umm, I thought this title belongs to NGC 6309). One of the S&T editors called it the <i>"Mini Little Dumbbell"</i> . But the TV-102 Light Cup re-christened it as the <i>"Coffin Planetary"</i> , as it looks more rectangular than a box..
NGC 6451 (R)	Sco	OC	NS	<i>"Tom Thumb Cluster"</i> . Unfortunately, I could not see any thumb shape as hard as I look.
NGC 6503 (R)	Dra	GX		
NGC 6517 (R)	Oph	GC		
NGC 6522/6528 (R)(R)	Sgr	GC	FS	I found these objects mentioned at the AAA Constellation web page and was referred to as "twin globulars". Indeed it was a fine sight, like a "double globular". I wonder how many more close double globulars are there?
NGC 6535 (R)⊕	Ser	GC	GS	Houston noted that this object is "faint, elusive" through a 3-inch scope. It's certainly faint through my TV-102 and roundish at 110x with no resolution possible.
NGC 6539 (R)	Ser	GC	SL	Houston called this a challenge for aperture less than 8-inch. Dim, but bagged by 4-inch TV-102 ☺.
NGC 6540 ?	Sgr	GC		Reputed to be the 2nd most difficult object in the Herschel 400 List. This object used to be classified as an open cluster, but have been discovered to be a globular cluster. A most challenging and interesting object. Result of observation by my TV-102 is inconclusive so far.
NGC 6543 (R)J⊕	Dra	PN	FS	<i>"Cat-Eye Nebula"</i> . Green color through TV-102 , can take 440x! Central star and "ring" not seen. A must see!
NGC 6544, 6553 (R)	Sgr	GC	GS	Fit into the same 3° FOV as M8. Although both globulars have the same magnitude and very close in size, NGC 6544 has the better view of the two.
NGC 6558 (R)	Sgr	GC		
NGC 6563 (R)	Sgr	PN	NS	This planetary nebula would have been a nobody except my research stumbled upon this picture . The two stars in the PN look like "eyes". Could this be the non-Messier "owl nebula"? Alas, the TV-102 Light Cup has not seen the "eyes", not yet anyway.
NGC 6567 (R)	Sgr	PN	FS	Another fun but tiny PN to play hide-and-seek in the star field of M24.
NGC 6569 (R)	Sgr	GC		
NGC 6572 (R)(R)	Oph	PN	FS	<i>"Blue Racketball"</i> . Blue-green color through TV-102 . Five stars forms a racket and 3 stars form racket's handle – SAO123243, GSC443:638, 443:1000, 443:2045, 443:1596, 443:2072, 443:2888. A must see!
NGC 6590 (R)	Sgr	RN	NS	A reflection nebula with a pair of stars embedded.
NGC 6603 (R)(R)	Sgr	OC	FS	<i>"Little Star Cloud"</i> . A very nice cloud indeed. A "bright lane" running NW-SE detected at 176x. Difficult to find, but a must see.
NGC 6624 (R)	Sgr	GC		
NGC 6629 (R)	Sgr	PN	SL	Houston notes that "this somewhat challenging planetary can be seen

				as a nebula in a 10-inch, in which the disk appears gray and ill-defined." Dim, teeny planetary nebula, a good test for the TV-102 . No color detected. Glimpse of the 12.9 th magnitude central star popping in/out with averted vision. I invite you to take this Houston's Challenge!
NGC 6638 ®	Sgr	GC		
NGC 6642 ® ®	Sgr	GC	FS	Christened by the TV-102 Light Cup as the " <i>Tadpole Globular</i> " as it sprouts a tail (counted 4-5 stars) at high magnification (176x best view). A definite favorite that was fished out from the Skyhound website by the Light Cup.
NGC 6645 ®	Sgr	OC	GS	Dubbed the " <i>Little Circlet</i> " by the Skyhound. Could not see the circlet with my TV-102 , but saw a pentagon of 5 stars.
NGC 6652 ® ®	Sgr	GC	GS	Grainy look at 110x with averted vision. Some stars can be seen with averted vision at 176x.
NGC 6712/IC 1295 ® ⊕	Sct	GC PN	NS	Neat globular cluster very close to a very dim, good-size planetary nebula. The PN could be seen with UHC and O-III filter at very low power; whereas, it could be seen without filter starting at 73x and more definite at 110x. Incredulously, IC 1295 was reported to have been seen by the 70mm TV Pronto Mighty Mouse! See this great info from the Skyhound .
NGC 6723 ® ®	Sgr	GC	FS	This is a grand globular cluster, rivaling M13 according to the TV-102 Light Cup if it were higher! Use higher magnification to get a grand view. Lopsided shape could be seen at 176x. A must see non-Messier globular!
NGC 6741 ®	Aql	PN	SL	Very tiny 9"x 7" mag 11.4 planetary nebula, known as the " <i>Phantom Streak Nebula</i> ". Sounds like a good challenge. And it was a challenge, but not particular difficult for the TV-102 Light Cup. Extremely small and detected a disc only at 220x with confirmation from the UHC. No streak seen.
NGC 6751 ® ®	Aql	PN	SL	Teeny 18" mag 13 planetary nebula nailed by TV-102! Incredibly retaining brightness at 220x and 293x!
NGC 6760 ® ®	Aql	GC	NS	A dim round glow with slightly brighter center that forms the shape of Cepheus at 73x with the following stars: HD 179316 (and a close double?), GSC 463:2800, HD 179126 (and a close double?), HD 178953, HD 178857 and HD 178917.
NGC 6772 ® ®	Aql	PN	SL	Difficult, must use averted vision with UHC filter, not seen without filter, extremely dim but a good size round halo. O-III is too dim.
NGC 6778 ®	Aql	PN		
NGC 6781 ® J	Aql	PN	GS	Some web page said that it is reminiscent of the Owl Nebula. Sorry to say it didn't appear so ☹ to the TV-102. Too dim to be fun.
NGC 6790 J	Aql	PN		
NGC 6791 ®	Lyr	OC	SL	An RASC Deep Sky Challenge Object. Make sure you have good chart 'cause it could have been easily missed. Counted about 10 dim stars. Can you see any red giants?
NGC 6802 ®	Vul	OC	NS	Very dim, much dimmer than its magnitude 8 would suggest! The reason why it got a "NS" rating is because it forms a triangle with a contrasting pair of a "double looking" stars: HD 350073 and GSC 1609:5.
NGC 6803 ®	Aql	PN		
NGC 6804 ® ®	Aql	PN	GS	A few stars could be seen within the nebula.
NGC 6811 ®	Cyg	OC	FS	" <i>Hole-in-a-Cluster</i> ". And guess who poked the hole in this open cluster? The TV-102 Light Cup of course ☺. An interesting, must see cluster.
NGC 6814 ®	Aql	GX		
NGC 6818 ®	Sgr	PN	FS	" <i>Little Gem</i> ". And it is a little blue-green gem indeed through the TV-102! A must see!
NGC 6819 ® ®	Cyg	OC	GS	Called " <i>Foxhead</i> ". Hmm, the TV-102 Light Cup must have been looking down the wrong fox hole ☹ 'cause it didn't see any "foxhead". Does anyone know how this OC got its name?
NGC 6822 ® ® ®	Sgr	GX	SL	" <i>Barnard's Galaxy</i> ". A very, very tough galaxy according to my research. Reported as caught through the 101mm TV Genesis SDF. Indeed a very difficult catch by the TV-102 Light Cup that always eluded capture in the backyard but was fairly easily nailed at 6000-ft mountain top dark sky.
NGC 6823 ®	Vul	OC	FS	Christened the " <i>Smoke Pipe Cluster</i> " by the TV-102 . An open cluster with nebulous halo. Look for the asterism that together with the OC looks like a smoke pipe with the pipe starting at the star HD 344779, curve around and ended at the two stars HD 185529 and HD 185547. A favorite!
NGC 6826 ® J	Cyg	PN	FS	" <i>Blinking Planetary</i> ". Best and bright view at 293 through the TV-102 ! Blinking effect seen at 110x. Central star seen at 60x. A must, must see planetary nebula!
NGC 6834 ®	Cyg	OC	NS	A nice cluster with conspicuous yellowish orange "central" star.
NGC 6857 ®	Cyg	PN	SL	Really need UHC filter to see it well.
NGC 6866 ®	Cyg	OC	GS	A strong impression of a line of 5-6 stars cutting across the central portion of the OC at 73x.

NGC 6882/6885 (R)	Vul	OC	?	Couldn't tell which is which, so loose was the cluster. Need a revisit.
NGC 6886 (R)	Sge	PN		
NGC 6888 (R)(R)	Cyg	EN	SL	"The Crescent Nebula". Could see only a "protrusion" from the star HD 192182 with O-III filter at 73x. Not seen with UHC. The rest of the crescent shape was not seen by the TV-102 ☹. Very, very tough.
NGC 6857 (R)	Cyg	PN	SL	Really need UHC filter to see it well.
NGC 6891 (R)(R)	Del	PN	NS	Much brighter than its magnitude 12 would suggestion. Very small but can take magnification (220x gave a very good view). Better and easier with UHC and O-III filters.
NGC 6894 (R)	Cyg	PN	SL	Brighter and easier than NGC 6857 despite its dimmer magnitude 12.3. O-III seems better than UHC filter on this one.
NGC 6910 (R)	Cyg	OC	FS	"Mini-Coathanger". Indeed, it is. This OC is also known as "Wishbone". Indeed it does have sort of a "Y" shape like a wishbone.
NGC 6905 (R)	Del	PN	GS	"Blue Flash Nebula". A dim smudge, never observed any "flashing".
NGC 6902 (R)	Sgr	GX		
NGC 6934 (R)(R)	Del	GC	NS	Neat contrast "double star" like when paired with the star GSC 522:2249.
NGC 6939 (R)(R)	Cep	OC	GS	Very dim open cluster, despite its 7.8 magnitude.
NGC 6940 (R)	Vul	OC	NS	Large with lots of "diamond fragments". Nice open cluster, but fainter than its mag 6.3 would suggest.
NGC 6951 (R)	Cep	GX	SL	Minimum aperture: 8-inch. Extremely dim smudge through the TV-102. Could have easily overlooked without detailed chart. Best view at 73x and disappeared at 110x.
NGC 6960, 6979, NGC 6992 (R)(R)	Cyg	SN	FS	"Veil Nebula". Have seen only NGC 6992 <i>without</i> filter, just barely. But this year, with UHC filter, both NGC 6992 and NGC 6960 are incredible sights through the TV-102. Even got a glimpse of NGC 6979! Amazing how the magical UHC filter showed a lot more than w/o filter! Both NGC 6992 and NGC 6960 got the favorite status with NGC 6992 winning the 1st prize. The Veil requires filter to be unveiled ☺, period!
NGC 7000 (R)(R)J⊕	Cyg	EN	NS	This !@#\$%^&* famous "North American Nebula" has been eluding the TV-102 for some time. Captured with the aid of the UHC filter. O-III filter seems to give a better view. Just barely fit the 3° FOV of the 40mm Pentax XL. Interestingly enough, now that it can be seen, I've been seeing the "Maine" region (which was the brightest) all these times and didn't even recognize it!
NGC 7006 (R)⊕	Del	GC	GS	Small dim glow with no resolution at all.
NGC 7008 (R)	Cyg	PN	GS	Large, gray color at all magnification. A very nice contrast with a double star, very, very close to the nebula.
NGC 7009 (R)(R)J⊕	Aqr	PN		"Saturn Nebula", but re-christend to "Oval Nebula" ☺ by TV-102. Blue oval, much brighter than M57! No ansae seen yet, but hope springs eternal!
NGC 7026 (R)	Cyg	PN	NS	"Cheeseburger Planetary". Difficult, looked like an unfocused green color star at 110x. Didn't see the dark lane ☹ that renders its name.
NGC 7027 (R)	Cyg	PN	GS	Gray-green oval.
NGC 7031 (R)	Cyg	OC	GS	Very small, look more like asterism than open cluster.
NGC 7048 (R)	Cyg	PN	SL	Minimum aperture required is 6-inch. A difficult crack by the TV-102 Light Cup with the aid of UHC and O-III filters. Could be glimpse w/o filter at 146x. A good challenge.
NGC 7086 (R)	Cyg	OC	GS	Quite faint but a good size
NGC 7139 (R)	Cep	PN	SL	One web site indicates that 10-inch aperture is minimum for this object. Well, the TV-102 pocketed it with great difficulty and <i>without</i> filter! Try it and let's prove the 10-incher wrong ☺.
NGC 7160 (R)	Cep	OC	NS	Small but look for a formation of stars that look like a tiny mouse. Christened by the Light Cup as the "Min-Mouse Cluster" ☺.
NGC 7177 (R)	Peg	GX	GS	A dim gray smudge.
NGC 7209 (R)	Lac	OC		
NGC 7235 (R)	Cep	OC	NS	Tiny, high magnification of 176x revealed about 10 stars embedded in a background haze like "quicksand".
NGC 7293 (R)(R)(R)⊕	Aqu	PN	FS	"Helix Nebula". Unusually large for a planetary nebula (well for an NGC planetary anyway). Dim, oval gray through the TV-102, a heck of a lot dimmer than its magnitude 7.3! But with O-III filter, this nebula went up in rank from Hamburger Steak to Fillet Mignon and made it into the Light Cup's favorite list! Unbelievable transformation by the filter! Mag 13.5 central star seen at 220x!
NGC 7317/7318a+b/ NGC 7319/7320 ?	Peg	GX		"Stephan's Quintet". Ok, before you call me crazy, NGC 7320 was reportedly seen through the 4.5-inch Vixen 114ED refractor. So why not give the 4-inch a whirl?
NGC 7331/7332 (R)(R)	Peg	GX	NS	Also known as the "Deer Lick Group". Best view through the TV-102 at

				146x, elongated with bright core and hint of <i>graininess</i> . Amazingly can take 220x! Look even better with averted vision. Have not tried NGC 7332.
NGC 7354 ④	Cep	PN	SL	A magnitude 13 PN! My research showed needing minimum aperture of 8-inch! None too difficult through the TV-102 with UHC. Best view without filter at 176x which seems to be throbbing due to bad seeing. The Light Cup cleverly christened it as the "Throbbing Planetary" ☺.
NGC 7380 ④④	Cep	OC	NS	Look for a group of V shape stars forming an arrowhead. There is a large emission nebula, Sh 2-142 scattered around the clusters. Inside the V shape the nebula turned the shape into a 3D looking arrowhead, which was promptly christened by the TV-102 Light Cup as the " <i>Arrowhead Cluster</i> " ☺.
NGC 7448 ④	Peg	GX		
NGC 7479 ④	Peg	GX		
NGC 7619/7626 ④ NGC 7611	Peg	GX	SL	These two galaixes are members of the " <i>Pegasus I Cluster</i> ". Houston wrote "In the 20-inch, they could be seen with some difficulty, but a 4-inch refractor was insufficient on a good night. What is the smallest aperture with which you can fish out this pair?" The TV-102 Light Cup answered this most <i>intriguing</i> question from Scotty with a "gotcha" ☺. As well as one more member.
NGC 7625 ④	Peg	GX		
NGC 7635 ④	Cas	EN		" <i>Bubble Nebula</i> ". Houston wrote "I have never been able to find NGC 7635 with a 5-inch Apogee telescope at 20x, and my 4-inch Clark refractor revealed it only on a few nights when the sky conditions were exceptional."
NGC 7640 ④	And	GX		A challenging galaxy, according to Sue French , due to its low surface brightness. She wrote "If you snare this darkling star city, you eyes will be collection photons from a galaxy that has gone unnoticed by many observers with much larger scopes." I'd say this is an inspiration for all of us 4-inchers ☺!
NGC 7662 ④⊕	And	PN		" <i>Blue Snow Ball</i> ". Blue color without a doubt through the TV-102 . Very bright. 293x is definitely the right magnification for the ball. A nearby magnitude 13.2 star can be seen. This was the first dim star that prompted me to question the so called magnitude 12.0 upper limit of a 4-inch refractor published by various manufacturers. No way, no how ☺, not with the TV-102 Light Cup at least!
NGC 7686 ④	And	OC	GS	Except for the brightest 3 stars, too sparsed to be interesting.
NGC 7742, NGC 7743 ④	Peg	GX		
NGC 7789 ④	Cas	OC	NS	Salt & pepper look at 22x. 30x gave impression of the cluster being embedded inside a nebula.
NGC 7793 ④	Scl	GX		
NGC 7814 ④	Peg	GX		
NGC 7817 ④	Peg	GX		Last NGC object visible through a 4-inch.
B64 ④	Oph	DN		A dark nebula. Houston wrote "With my 4-inch Clark refractor or 5-inch Apogee telescope the dark nebula is easily seen."
B86/NGC 6520 ④	Sgr	DN OC	FS	A dark nebula known as the "Ink Spot". An easy catch for the TV-102 Light Cup. If you have a small aperture, try this dark nebula first before other dark nebula. A favorite.
IC 59/63 ④	Cas	EN		
IC 418 ④	Lep	PN	FS	" <i>Raspberry Nebula</i> ", also called " <i>Red Planetary</i> " or " <i>Raspberry Planetary</i> ". Reported to appear red in large aperture. Incidentally, Houston did not note any color in his observation. Looked like a mildly red star at low power, greenish gray through the TV-102 at high power. A bright central star is clearly seen at 146x. A must see!
IC 435 ④	Ori	RN	GS	Dimmer than NGC 2023 but still obvious.
IC 1396 ④④⊕	Cep	EN	SL	An RASC Deep Sky Challenge Object. Quite difficult, UHC is helpful. O-III shows the brightest portion of the nebula nicely. Use low power! It's huge.
IC 1805/1848 ④	Cas	EN	SL	" <i>Heart Nebula</i> ". Tough enough for the TV-102 . But with UHC filter at very low power of 22x, the brightest central part of the "heart" is seen. Alas, the actual "heart shape" was not seen.
IC 2149 ④J	Aur	PN	NS	First IC object caught by TV-102 . Its dimension of 9" x 7" also made it the <i>tiniest</i> planetary nebula observed by the TV-102 in 2001! Central star easy. Gray color at all magnification, can take 293x!
IC 3568 ④	Cam	PN		" <i>Lemon Slice Nebula</i> ".
IC 4637 ④☐	Sco	PN	SL	Can be seen only with UHC filter throught the TV-102 ; unseen without. So don't let its listed magnitude 14 (mag 13.5 according to Burnham) deter you from this object.
IC 4665 ④	Oph	OC	GS	Quite large, counted about 50 stars, with yellowish orange star in the middle

				of the cluster.
IC 4756 (R)(R)	Ser	OC	FS	According to Sue French, the cluster is big and fills the FOV and an observer may look right through it without recognizing it! Indeed, it does! You've got to see this cluster. In the TV-102 Light Cup's opinion, it is even better than M44 and has christened it the " <i>Ice Crystal Cluster</i> ", with too many stars to count (est. over 100 stars). A must see favorite!
IC 5146 (R)	Cyg	?		" <i>Cocoon Nebula</i> ".
IC 5217 (R)	Lac	PN		
Cr 399 (R)	Vul	-	NS	Surely this asterism looks like a coathanger through the TV-102 . But IMHO, really not all that impressive as its fame might suggest!
Minkowski 1-92 (R)	Cyg	PN		" <i>Footprint Nebula</i> ".
Pal 9 (R)(R)	Sgr	GC	NS	Also designated as NGC 6717. The first globular in the Palomar Globular group to be captured by the TV-102 . Though not spectacular through the 4-inch aperture, it was satisfying nonetheless for a small aperture to capture this big league/big light bucket Palomar globular group.
PK 64+5.1 (R)	Cyg	PN	SL	Called " <i>Campbell's Hydrogen Star</i> ". Indeed, it was stellar looking until 220x but best viewed at 352x for confirmation! This is the TV-102 Light Cup first PK designated PN catch ☺.
PK 171-25.1 (R)	Tau	PN		Very difficult according to Houston .
Barnard's Star (R)	Oph	-	FS	Also known as the "Run Away Star". Indeed, this mag 9 something star is only 5.97 light years away and is moving toward us at 87 miles/sec! Though visually you may give it only a GS rating, it's got my FS rating because this star moves so fast. A must see star! For more details, read this .
Leo I (UGC 5740) (R)	Leo	GX	SL	Extremely tough, have so far eluded ☹ the TV-102 . Reported as seen by a very experienced observer through her 105mm AP Traveller.
Markarian 421 (R)	UMa	-	SL	First quasar observed through the TV-102 ! <i>Inhumanly</i> dim and difficult ! Forms a triangle with the annoyingly bright stars: SAO 62387 and SAO 62392. Best view with the 3mm TV Radian (293x)! A must challenge!
Sculptor Dwarf Galaxy J	Scl	GX		
Sextans B (UGC 5373) ?	Sex	GX		
Tombaugh 1 (R)	CMa	OC		
V2540 Oph (R)	Oph	-	NS	A nova in Ophiucus, very close to Xi Serpentis and the first nova observed by the TV-102 Light Cup. Take a look at this easy nova if you haven't seen one before. Here's how to find it.