

Deep Sky Forum

2013 Objects of the Week

Alvin Huey
www.FaintFuzzies.com

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Compiled and edited by
Alvin H. Huey
www.faintfuzzies.com
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www.faintfuzzies.com

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All other images are by the author of the post, otherwise captured in the caption.



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Happy birthday DSF!

February 2014 marks DeepSkyForum's 3rd year and we couldn't be prouder! With nearly 3000 posts across 500 threads by 400+ members, DSF has grown to contain an abundance of information for the visual observer. From the brightest Messiers down to the most obscure galaxies, DSF is becoming the go-to place for your visual deep sky observing.

This anniversary also announces the release of our 2nd annual *Object of the Week* PDF. Alvin Huey has yet again taken it upon himself to compile a PDF that can be downloaded and printed. With 700 plus downloads of the first PDF from his website faintfuzzies.com, Alvin felt compelled to do it again! He uses the same format he created for his downloadable observing guides. The guide contains finder charts and DSS images along with actual postings from the website. With the PDF you can download and print into a book or just print each object out individually. Whatever suits you best. Not only will you have vital information such as the charts and descriptions, but you'll find observing notes and comments by the OOTW authors as well as members replies. With time you'll find that these comments and replies are priceless when it comes to improving ones observing skills.

Our list of contributors has grown over the past year and not only did we have our 2012 OOTW authors return to contribute in 2013, but we've had a couple more members volunteer and join the list. We'd like to acknowledge the following 2013 OOTW authors: Paul Alsing, Howard Banich, Rolandos Constantinides, Uwe Glahn, Steve Gottlieb, Alvin Huey, Mark Friedman and Reiner Vogel. Thank you all for taking the time out of your busy schedules and helping make DSF & the OOTW forum hugely popular! We also cannot forget all the contributing members. Your replies and contributions have made the OOTW section what it is. So thank you for participating in the discussions!

And please remember, anyone can write up an OOTW. If at any time you would like to submit an OOTW, please do not hesitate to throw your name in the hat. Send us a PM and we'll fit you into the schedule. It's easy and fun!

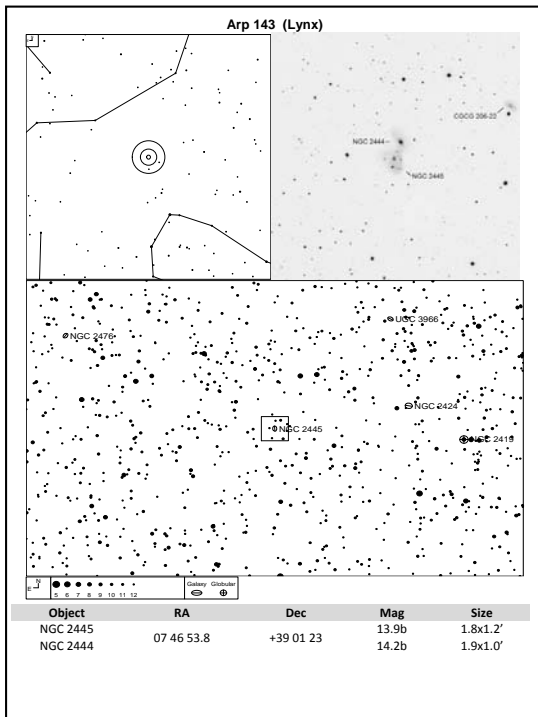
In closing, help us make 2014 even better! Pass the word and share our link. Show your fellow observers what it is you've been enjoying here at DSF. No matter the scope size nor experience level, there is something here for everyone. We can all learn something and improve our observing skills! It's why DSF exists!

And as always,

"Give it a go and let us know,
Good luck and great viewing!"

Dragan & Jimi

HOW TO USE THE ATLAS



The top left panel contains the naked eye field with the TelRad™ superimposed on the center of the OOTW. The top right panel contains the inverted labeled DSS image. The image is generally 15' square, otherwise larger or in rare instances, smaller.

The bottom panel is a finder field is about 4.8° across and 3.0° high. The finder field is wide enough for the finder scope and detailed enough for those who choose to use a low power eyepiece as a “finder”, like I do. The limiting magnitude of the field stars is generally set to 12.0, otherwise labeled. The field of the DSS image is superimposed on the finder chart. All charts and images are oriented north pointed up and west to the right.

The table lists the object name, RA/Dec, integrated magnitude and size. Most of the mag and sizes are from MegaStar™. The coordinates listed in 2000.0 epoch for each object, otherwise the center of the group, if the

OOTW involves multiple objects.

Each OOTW finder chart is followed by the original poster’s post regarding the OOTW with subsequent replies that contains valuable observing notes/experiences by various members of the forum. I’ve left most of the posts as it was posted on DeepSkyForum as each author’s writing style is unique. I’ve corrected the obvious spelling errors.

Note: I’ve left out posts that do not contain observing notes. Again, this was a manual process, so I may have missed a post or several. If so, I apologize and let me know, and I can easily update this file.

This year, I’ve decided to leave the colors the way it was posted as if inverted, the impact of the original colors is lost. At the very least, the finder page of each OOTW is friendly at the field, with everything invertable to white stars on black.

A bonus to this year’s OOTW guide is selected objects from the Off the Beaten Path forum are included.

Enjoy and Clear Dark Skies,
Alvin Huey

2013 Object of the Week Index

Page	OOTW	Individual Object	RA	Dec	Mag	Size	Constellation	Object Class
		Sh 2-254			-	11.0 x 7.9'		
15	The three snowballs	Sh 2-256	06 12 50	+17 58 33	-	1.5'	Orion	Reflection nebulae
		Sh 2-257			-	3.8 x 3.0'		
		IC 2162			-	4.0'		
18	Cosmic Ballet	NGC 2207	06 16 21.0	-21 22 22	11.6p	3.2 x 2.2'	Canis Major	Interacting galaxies
		IC 2163			12.6p	2.2 x 1.0'		
22	Sh 308	Wolf Rayet ring nebula	06 54 13	-23 55 42			Canis Major	Wolf Rayet
25	UGC 3697	Integral Sign Galaxy	07 11 22	+71 50 11	13.5p	3.3 x 0.5'	Camelopardalis	Superthin galaxy
29	Arp 243	NGC 2623	08 34 24	+25 45 01	13.9	2.4 x 0.7'	Cancer	Interacting galaxies
31	Haro 3-29	V Zw 375, GL Tau	04 37 23	+25 02 43	15.3	25.0"	Taurus	Planetary nebula
34	IRAS 09371+1212	Frosty Leo Nebula	09 39 53	+11 58 52	10.5	12"	Leo	Protoplanetary
38	NGC 2163	N5GC 2163	06 07 49.5	+18 39 27	11*	2.0 x 1.5'	Orion	Bi-Polar reflection nebula
42	UGCA 258	UGCA 258	11 58 25	-14 31 26	14.6v	1.1x1.0'	Corvus	Dwarf ring galaxy
45	Arp 148, Mayall's Object	MCG+7-23-19	11 03 53.9	+40 51 00	15.3b	0.5 x 0.3'	Ursa Major	Collisional galaxies
		MAC 1103+4050			16.5	0.4 x 0.3'		
		CGCG 12-91			15.3	0.3 x 0.2'		
		CGCG 12-93			15.3p	0.4'		
		CGCG 12-95			15.0p	0.6 x 0.4'		
48	MKW 3	CGCG 12-98	11 49 37.3	-03 31 43	14.8p	0.8 x 0.3'	Virgo	Galaxy Group
		CGCG 12-99			14.2p	0.5 x 0.3'		
		CGCG 12-97			15.2	1.9 x 0.3'		
		CGCG 12-100			14.9p	1.2 x 0.3'		
51	Leo I	Leo I	10 08 28	+12 18 27	11.2	9.8x7.4'	Leo	Dwarf galaxy
54	M-87	M-87	12 30 49.7	+12 23 24	8.3	7.4 x 6.0'	Virgo	Elliptical galaxy

Page	OOTW	Individual Object	RA	Dec	Mag	Size	Constellation	Object Class
59	Lo-Tr 5	Lo-Tr 5	12 55 33	+25 53 30	-	8.8'	Coma Berenices	Planetary Nebula
64	Rose 23	UGC 9555 MCG +2-38-18 MCG +2-38-17	14 50 47	+10 07 28	15.2v 15.0v 15.5	0.5 x 0.5' 0.4 x 0.2' 0.3 x 0.2'	Bootes	Galaxy Group
67	M-51	M-51	13 29 52.7	+47 11 43	9.0b	10.3 x 8.1'	Canes Venatici	Spiral galaxy
73	Arp 104	NGC 5216 NGC 5218	13 32 06.9 13 32 10.4	+62 42 03 +62 46 04	12.7v, 13.6b 12.3v 13.1b	1.9' x 1.1' 1.8' x 1.2'	Ursa Major	Galaxy pair
76	NGC 6052	Arp 209, VV 86	16 05 13	+20 32 31	14.1V, 13.3B	~0.7'x0.4'	Hercules	Galaxy
79	MCG galaxy chain	MCG+8-24-102 MCG+8-24-103 MCG+8-24-104 MCG+8-24-105 UGC 8364	13 18 26.11	+47 13 23	15.3 15.9 16.9b 16.8 17	0.4 x 0.3' 0.4 x 0.2' 0.4 x 0.3' 0.3 x 0.2' 1.2 x 0.2'	Canes Venatici	Galaxy chain
84	Arp 97	MCG+5-29-10 MCG+5-29-11 MCG+5-29-12	12 05 47.8	+31 03 39	15.7 15.3 15.5	2.4 x 1.4' 1.4 x 0.5' 0.4 x 0.2'	Ursa Major	Interacting Galaxies
87	Lost in Virgo	NGC 4535	12 34 20	+08 11 53	9.9	7.1x5.0'	Virgo	Spiral galaxy
91	Hoag's Object	PGC 54559	15 17 14	+21 35 08	16.4	1.0 x 0.9'	Serpens	Ring galaxy
95	Markarian 205	Mrk 205 NGC 4319	12 21 44	+75 18 38	15.2v 12.8p	0.3 x 0.3' 2.9 x 2.3'	Draco	Galaxy and radio object
99	NGC 6337	NGC 6337	17 22 15	-38 29 01.4	12.3, 14.9*	49x45"	Scorpius	Ring planetary
102	Hickson 84	84A – CGCG 355-20A 84B – PGC 58873 84C – PGC 58884 84D – PGC 58861 84E – PGC 58881 84F – PGC 58856	16 44 23	+77 51 31	15.4b 16.5 16.2 17.2 17.2 17.2	0.7' x 0.4' 0.6' x 0.2' 0.4' x 0.2' 0.3' x 0.2' 0.2' x 0.1' 0.2'	Ursa Minor	Compact Galaxy Group

Page	OOTW	Individual Object	RA	Dec	Mag	Size	Constellation	Object Class
107	NGC 5614	NGC 5614	14 24 07	+34 51 33	11.7v	2.4x2.0'	Bootes	Galaxy
111	Swings-Struve 1	Swings-Struve 1	18 16 12.2	-30 52 08	11.9*		Sagittarius	Planetary Nebula
113	VV 289	VV 289 - UGC 10610 VV 289a - MCG+7-35-4 VV 289b - MCG+7-35-5	16 55 00.5	+43 03 30	15.4g 15.5	0.7 x 0.4' 0.6 x 0.4'	Hercules	Galaxy pair
116	NGC 4656	NGC 4656 NGC 4657	12 43 57.7	32 10 05	11.0b 10.5	9.1 x 1.7' 1.3 x 0.6'	Canes Venatici	Galaxy
119	Sh 2-174	Sh 2-174	23 46 49	+80 56 20		10x15'	Cepheus	Planetary Nebula
122	NGC 7252	NGC 7252	22 20 44	-24 40 42	12.1v	3.8 x 2.4'	Aquarius	Galaxy and Voorwerp
126	CED 211	R Aquarii	23 43 49	-15 17 04	7.5 var	2.0 x 1.0'	Aquarius	Symbiotic star
130	Burbidge's Chain	NGC 247 MCG-4-3-10 MCG-4-3-11 MCG-4-3-12 MCG-4-3-13	00 47 08.6	-20 45 38	9.7b 14.4p 15.7 17 14.6p	20.0x5.0' 1.0 x 0.5' 0.9 x 0.5' 0.6 x 0.2' 1.0 x 0.9'	Cetus	Galaxy chain
134	Abell 64	Abell 64	19 45 35	+05 33 52	15.3 NED	0.8 x 0.5'	Aquila	Galaxy
137	M74	M74	01 36 41.6	+15 47 03	9.4	10.5x9.5'	Pisces	Galaxy
141	G 1 G 78 G 213 G 280	G 1 G 78 G 213 G 280	00 32 46 00 41 01 00 43 14 00 44 29	+39 34 41 +41 13 47 +41 07 23 +41 21 37	13.2v 14.2v 14.6v 14.2v	0.5 x 0.5' 0.4 x 0.4' 0.3 x 0.3' 0.4 x 0.4'	Andromeda	M-31 Globular Clusters
145	Arp 28	NGC 7678	23 28 27.9	+22 25 16	12.7	2.3 x 1.6'		
148	Merope Nebula Barnard's Nebula	Merope Nebula Barnard's Nebula	03 46 19.57	+23 56 54.1			Taurus	Reflection Nebulae
153	NGC 7250	NGC 7250	22 18 17.8	+40 33' 45"	12.6v	1.7' x 0.8'	Lacerta	Starburst Galaxy
157	NGC 604	NGC 604	01 34 32.8	+30 47 06		1.93 x 1.2'	Triangulum	H-II region in M-33

Page	OOTW	Individual Object	RA	Dec	Mag	Size	Constellation	Object Class
160	Hickson 100	100A – NGC 7803	00 01 20.0	+13 06 40	14.1b	1.2' x 0.7'	Pegasus	Compact Galaxy Group
		100B – Mkn 934			15.3b	0.8' x 0.5'		
		100C – MCG +2-1-9			15.9b	0.8' x 0.4'		
		100D – MCG +2-1-10			16.6	0.6' x 0.3'		
163		NGC 450	01 15 30.4	-00 51 41	11.6v	3.1' x 2.3'	Cetus	Discordant galaxy pair
		UGC 807			15.7b	0.9 x 0.4'		
165	NGC 3 area	NGC 3	00 07 09.7	+08 20 16	14.2b	1.2 x 0.6'	Pisces	Galaxies
		NGC 4			16.8b	0.4 x 0.2'		
		NGC 7838			15.3	1.0 x 0.3'		
		NGC 7387			15.4	0.5 x 0.3'		
		NGC 7835			15.5	0.9 x 0.4'		
		NGC 7834			14.9p	1.2 x 0.9'		
167	Pisces Chain	NGC 383	01 07 25	+32 24 47	12.8	1.8 x 1.8'	Pisces	Galaxy chain
		NGC 379			12.8v	1.4 x 0.9'		
		NGC 380			13.6b	1.3 x 1.3'		
		NGC 382			14.2p	0.7 x 0.7'		
		NGC 386			14.3v	0.8 x 0.5'		
		NGC 385			12.9v	1.2 x 1.0'		
		NGC 384			13.1v	1.1 x 0.9'		
		NGC 388			14.3v	0.9 x 0.8'		
169	NGC 1300	NGC 1300	13 19 40.8	19 24 41	10.3	5.9 x 4.9'	Eridanus	Barred spiral galaxy
172	Two tadpoles	IC 410	05 22 25	+33 27 00	-	25.0 x 20.0'	Auriga	Dense Globules in emission nebulae
		Simeis 129	05 23 08	+33 28 40				
		Simeis 130	05 22 58	+33 32 29				
175	Dwingeloo 1 group	Dwingaloo 1	02 56 51	+58 54 42	8.3		Cassiopeia	
		Dwingaloo 2						
		MB 3						

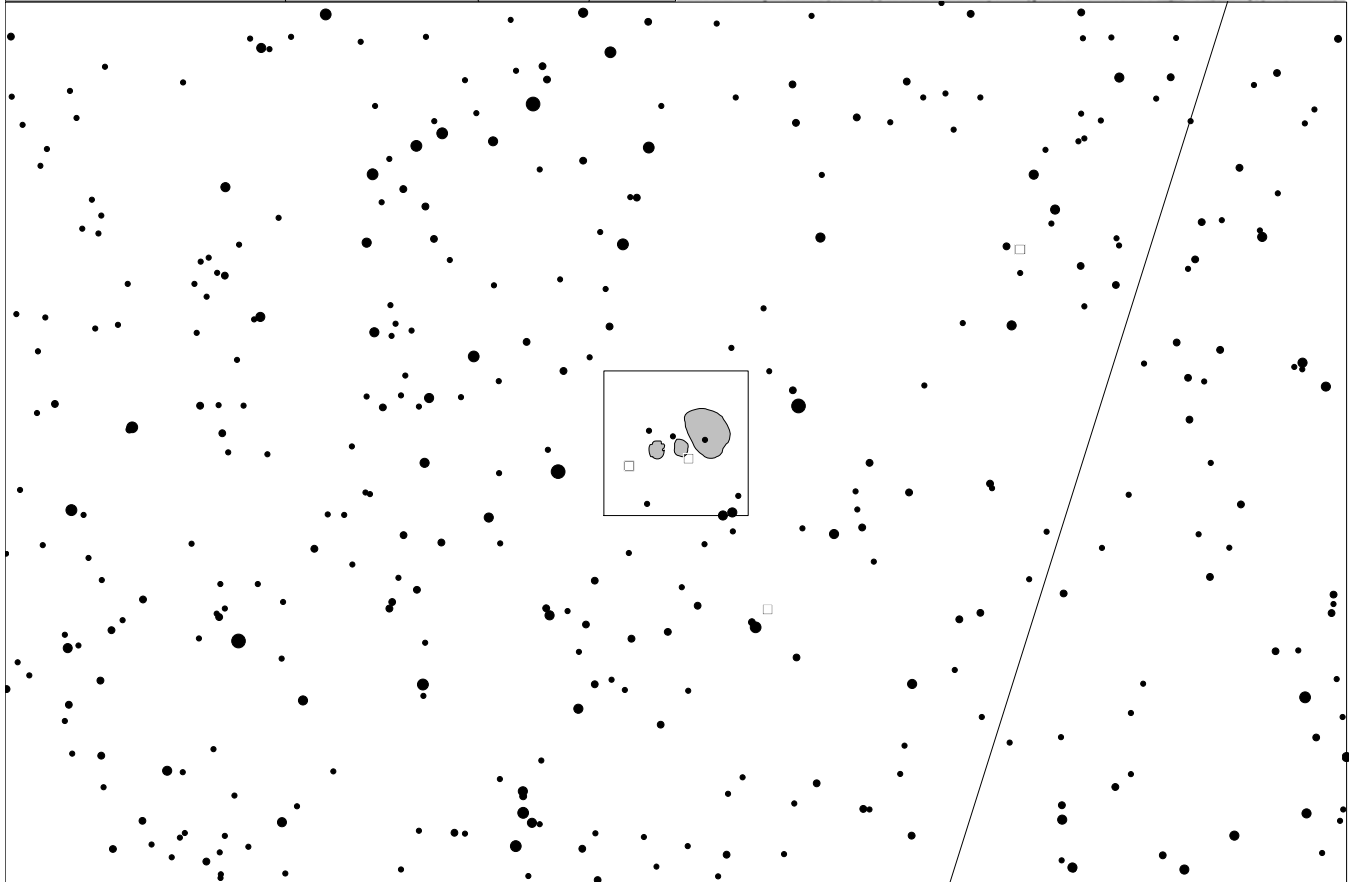
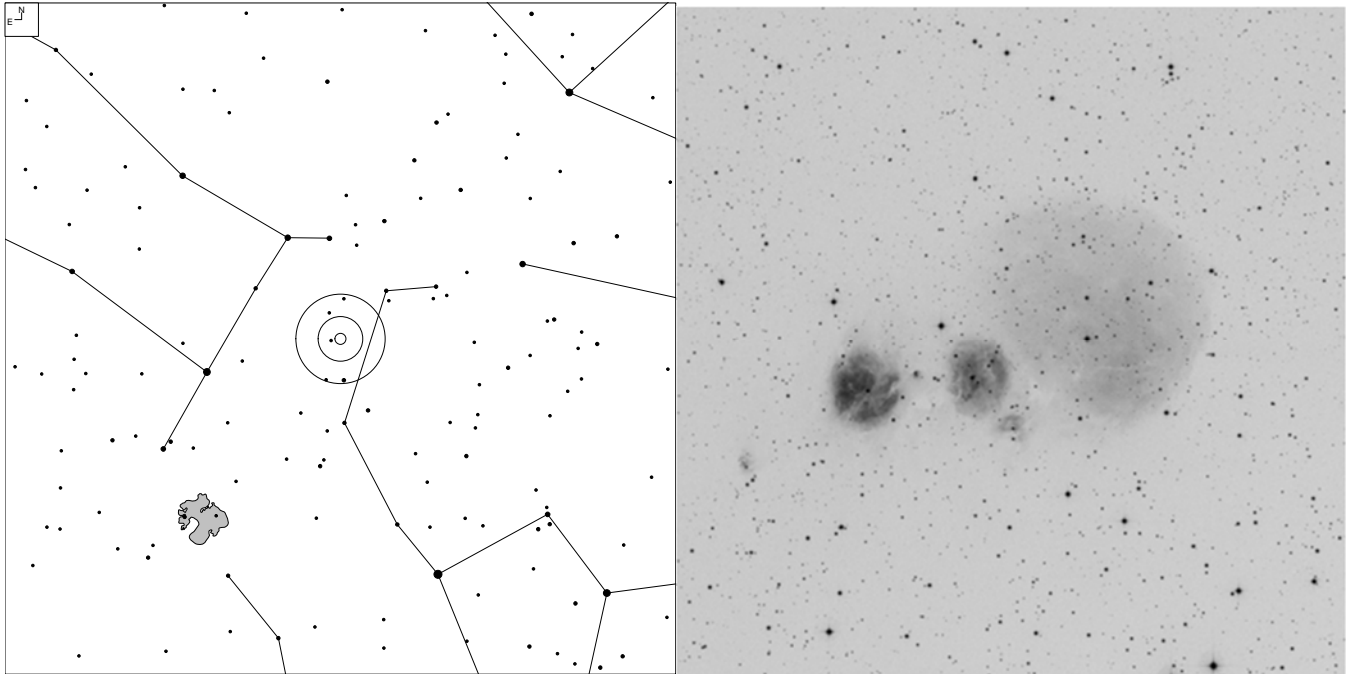
Page	OOTW	Individual Object	RA	Dec	Mag	Size	Constellation	Object Class
177	Arp 113	NGC 70	00 18 22	+30 04 10	14.2p	1.9 x 1.2'	Andromeda	
		NGC 71			14.2b	1.2 x 0.9'		
		NGC 68			13.9p	1.2 x 1.0'		
		NGC 67			15.2p	0.4 x 0.3'		
		NGC 67A			15.5	0.5 x 0.3'		
		NGC 69			14.8v	0.5 x 0.4'		
		NGC 72			13.4v	1.1 x 1.0'		
		NGC 72A			14.7v	0.5 x 0.4'		
181	NGC 281	NGC 281	00 52 49.2	+56 37 39	7.4		Cassiopeia	
		IC 1590			12.3			
		HD 5005			7.8			
184	NGC 1569	Arp 210	04 30 49.1	+64 50 53	11.2v	3.7 x 1.8'	Camelopardalis	
188	Arp 219	UGC 2812 = VV495	03 39 53.3	02 06 47	14.0v	0.8' x 0.7'	Eridanus	
191	VV 225	IC 412 = VV 225a	05 21 56	+03 29 15	14.6p	1.5 x 0.7'	Orion	
		IC 413 = VV 225b			14.7p	0.9 x 0.7'		

Selected Off the Beaten Path Objects

Page	OOTW	Individual Object	RA	Dec	Mag	Size	Constellation	Object Class
194	VV 790b	II Zw 28 - Orion's Ring	05 01 42.0	+03 34 27	15.5b	0.3 x 0.2'	Orion	Ring galaxy
196	NGC 7331 gang	NGC 7331	22 37 04.5	+34 25 00	9.4v	14.5 x 3.7'	Pegasus	Spiral galaxy and companions
		NGC 7335			14.4b	1.7 x 0.7'		
		NGC 7336			16.8	1.1 x 0.4'		
		NGC 7337			15.2p	1.3 x 0.9'		
		NGC 7340			14.7p	1.1 x 0.7'		
200	Gyulbudhagian's Nebula	PV Cephei	20 45 54	+ 67 57 51			Cepheus	

Page	OOTW	Individual Object	RA	Dec	Mag	Size	Constellation	Object Class
204	The Caterpillar or Tadpole	IRAS 20324+4057	20 34 13	+41 08 06			Cygnus	
206	UGC 11798	UGC 11798 UGC 11797 UGC 11801 PGC 67244	21 43 27.0	+43 33 17	14.8 15.2 15.3 15.3	1.6 x 0.3' 1.1 x 0.2' 0.7 x 0.5' 0.1 x 0.1'	Cygnus	Galaxy trio
209	4 very small protoplanetaries	Henize 3-1475 MWC 922 IRAS 19024+0044 IRAS 19234+1627	17 45 15 18 21 15.9 19 05 02 19 25 41	-17 56 46 -13 01 27 +00 48 51 +16 33 04			Sagittarius Serpens Aquila Sagitta	
216	KN J1814-3955	KN J1814-3955	18 14 11	-39 55 23			Corona Australis	Planetary nebula
218	SUCD 1	Star cluster in M-104	12 40 03	-11 40 04			Corvus	Star cluster in M-104
220	Arp 193	IC 883	13 20 36.2	+34 08 10	14.4p	1.6 x 0.6'	Canes Venatici	Interacting galaxies
222	WDHS 1	WDHS 1	05 59 24	+10 41 40		22 x 17'	Orion	Planetary nebula
225	II Zw 40	II Zw 40	05 55 42.6	+03 23 32	14.7		Orion	Cometary galaxy
227	MCG +05-13-1 to 4	MCG +05-13-1 MCG +05-13-2/3 MCG +05-13-4	05 14 16.1 05 14 21.5 05 14 27.1	+32 45 19 +32 48 17 +32 48 02		0.8' 0.5' 0.2'	Auriga	Reflection nebulae
229	IC 4677 a-f	IC 4677	17 58 15.79	+66 37 59.2			Draco	Knots in planetary nebula
231	Waterfall	HH 222	05 35 40.3	-06 23 13		~1.8' long	Orion	
234	G2	Globular of M31	00 33 34	+39 31 19	15.8		Andromeda	Globular Cluster
236	The stars inside M-57	M-57	18 53 35.2	+33 01 44	9.7p	1.8 x 1.4'	Lyra	Planetary Nebula

Sharpless 2-257 and the Three Snowballs (Orion)



● ● ● ● ● ● ● ● ● ●
 5 6 7 8 9 10

Galaxy Brt Neb

Object	RA	Dec	Mag	Size
Sh 2-254			-	11.0 x 7.9'
Sh 2-256			-	1.5'
Sh 2-257	06 12 50	+17 58 33	-	3.8 x 3.0'
IC 2162			-	4.0'

Sharpless 2-257 and the Three Snowballs (Orion)

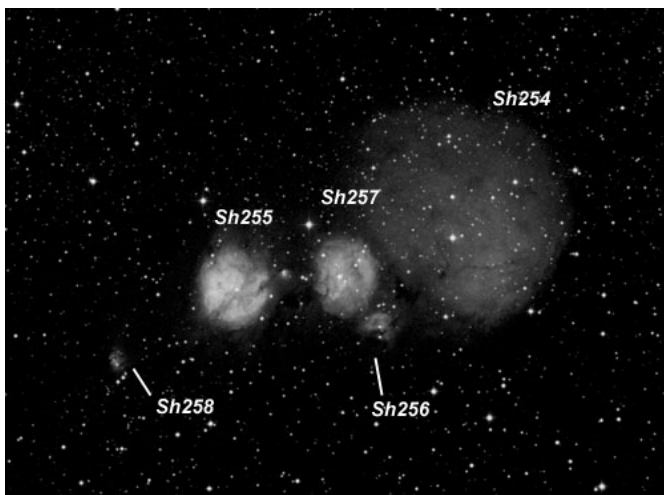
Reiner Vogel

I actually wanted to write about Sharpless 261, Lower's Nebula, but when scanning Wikisky, I stumbled over this nice group of three Strömgren spheres just north of it, which had been a favorite of mine for a long time. So it will be Sharpless 257 and friends today, in the constellation of Orion, between Orion's head and the feet of Gemini.



Group of four emission nebulae

Sharpless 257 (also IC 2162) forms together with Sharpless 254 and 255 a group of three nice Strömgren spheres, which a friend of mine and I dubbed the "Three Snowballs" due to their milky appearance at the eyepiece. The image above is a color composite of the DSS2 images.



DSS red image with the different parts of the group labeled.

My observing notes for this nice group during a night of very good transparency are as follows:

In the 24 mm eyepiece of my 22-Inch Dob, the two more compact nebula 255 and 257 were easily visible with H-Beta filters as milky, well defined areas, each surrounding a star in the middle. Sharpless 254 was somewhat more diffuse, but could be seen without retinal torture. The entire group fit into the field of view of the eyepiece and the contrast between the diffuse 254 and the more compact 255 and 257 was particularly beautiful.

With the UHC Filter, all three were still visible, yet much more difficult than with H-Beta. As to be expected for low-excitation HII regions, they were hardly visible with the OIII filter.

I tested as well the small nebula Sharpless 258, which is to the left on the image and might be some kind of reflection nebula. As there was nothing visible immediately, I did not try to push this, in particular as there are superimposed stars, which might be deceiving. Sh256, on the other hand, the small patch between 257 and 254, was well visible as a separate glow detached from the main mass of Sh257.

So this group is a nice target for the new year. A bit fainter than M42 but nevertheless a nice and interesting object.

Steve Gottlieb

Nice choice of challenge objects, Reiner. I'm going to have to reobserve these objects using an H-beta filter, based on your comments.

IC 2162 is generally assigned to Sh 2-157, but that identification is probably incorrect. Barnard's position precesses to 06 13 12 +17 58.4 (2000) and falls just east of Sh 2-155. In addition, Sh 2-155 is slightly more prominent visually (at least in my 18"), and probably more likely to have picked up by Barnard.

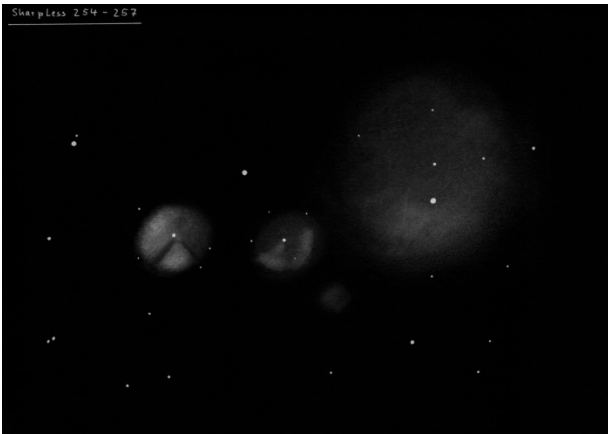
Reiner Vogel

Sharpless 255 is definitely the most prominent part in the group, so the (common) assignment of 257 to IC2162 could well be wrong.

H beta was for me the filter of choice here. Dean Salman has narrowband images of this group, where there are distinct OIII areas around each of the central stars. Visually, the OIII filter was quite inefficient on this group.

Uwe Glahn

These Snowballs are one of the best "Sharpless groups" in the sky Reiner. With 14,5" and H β all four balls could be seen. I also tried Sh 258 which I could not detect.



14.5", 83x, H β , NELM 6m5+

Howard Banich

I had a go at these last Saturday morning after moonset with my 28 and could barely detect 255 and 257. However, the sky was quite bright from auroral glow (20.7-ish SQM) and there were some thin high clouds here and there so conditions were well below average. The h-beta filter did the best job of showing two faint nebulosities and the OIII was just slightly inferior. Hopefully I can have another look under more favorable conditions next month.

Reiner Vogel

Sharpless 254 can become very difficult under so-so conditions. Its surface brightness is considerably lower than that of the other two "snowballs". Even under good conditions, it is much fainter than the other two. You should give it another try, as this is really a nice group!

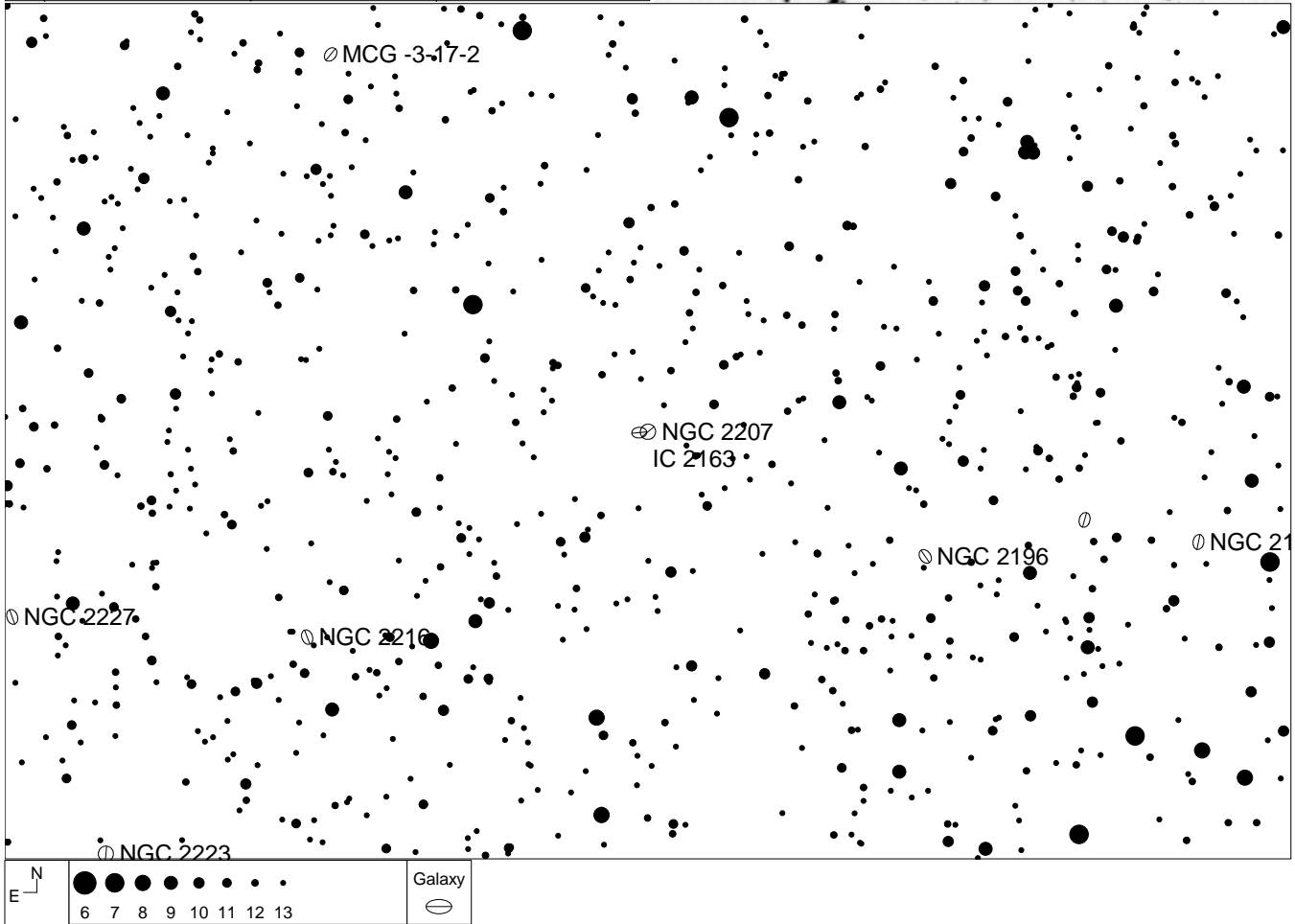
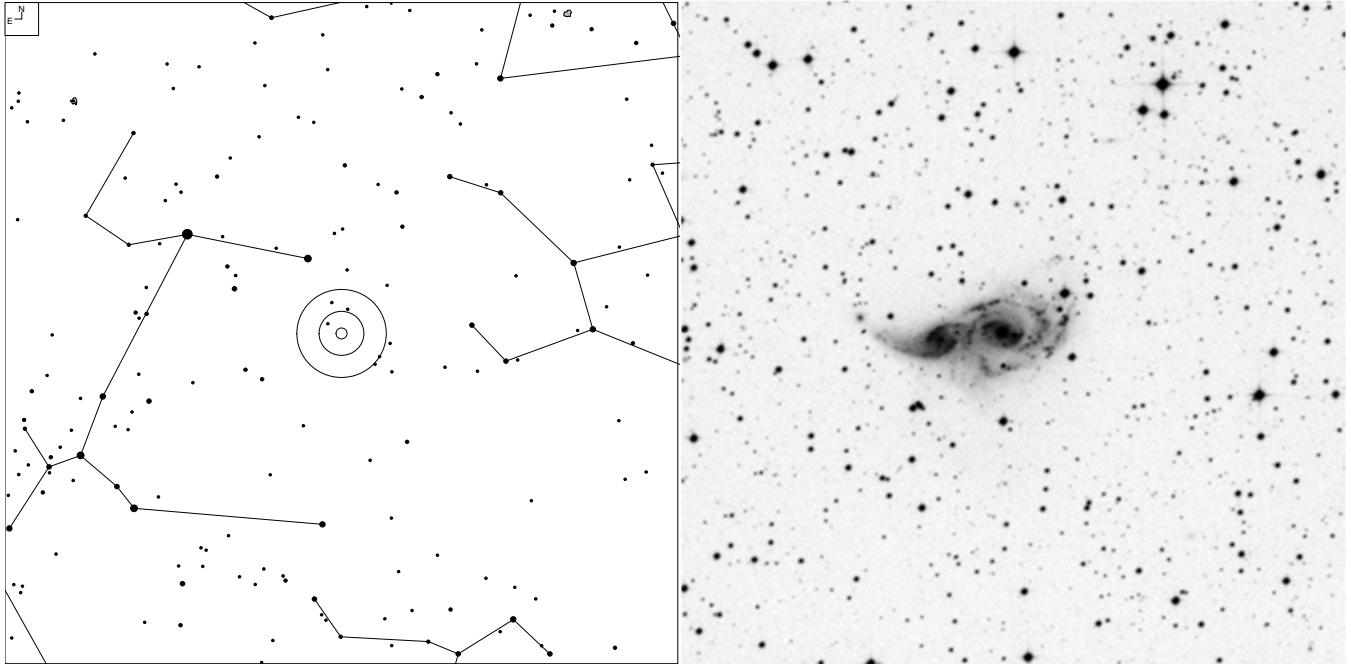
Howard Banich

I was finally able to have a decent look at this lovely bunch of Sharpless snowballs two Friday's ago (March 8) with my 28 f/4 under 21.35 SQM skies. Unlike my first attempt in January, this time the two brightest snowballs - 255 and 257 - stood out right away, with big 254 and little 256 only slightly more difficult. The H-beta filter had the best effect by far, with the NPB performing a distant second. All the snowballs were invisible without filters. 258 never showed a hint of itself at any power up to 408x, and my overall view was very much like your sketch - a subtle but wonderful treat. I haven't scanned my sketch yet but will try to remember to post it here when I do.

April 16th edit - I'm adding my sketch:



NGC 2207 and IC 2163, the Cosmic Ballet (Canis Major)



Object	RA	Dec	Mag	Size
NGC 2207	06 16 21.0	-21 22 22	11.6p	3.2 x 2.2'
IC 2163			12.6p	2.2 x 1.0'

NGC 2207 and IC 2163, the Cosmic Ballet (Canis Major)

Jimi Lowrey

NGC 2207 and IC 2163 were found by John Herschel in 1835. They are in close interaction and in several billion years will form into one galaxy. The calculations indicate that IC 2163 is swinging past NGC 2207 in a counterclockwise direction, having made its closest approach 40 million years ago. However, IC 2163 does not have sufficient energy to escape from the gravitational pull of NGC 2207, and is destined to be pulled back and swing past the larger galaxy again in the future. Strong tidal forces from NGC 2207 have distorted the shape of IC 2163, flinging out stars and gas into long streamers stretching out a hundred thousand light-years.



DSS Image



Spitzer Space Telescope IR image

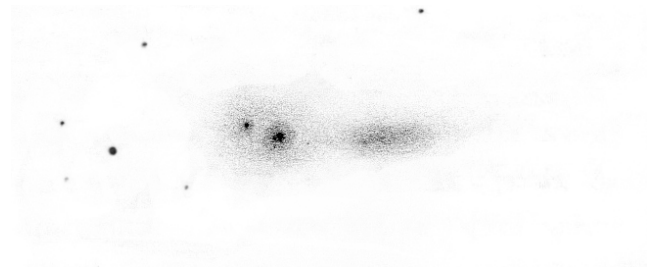
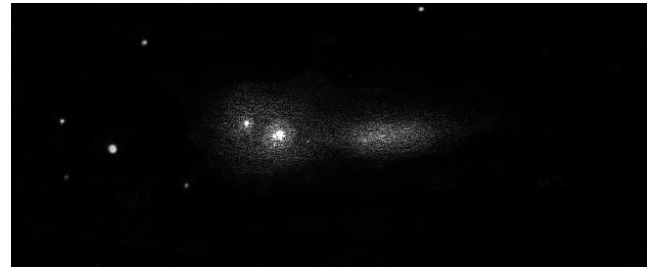
This is one of my favorite winter time galaxies that I return to year after year. I often have wondered why it is not in Arp's Catalog of peculiar galaxies. This one sure is interesting.

Al Lamperti

How ironic that you posted these two! I observed them last Monday and thought I detected some mottledness in NGC-2207 at 337x with my 22" Obsession UC

Howard Banich

I had a good look at these two in 2009 from Steens Mountain under an excellent sky. NGC 2207 seemed to have a double core at 408x with my 28 inch but the two photos you've posted don't show this. Anyway, here's my quick sketch from 2009. I made this sketch just as dawn was just starting to show so even though the SQM was 21.9-ish just before I started sketching, the sky was probably in the 21.5 range as I made this sketch.



Ivan Maly

Fascinating object and sketch. On the Hubble photo of NGC 2207 the smaller object of the "double core" in Howard's sketch is stellar, white, and much brighter than the brightest red, star like HII region. Probably a superimposed star.

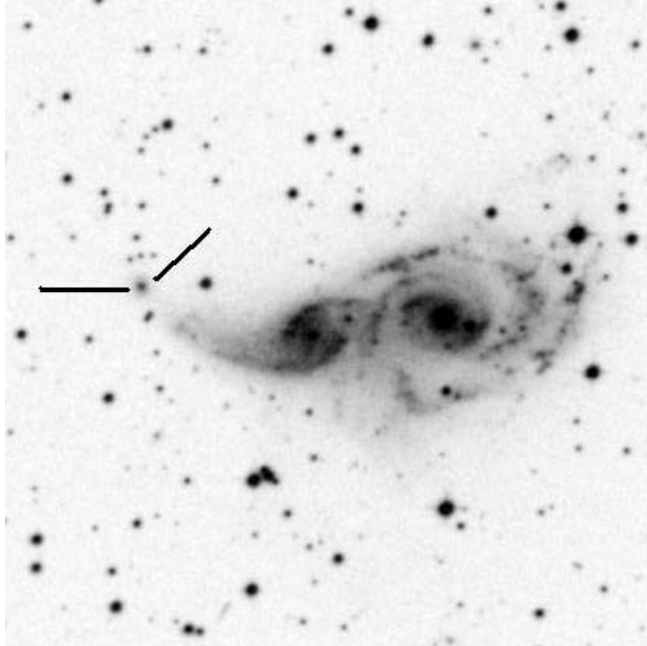
Jimi Lowrey

There is a challenge object that is close to this group. Off the East end of IC 2163 is the galaxy 2MASX J06163579-2122032 it shows up well in this DSS image (below)

I'm not sure of the MAG of this galaxy but I would guess it to be 16 to 17 MAG range. I also could not find the Z of this galaxy so I am not sure if it a back

ground galaxy or a dwarf companion of IC 2163. If you can catch its faint glow I know of no observations at this time and am sure you might be one of the first people to see this galaxy visually.

Below is an ESO image that shows the 2MASX galaxy well.



DSS image showing the 2MASX galaxy



ESO Observatory

Dragan Nikin

My first experience with this object came on the night of the 23 of February back in 2009. Here are my notes from that night.

25" f/5 Obsession, TeleVue Ethos 13mm, 375x
A train wreck of an interacting pair Both arms visible on 2207. Main arm of IC 2163 is visible, a superimposed star(?) on NGC 2207 was apparent. Unable to confirm the MAC but during moments of steady seeing I' do see something there. Have to revisit this one.

I make mention in my notes of a MAC. Looking at Megastar, one MAC appears to be off the arm of IC2163 while the other appears to be Jimi's challenge object. Looking at the pictures above that Jimi posted, I'm not so sure now that's what we were looking at. I wonder which MAC my notes refer too. We would have been using Megastar that night so it can be either. I just don't remember.
 sigh

I really really have to get better at taking notes....

Paul Alsing

This is another object that I viewed through the 82" up the road from Jimi in 2006...

"NGC 2207 and IC 2163 are 2 interacting spiral galaxies that are framed perfectly by the 5 arc minute FOV, and they were one of most pleasant surprises of the entire weekend. 2207 is fully face-on and has a classical shape, the arms are broad and distinct and easy to see at this aperture, and the spiral structure seems to go all the way into the center. 2163, on the other hand, is kind of "eye" shaped and has a showy tidal tail trailing outwards from the pair, but does not reveal much spiral structure in the eyepiece. Perhaps the best pair of the weekend."

Steve Gottlieb

Here are my notes using Jimi's scope last February. What a beautiful object! The HII knot on the east end of IC 2163 is mentioned below ---

48" (2/20/12): this beautiful spiral galaxy forms a stunning pair with IC 2163, attached to its east side. Sharply concentrated with a brilliant nucleus embedded in a very bright core. On the WSW edge of the core a mag 13.5 star is superimposed. A couple of beautiful, winding spiral arms are visible in the halo. An outer arm is on the southern end of the galaxy stretching to the west and curving counterclockwise north towards a mag 12.5-13 star

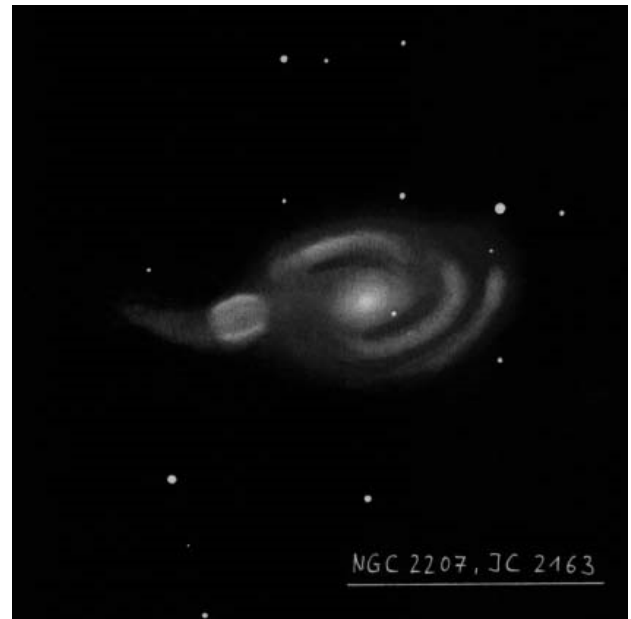
situated 1.7' NW of center. A second arm more inner arm vaguely emerges on the west side of the core and wraps counterclockwise to the north, where it is parallel to the outer arm described above. This arm then curves back east of along the north side of the halo, stretching to the NE side of the halo, but not reaching IC 2163.

IC 2163 is attached at the east side of NGC 2207. The central region is very bright, round, ~1' diameter, with a small bright core. Attached on the southwest side is a spiral arm that gracefully sweeps to the east while curving gently clockwise. The arm is ~1.5' long and significantly increases the overall size to roughly 2'x1'. Just NE of the tip of the arm is 2MASX J06163579-2122032, which appears as a faint, very small knot (possibly a galaxy or an HII knot).

Uwe Glahn

Great pair of interacting galaxies Jimi.

This pair is difficult to resolve under typically German skies (48°N-54°N) because of its low altitude. I could never detect the spiral structure nor the interacting structure between the galaxies with my 16". From La Palma (29°N) these structures became much easier to detect, even with smaller aperture (14,5")

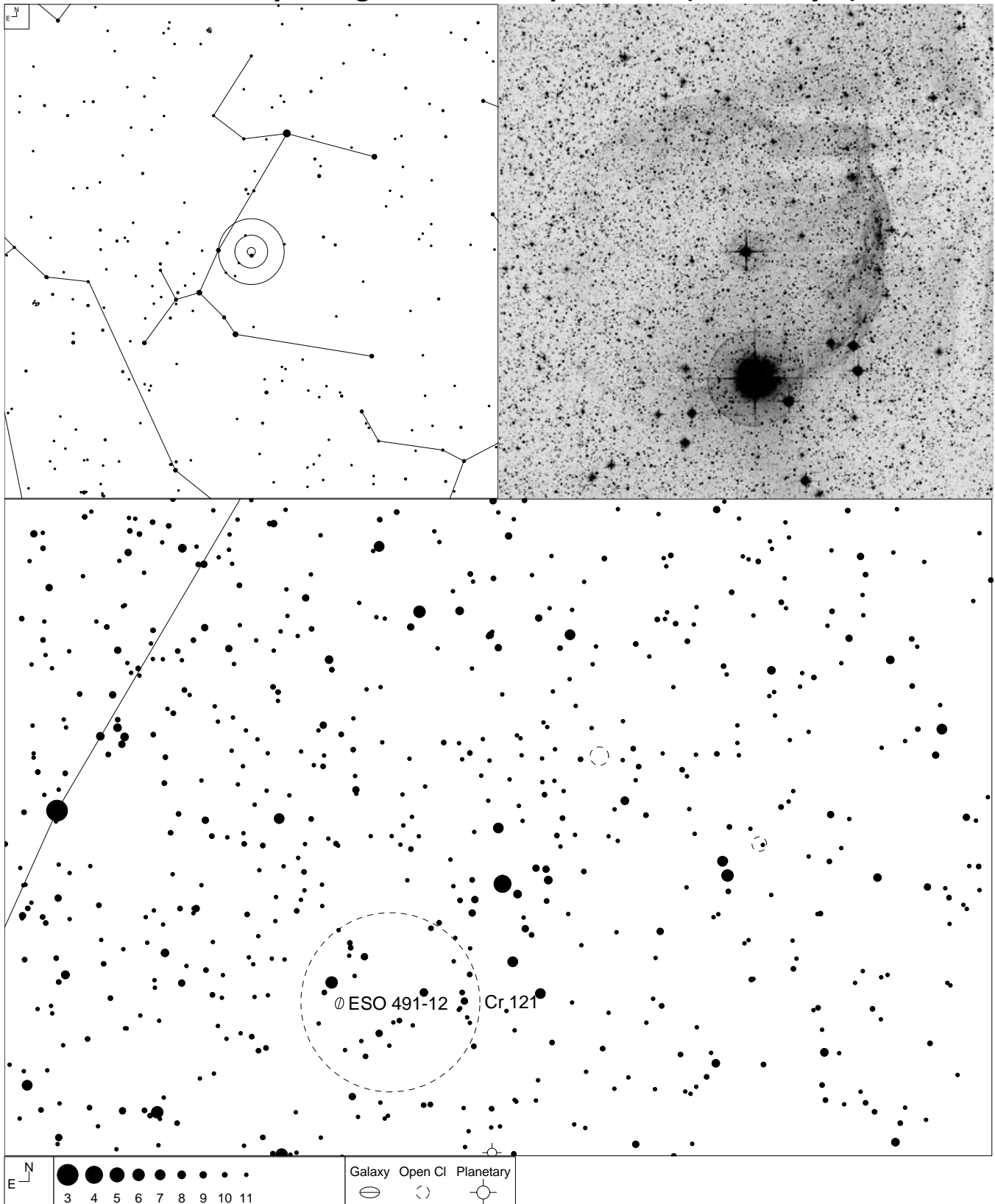


14,5", 202x-283x, NELM 7m+

Rainer Mannoff observed this group also from Marokko (30°N) with 16" and saw pretty much the same ([sketch](#))

We both could not see the faint DS and the fainter galaxy in the E.

A Wolf-Rayet ring nebula - Sharpless 308 (Canis Major)



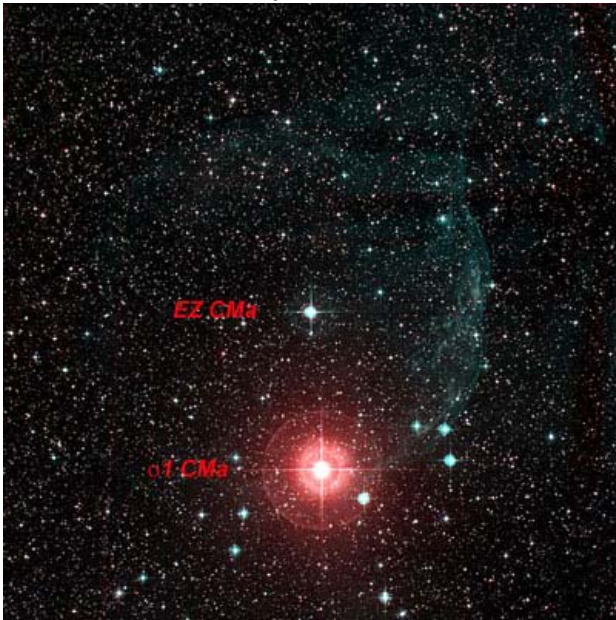
Object	RA	Dec	Mag	Size
Sh 308	06 54 13	-23 55 42		

A Wolf-Rayet ring nebula - Sharpless 308 (Canis Major)

Reiner Vogel

Another Sharpless, but not a true HII region, but a misclassification. Sharpless 308 is a windblown bubble around EZ CMa (WR 6), a Wolf-Rayet star, and hence a Wolf-Rayet ring nebula. It is a shock front formed by the fast and intense Wolf-Rayet wind of WR 6 that hits into the slower wind ejected by the star during its previous asymptotic giant branch (AGB) phase. It is very strong in OIII and much fainter in H alpha. Very recent results showed that this is the only WR bubble besides the Crescent Nebula that shows as well X ray emission.

At my latitude (48°N), Sharpless 308 is always very low and hence an object only suitable for nights with excellent transparency. Those at lower latitude will generally have much better observing conditions with this object.



DSS color composite

There are excellent images by [Don Goldman](#) and [Marco Lorenzi](#). (Click on link to access image)

My observing notes:

Starting point for the star hop to Sharpless 308 is o1 CMa. This star is embedded in the open cluster Collinder 121, which is unspectacular even in binoculars and does not really stand out as a cluster. Shifting o1 CMa into the middle of the field of view of the finder eyepiece, you will be surprised by the view when you switch to OIII filtering (most spectacular, of course, with a filter slide or wheel). The OIII filter shows you a ghostly crescent of glowing gas, that extends from o1 CMa first

towards NW and then towards N as part of a huge bubble of 40' diameter. This bubble is not related to o1 CMa itself, but is the blown of outer shell of EZ CMa, the Wolf Rayet star WR 6, about 20' N of o1 CMa, in the middle of the bubble.

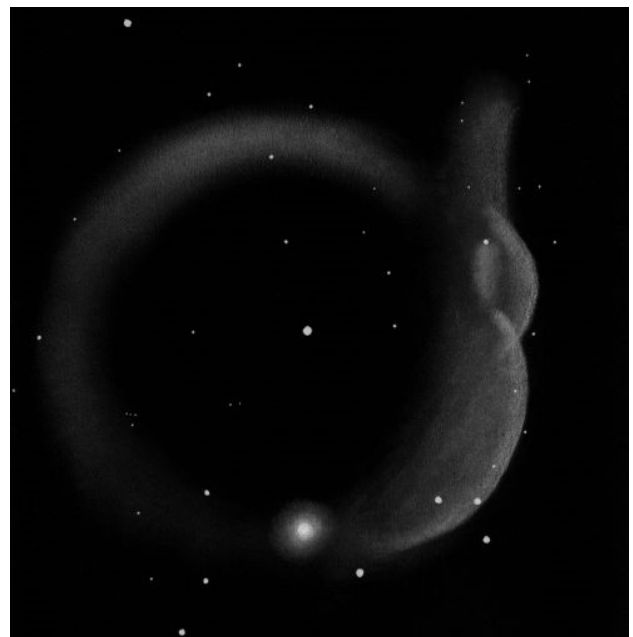
With my 14" Dob, the western crescent is the brightest part and can be easily followed with OIII filter. Towards NW, the crescent becomes fainter, which corresponds to a sort of break-out structure in the bubble.

With my 22" Dob, I can follow the shell well beyond this area. In the NE part, there is another condensation where the shell becomes brighter before it slowly fades out in the eastern part.

Under excellent conditions with perfect transparency down to the horizon, I could see the entire shell, including the eastern part, that closes the circle towards o1 CMa. With 7mm exit pupil, the shell appeared filled with an extremely faint OIII glow, which disappeared at smaller exit pupils.

Uwe Glahn

I used the southern latitude of La Palma (29°N) on the top of the Roque de los Muchachos (2420m/7940ft) to observe and sketch this WR-ring.



With my 14,5" and magnification between 54x and 83x (AP 6,9mm-4,5mm) I could see the heavily structured W side with twisted edges. The nebula of

the ring could easily track the whole circle with a brighter part in the N. Within the ring I could not observe nebula.

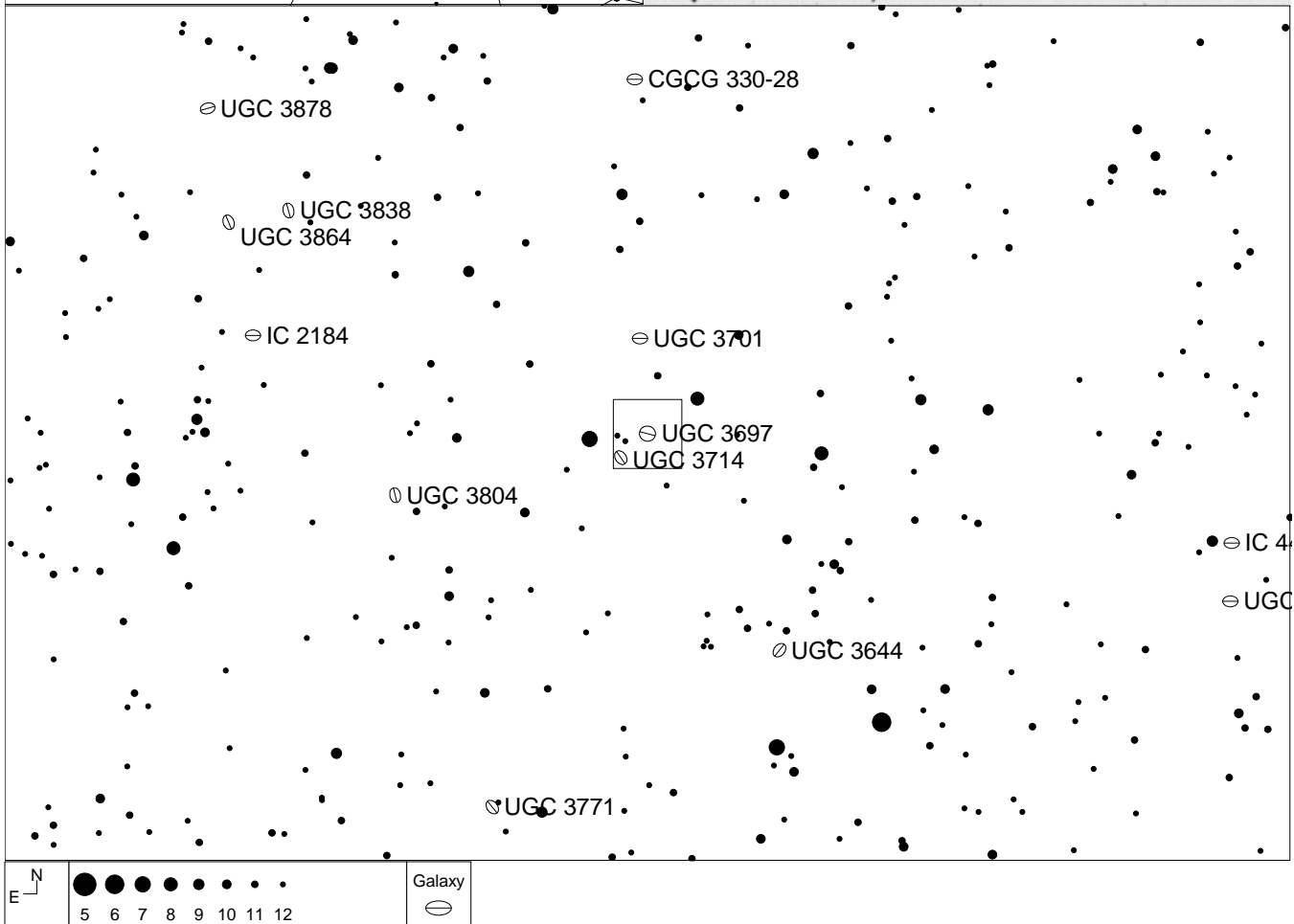
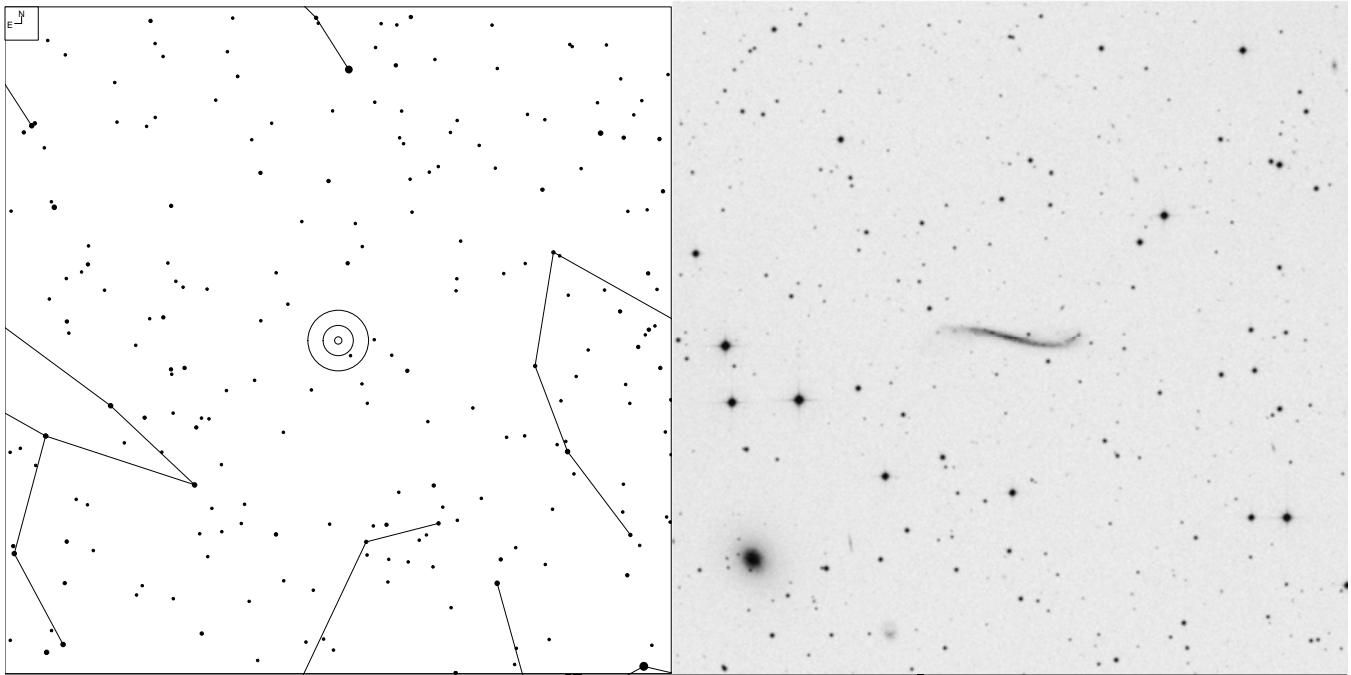
Steve Gottlieb

Great choice, Reiner -- this is one of my favorite, relatively obscure nebulae and on the short list of Wolf-Rayet shells. Here is my last observation of this object –

18" (2/4/08): remarkable view of this giant Wolf-Rayet shell at 73x and OIII filter (excellent filter response). Virtually the complete outline could be traced for at least 35' diameter. The shell is striking along the 25' western border as it gently arcs from north to south with a sharp contrast against the sky immediately to the west. This region also has some weak filamentary structure and brightness variations. At the south end of this long arc, the rim

curves more sharply east, crossing directly through a triangle of mag 7.5/8/9 stars and dimming as it passes just south of 3.9-magnitude 16 CMa. To the east of 16 CMa, the SE portion of the shell is the only difficult part to follow but can be picked up again on the eastern edge of the rim. From this point the rim continues directly north where material appears to pool up on the north end in a 10' brighter, circular patch. Superimposed on this obvious glow are a number of mag 10-12 stars. The rim dims again for a short stretch at the NW end before we reach the bright western rim again. At the geometric center of the shell is the massive Wolf-Rayet star EZ CMa (mag 6.7-6.9), midway between 16 CMa at the south end (15' separation) and the brighter patch at the north end. The interior is filled with very low surface brightness, patchy nebulosity.

UGC 3697 – The Integral Sign Galaxy (Camelopardalis)



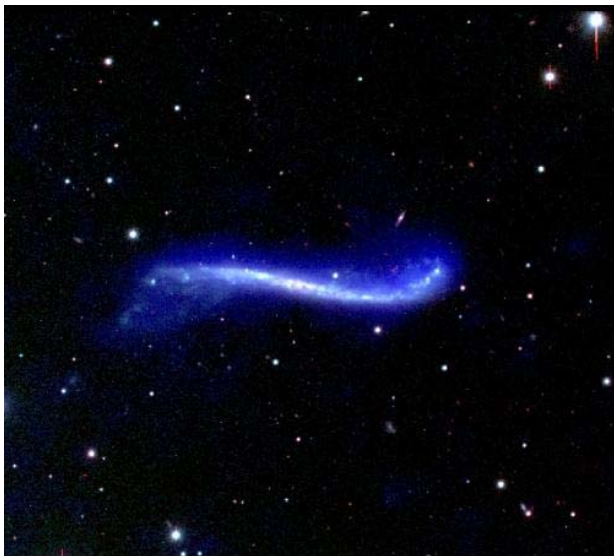
Object	RA	Dec	Mag	Size
UGC 3697	07 11 22	+71 50 11	13.5p	3.3 x 0.5'

UGC 3697, The Integral Sign Galaxy (Camelopardalis)

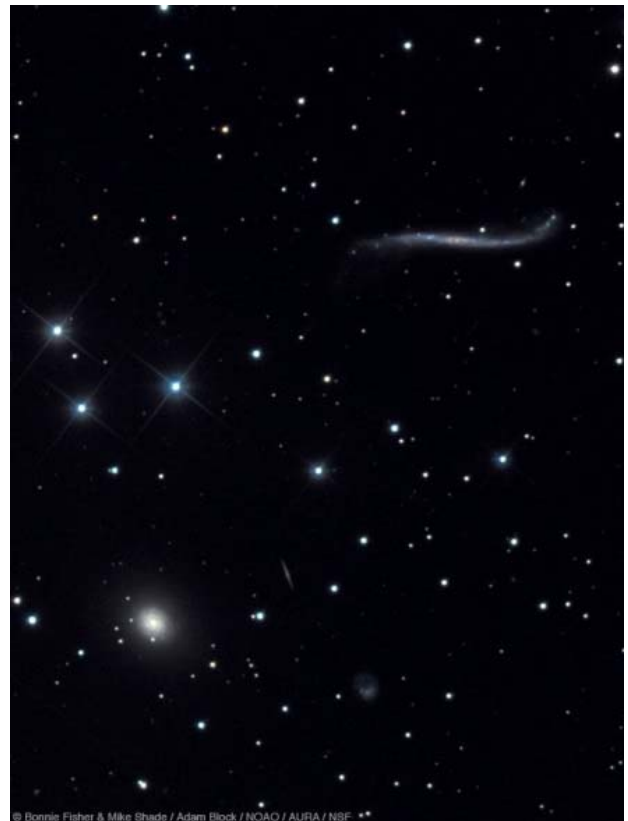
Jimi Lowrey

UGC 3697 is a unique and rare type superthin galaxy with a strange stellar warp. I have been fascinated by it since I first learned about it many years ago.

What has caused this galaxy to be twisted in this stage shape? It was long thought that the mag 12.7 UGC 3714 that is southeast of UGC 3697 was the cause. At 127,000 LY away it was thought to have had a close encounter with the Integral Sign galaxy in the past, but recently astronomers using the VLA have mapped the HI in UGC 3697 and now think that the twist in UGC 3697 is caused by a minor interaction with a dwarf galaxy. In the image below from the VLA you can see on the southeast side (bottom left) of UGC 3697 is the faint core of the dwarf galaxy that has been stripped by UGC 3697. They say that if it had interacted with UGC 3714, it could not have kept such a thin appearance it would have been more pulled apart and distorted. Also in a few million years, it will go back to a normal flat shape and that the twist is just a transit event.



VLA



Adam Block

Marc Emde

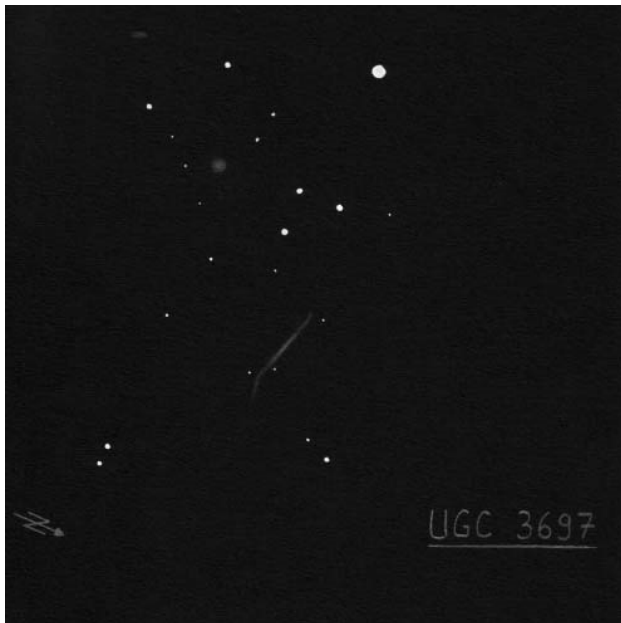
Also one of my favorite super thins!
I several time observed it with 15 and 16 inches.
Very thin, indirect quite long and the northern part is a bit brighter (direction to the nearby star) than the southern part. I could not detect the typical "integral sign" form. I will try it next time with my 24 incher.

UGC 3714 is an easy UGC and can be observed with direct vision.

Uwe Glahn

The typically bends at the end were always difficult to see with my old 16".

With the 27" the more easy W bend is easy to see, the bend at the E could also be detected, but is much more difficult.



16", 257x
(cropped from original image)

Alvin Huey

Great and interesting object. Here is my latest observation at Shot Rock under NELM 7.2 skies.

22" at 184, 255 and 328x – Considerably bright thin glow with well-defined edges. Appears as a flat integral sign galaxy. The west tip curve a bit more than the east tip. A couple 15th magnitude stars lies on each side. PA = 75 and 2.7' long.

Paul Alsing

This guy was on the list when Big Jim and Ana Chandler hosted myself, Steve Gottlieb, Debbie Searle and Jeff Gortatowsky in your absence. Overall it was a poor week for observing ;>, but for the 4 hours I managed that week, this object was the main highlight, looking just like the photo. We spent a lot of time viewing this galaxy.

From my sparse notes, the west end of this long and skinny galaxy has a hook, and an overall "lumpy" texture, and as it fades away on this end it seems to have either a dim star or a brighter knot right at the end. The eastern end just sorta fades away.

All in all, a great and unique view.

Jimi Lowrey

I'm not sure what that is on the West end? Looks like a H II knot but it could be a star? I will check it out with a filter to see if it's a H II knot next time I am at the telescope and will report back.

Steve Gottlieb found the 1967 ASS paper by Margaret and G.R. Burbidge (Who found this Object) and it has an old Image taken by the 82" telescope at McDonald of UGC 3697 in Feb 1962.



FIG. 1.—GB 1 (7°05'N, +71°55'), photographed at prime focus of 82-inch telescope on baked Eastman Kodak IIAO emulsion (no filter; 30" exposure). North is at right, west at top. Scale: 1 mm = 2'59". BURBIDGE *et al.* (see page 783)

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They called it GB 1

Steve Gottlieb

I was surprised to see that SIMBAD still uses GB 1 as the primary designation for the Integral Sign galaxy.

In 1972, there was a short paper in ApJ, 171, 13 by Richer, Sharpless and Olson that displayed 8 HII regions in the galaxy, including two at the west end. Harvey Richer, one of the authors of the paper, sent me an e-mail in June 2011 mentioning that he had read my article in S&T on superthins (which includes the Integral Sign) and attached a copy of this paper!

Jimi Lowrey

Very interesting Steve it looks like what Paul saw was the HII knot on the west end of GB 1.

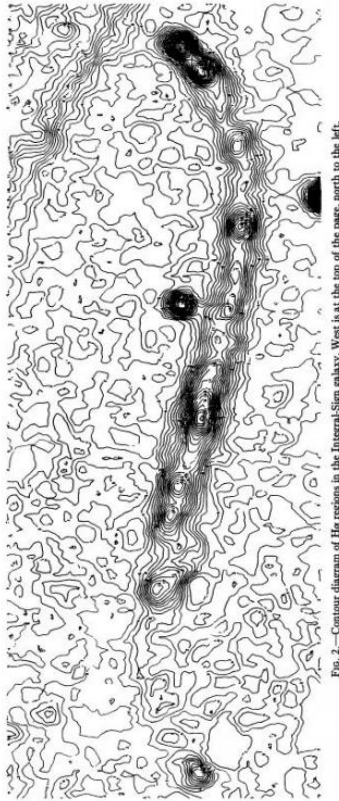


Fig. 2.—Contour diagram of H α regions in the Integral-Sign galaxy. West is at the top of the page, north to the left.

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Don Pensack

I've seen this in my 12.5", with "best" magnifications of 183X and 228X, skies of SQM 21.5. I noted a faint thin line with evidence of curve at mostly one end and very slight brightening in center.

At the time I made the notes, but later observations didn't confirm my notes, I thought it looked like a small, much fainter, version of NGC4656.

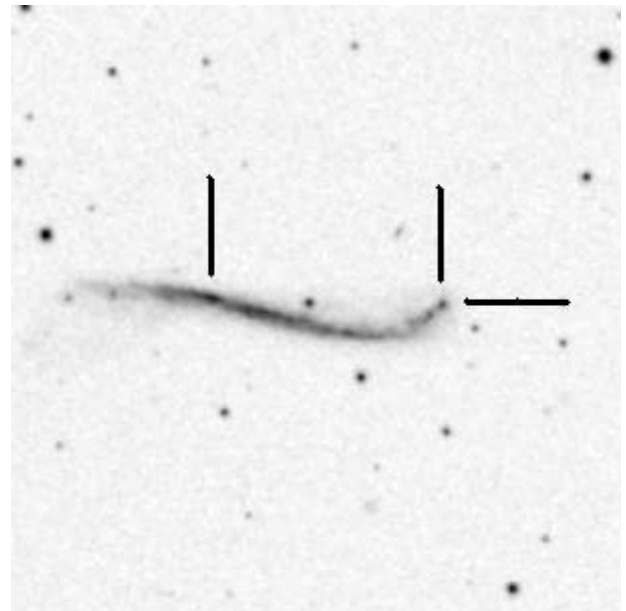
My notes point out that this is really an object for a large scope when details are desired in the image. I didn't find it particularly hard, though it was fairly faint, and it definitely didn't look like an integral sign.

I tried several years earlier with an 8", but couldn't find it.

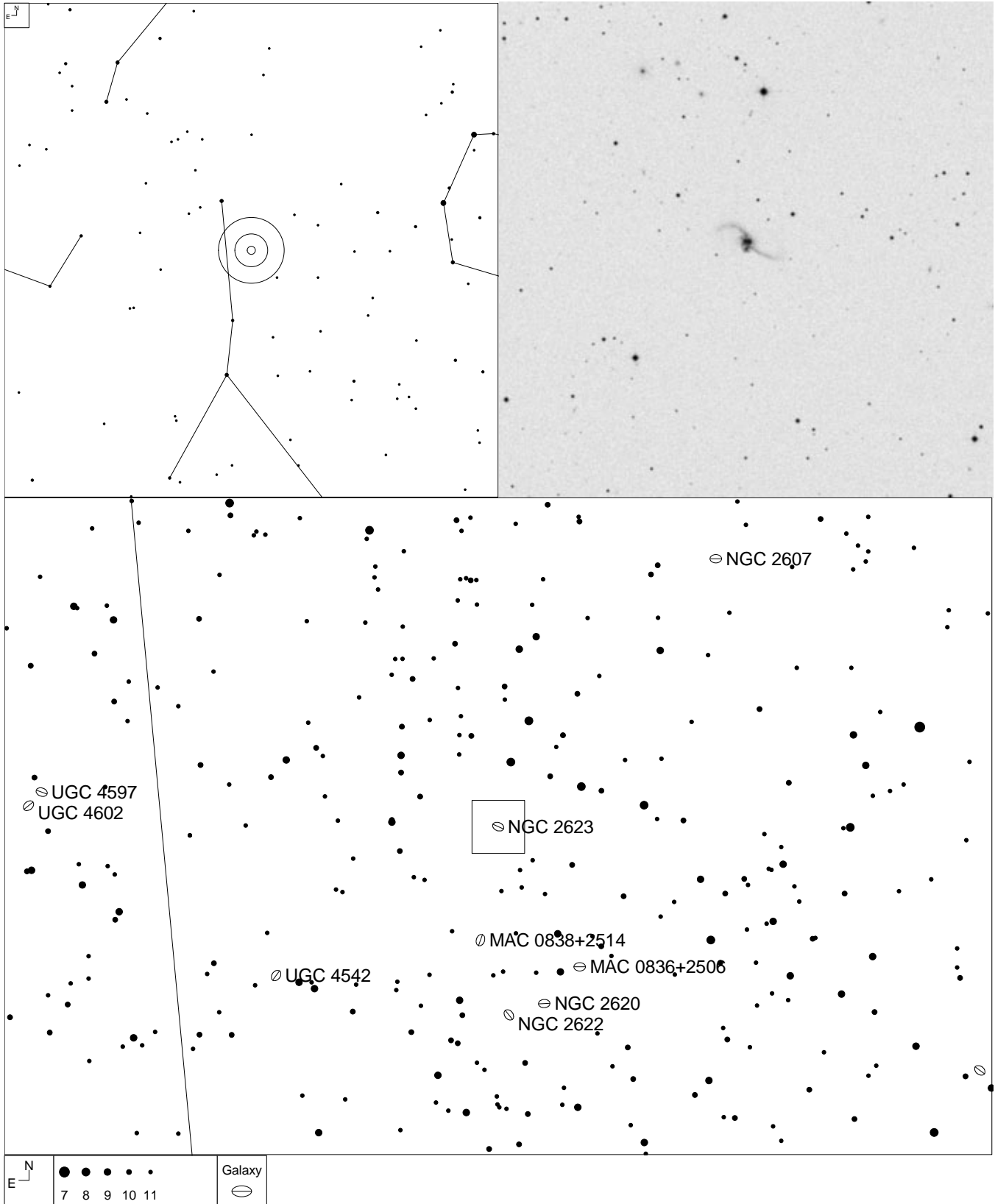
So is 10" or 12.5" a threshold aperture?

Jimi Lowrey

I revisited GB 1 (Integral Sign Galaxy) last night. I wanted to see the H II knot on the end of the galaxy that Paul was talking about in his post. The transparency was not the best and seeing was so so not bad but not the best ether. I picked up GB 1 at once with direct vision at 375x with my finder eyepiece. I then bumped up the power to 488X and the H II knot was popping in and out. I then went to 610X and the knot was there direct vision and in moments of good seeing like Paul said the knot looked like a stellar point. The galaxy looked very dim and mottled and had a speckled appearance in monuments of the best seeing at this power. I also noted a brightening in the galaxy just to the East of the center of the galaxy (see image below) The brightening looked like a small bar to my eye and was just a little brighter than the rest of the galaxy. After looking at the paper (ApJ, 171, 13 by Richer, Sharpless and Olson) that Steve posted I see that I was seeing another H II star forming region in this most peculiar galaxy. I did not see the striped dwarf galaxy core on the South east end but I did not spend much time on it.



Arp 243 – NGC 2623, A High Speed Collision! (Cancer)

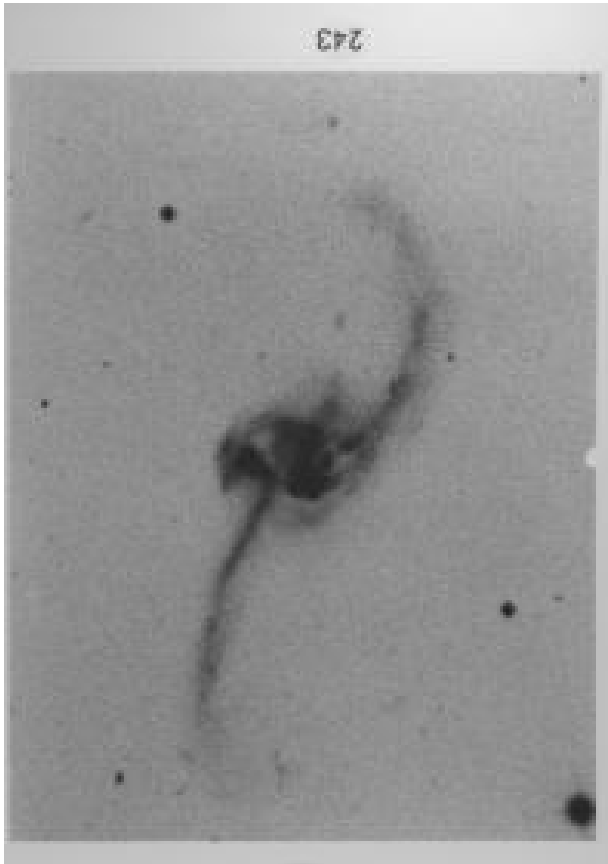


Object	RA	Dec	Mag	Size
NGC 2623	08 34 24	+25 45 01	13.9	2.4 x 0.7'

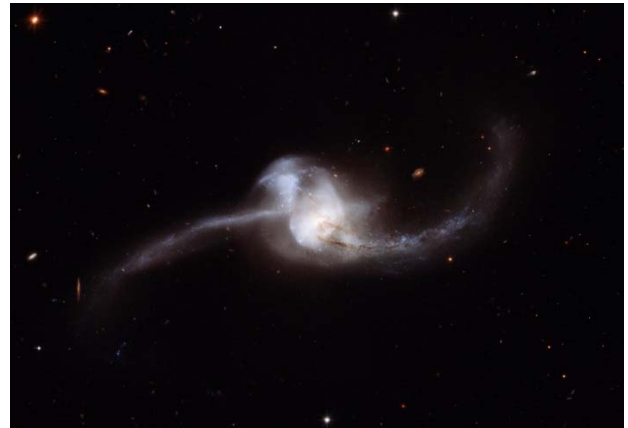
Arp 243 – NGC 2623, A High Speed Collision! (Cancer)

Jimi Lowrey

Dr. Arp classified Arp 243 aka NGC 2623 in his Atlas of Peculiar Galaxies as "Galaxies with the appearance of fission". This is what a high speed head on galaxy collision in the late stage of merging looks like. Arp 243 is so bright in infrared that it is in an unusual class of galaxies called LIRG (Luminous infrared galaxy). In the tidal tails there are hundreds of star forming regions that have been charted. Arp 243 is 250 MLY away and when I look at images of it I always expect to hear a loud crashing noise.



Arp Atlas image



Hubble image

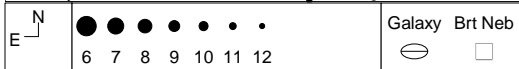
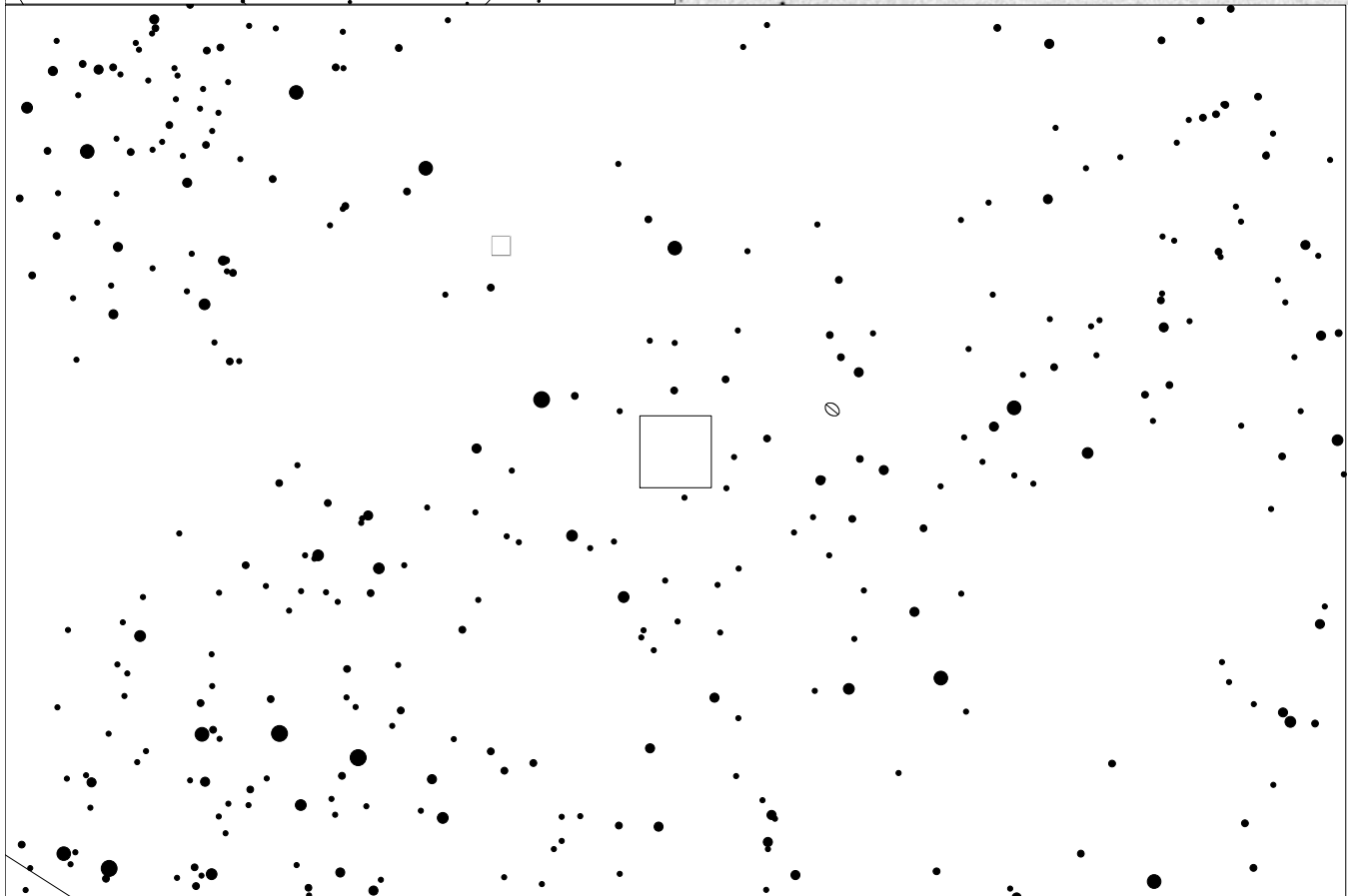
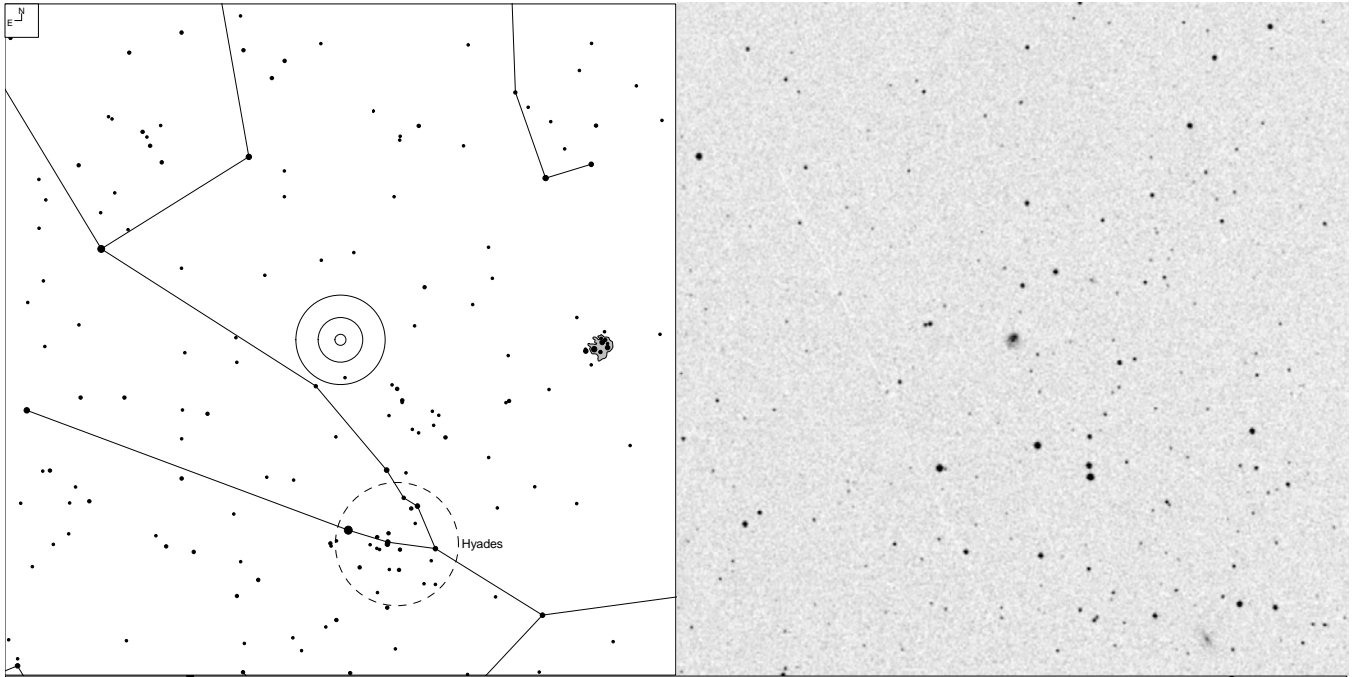
My brief notes with my old 25" reflector on Arp 243 say, Arp 243 small very bright mottled core with faint arms that grow with averted vision. Looks like a lawn sprinkler. "Very Cool"

I wonder what is the smallest aperture that can see the tidal tails in Arp 243.

Jimi Lowrey

Jerry Morris and I revisited this galactic crash last night with good transparency and fair seeing. At 488X it is fairly small and a little brighter on the North side. Both tidal tails were seen with direct vision. The core had a mottled look. Jerry also thought that it looked like a lawn sprinkler.

V Zw 375 - Haro 3-29 - *GLTau (Taurus)



Object	RA	Dec	Mag	Size
Haro 3-29	04 37 23	+25 02 43	15.3	25.0"

V ZW 375 - Haro 3-29 - *GLTau (Taurus)

Jimi Lowrey

You do not often see an object with a galaxy catalog ID (V Zw 375) and a planetary nebula ID (Haro 3-29), with also a star ID (*GL Tau). This got my interest when I saw this object with this unusual combination of ID's, so this is what I have found out. Fritz Zwicky started collecting blue looking compact galaxies in 1964 from the POSS 1 plates for his now famous Red Book, (CATALOGUE OF SELECTED COMPACT GALAXIES AND OF POST-ERUPTIVE GALAXIES). He cataloged this object as V ZW 375 and his notes say "Very red Sc with compact nucleus".

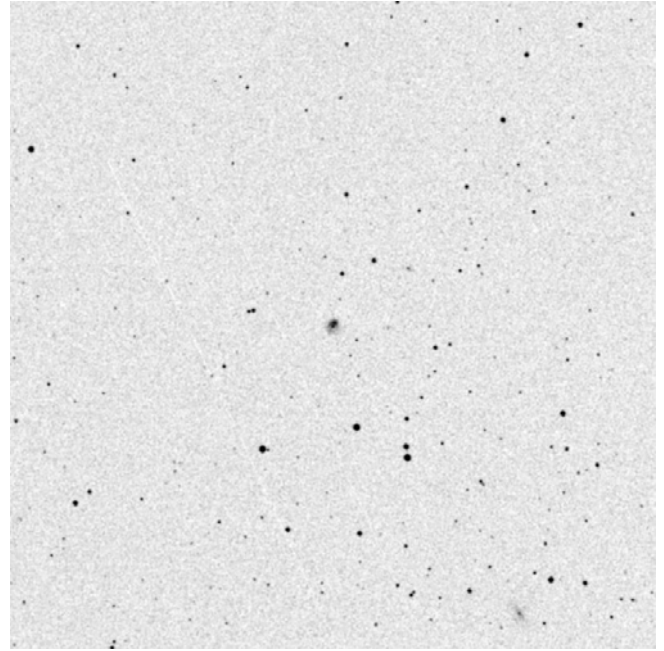
So that's how it got the galaxy ID.

In 1970, Sargent did a spectroscopic survey with the 200" Hale telescope on selected compact and peculiar galaxies from Zwicky's unpublished list of galaxies and found V Zw 375 to be a planetary nebula. NED note says that he sent Zwicky a private communication to inform him V Zw 375 was not a galaxy but a PN. As far back as 1953 Haro in Mexico noted in his paper (New emission stars in the dark regions of Taurus-Auriga-Orion) that Haro 6-29 had a Variable star with emission nebula. That is how it got its Planetary nebula ID.

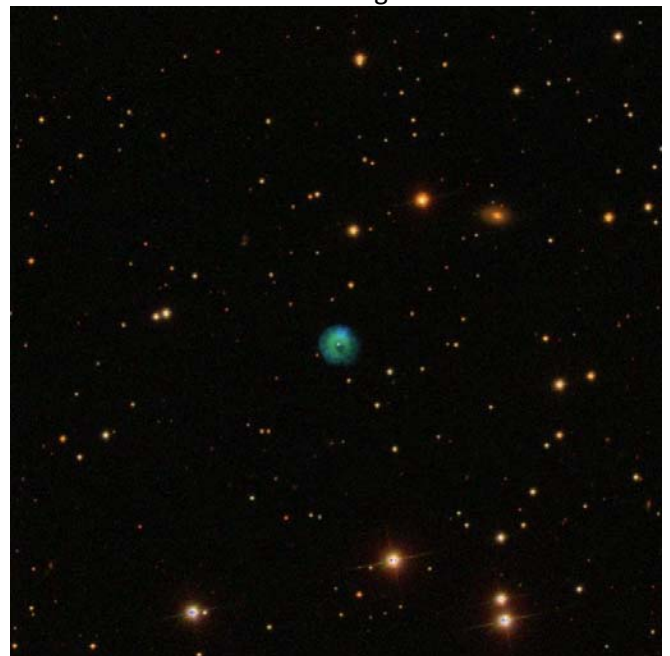
In 1974 G Romano in Budapest did photometry on the central star In Haro 3-29 (*GL Tau) and found it to be variable from 15.7 to 17.5 photographic magnitude. so that is how it got its star name (*GL Tau).

To make matters more confusing, Megastar lists this PN as Haro 3-29 and Simbad list it as Haro 6-29. Simbad did not recognize Haro 3-29. I did find a note in Simbad that says Haro 6-29= PN Haro 3-29, so that cleared that up.

I looked at this PN last week and here are a few of my notes " 375X small fairly faint central star AV only 488X with NPB filter got a good response to the filter looks a little brighter on the one side. Need to look again with better seeing at a higher power!"



POSS 1 image



SDSS Image

Steve Gottlieb

I took a look at this object back in October 1985 and it was tough in my 17.5" scope, but I logged it at 105x using an OIII filter as ...

"Extremely faint and near my visual threshold, very small, round. Verified on a CGPN finder chart" [Kohoutek's Catalogue of Galactic Planetary Nebula].

I didn't know about the V Zw designation, though!

Paul Alsing

SkyTools also has it as H 3-29, with PN G174.2-14.6, PK 174-14.1, and ARO 214 as alternatives...

Thomas Jensen

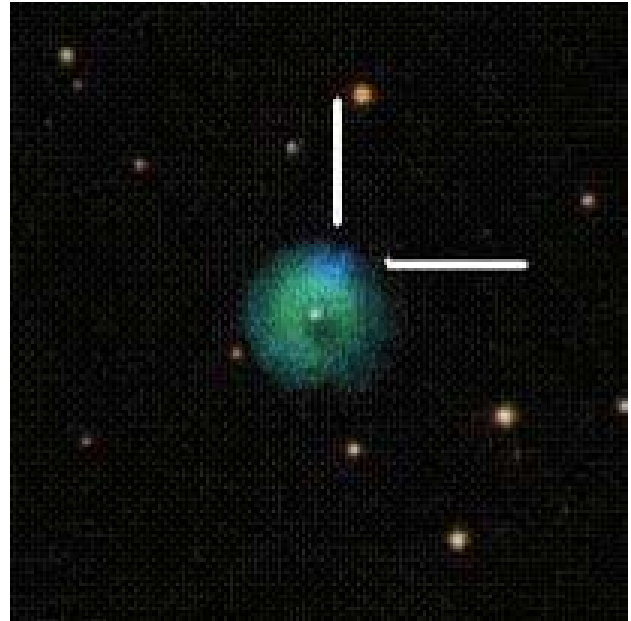
It is shown in the first edition of Uranometria 2000.0 as PK 174-14.1, with the correct planetary nebula symbol.
Sounds like an interesting object. I wish it was clear.

A DSS image shows a relatively bright galaxy about 10' to the south of PK 174-14.1, as well as several fainter galaxies in the neighborhood.

Jimi Lowrey

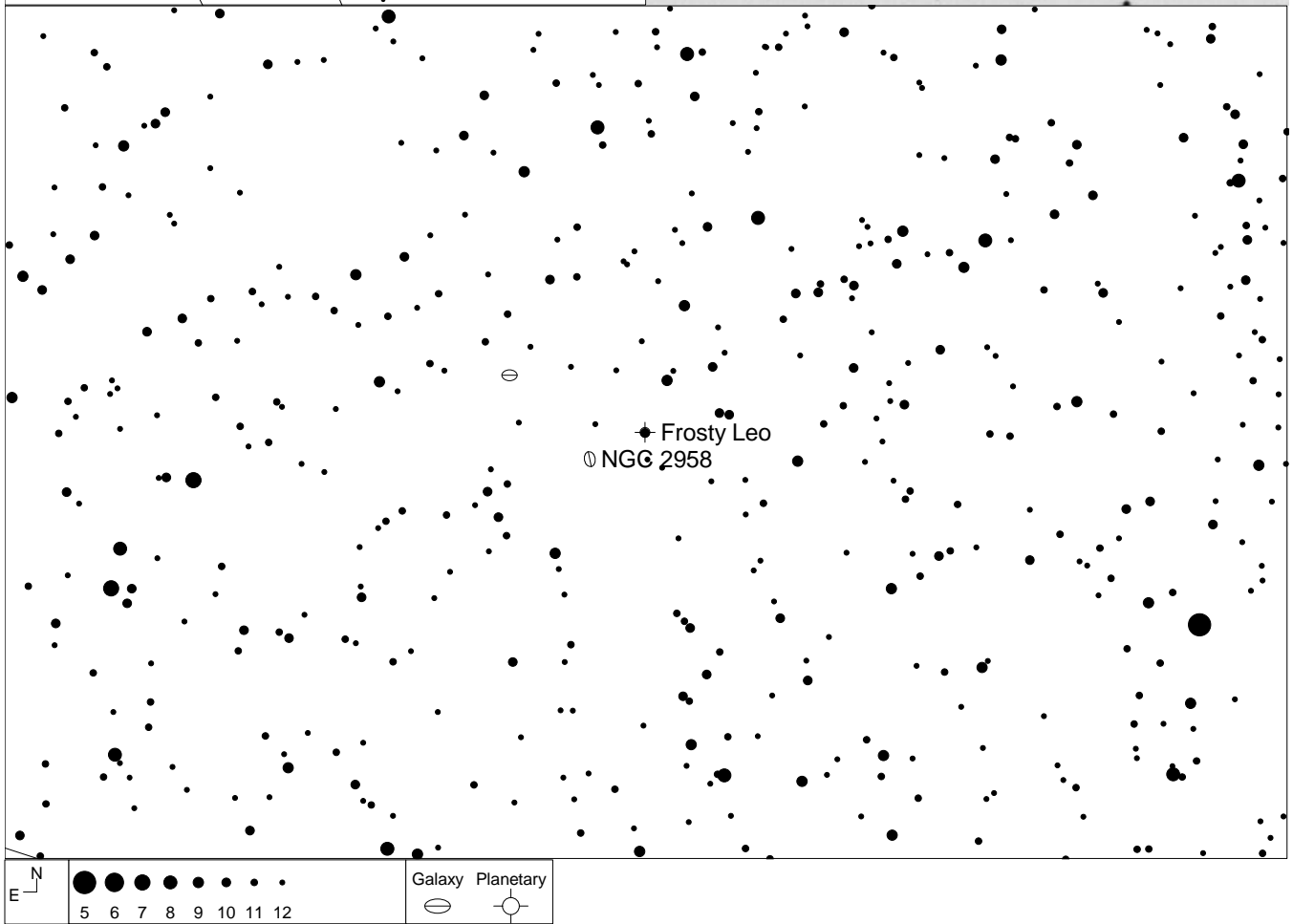
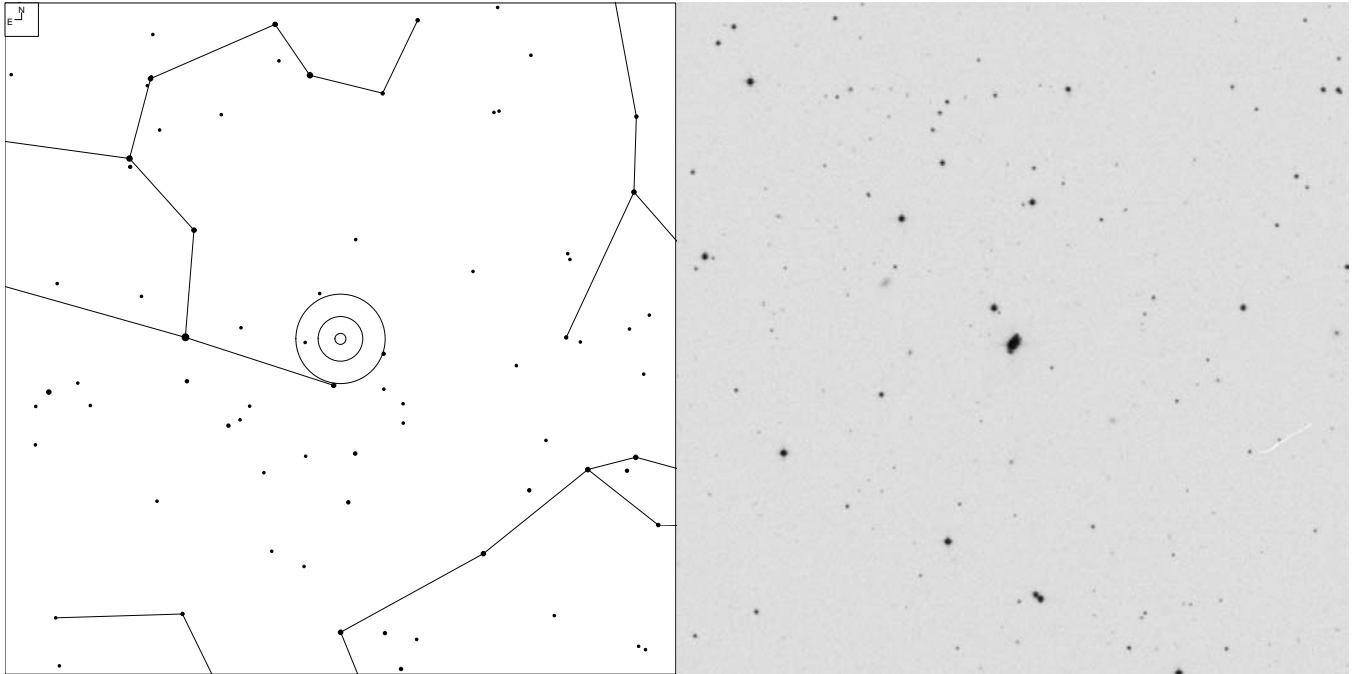
I looked at this nebula again last night with good transparency and fair seeing. On the north side of Haro 6-29 there is a slight brightening with the unfiltered view at 488X. With the NPB filter at 610X it was like someone turned on the patch on the north side. I was surprised at how much brighter the Nebulous patch looked with the NPB filter at this power. It has to be one of the best filter responses that I have had on an object in a long

while! The variable central star was only seen a small percentage of the time with AV only. It must be on the dim side of its cycle.



Nebulous patch

IRAS 09371+1212 – Frosty Leo Nebula (Leo)



Object	RA	Dec	Mag	Size
IRAS 09371+1212	09 39 53	+11 58 52	10.5	12"

IRAS 09371+1212 – Frosty Leo Nebula (Leo)

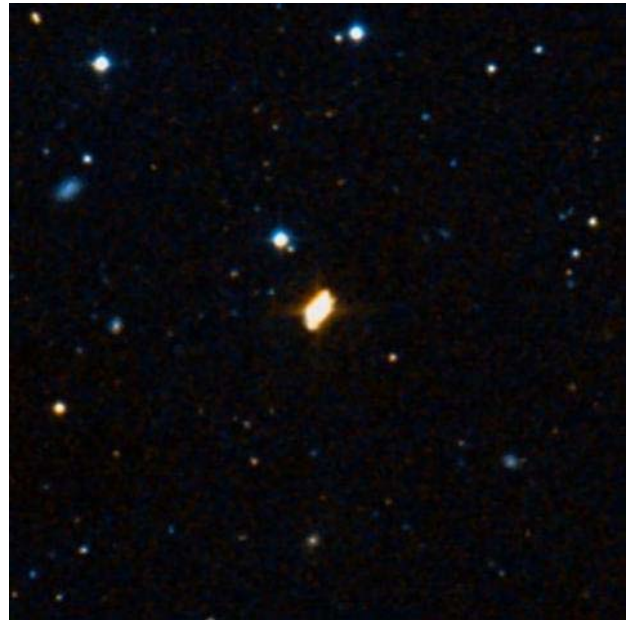
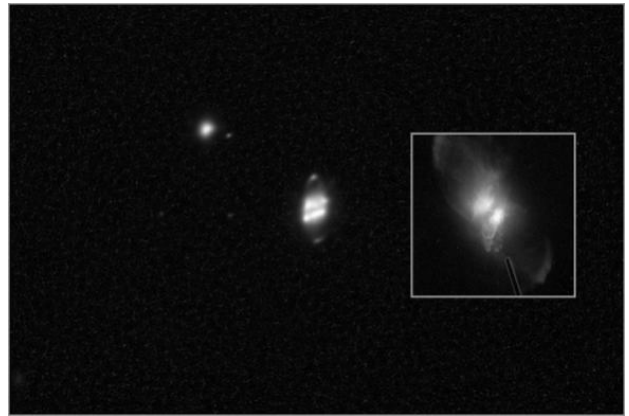
Jimi Lowrey

This bright Proto PN can be seen in most telescopes I have seen reports of it being observed in 6" and 8" scopes. It is a very unique object and was found by the IRAS survey as a very cold object in the far IR. It first appeared in the journals in 1985. In 1987 Forville found it to have H₂O ice crystals in the nebula from the spectrum. He is the one who suggested the name Frosty Leo nebula for its being cold in far IR and for the H₂O Ice crystals.



Hubble Image

I have observed this peculiar nebula many times over the years with my old 25" and my 48" telescopes. I like to show it to people because its one of the few deep sky objects that show color well. It has a ruddy orange color to my eye that shows well. Be sure to use as high a power as the seeing will allow on this object to show its fine detail and color. It has a peanut shape in the eyepiece and a faint anse on each end on nights with good seeing. At low power it looks like a fuzzy elongated star to me. The images below look close to how it looks in the 48" and is close to the color that I see.



Uwe Glahn

Extremely interesting object Jimi, thanks for the cool OOTW.

Last year I spent two nights with good to very good seeing and tried to separate the small but bright details. With 27" and 837x I could detect the two fainter lobes N and S and some detail around the inner part. I took no notice about the color. Perhaps the AP was too little to detect the color? But seeing colors was never my strong point.



27", 837x, fst 6m5+
(cropped from original image)

Jimi Lowrey

Excellent drawing Uwe! I see you used 837x that is what I was talking about using high powers to see the faint detail in this object. I think that it is the best way to see the faint anse of this bipolar nebula. To my eye the color is really prominent. I looked at it twice last week on one night the seeing was bad and the color was not seen on the other night the seeing was average for here and the color was evident so I guess the color is seeing dependent.

Victor van Wulfen

Observed it twice in 2011 in my 12" SCT:

3 May, from dark southern France: *"Quite bright patch, even in brightness with a very bright central part or a very bright central star, very prominent. Just not stellar, although the nebula looks like a large, faint star. Immediately to the NE is a mag. 12 star which is in the tip of an isosceles triangle of stars pointing SW with the base on the NNE side consisting of two mag. 12 stars in a line from NW to SE."*

7 March, from light polluted Netherlands: *"A small, slightly NW to SE elongated patch, just not stellar without use of averted vision, slightly larger and brighter when using averted vision, slightly more round (less elongated), pretty bright. Both a Lumicon OIII and UHC filter have no effect."*

No, just a grey patch. But I didn't actively compare the PN to stars in the vicinity as I do when observing double stars or carbon stars to determine color, or hue (if any).

I will try again in early April from the same spot in France and I will play around with magnifications a bit, looking for color. Will report back!

Reiner Vogel

good choice! I have observed this proto-PN several times, but I never looked for color. I will check this out next time. Color is likely most prominent at low power and I always tried to get to the highest possible power.

My up to now best observation was as follows:

Frosty Leo (IRAS 09371+1212) revealed at 550x a very small elliptical disk elongated in NW/SE direction. During moments of steady seeing, there is a hint of the bi-lobal structure visible in the HST image.

Proto-PN shine by definition in reflected light. Hence there is a fair chance to detect polarization (quite obvious for other proto-PN such as the Egg Nebula and Minkowski's Butterfly). As the nebula is relatively bright, I tested this one as well for polarization. However, no clear angle-dependent attenuation of the nebula could be observed in comparison to the neighboring star.

Jimi asked about polarization filters

I have no idea, which are the best ones. I have two of them, both linear polarization filters in 2" filter mounts. One is an old one from Hoya, the other one is from Edmund Optics

<http://www.edmundoptics.com/optics/p...-filters/52559>

Here is more about my attempts to detect polarization from protoPN and other objects
http://www.reinervogel.net/artikel/polarisation_e.html

Steve Gottlieb

Color in Frosty Leo is quite evident in very evident in real large scopes, but I didn't note it in my 18" back in '96. Here are my last two observations...

48" (4/2/11): at 375x (unfiltered), Frosty Leo appeared as a compact bi-polar nebula containing two knots oriented NNW-SSE. The brighter knot was at the SSE side with the slightly smaller and fainter condensation on the NNW side. Both knots had a slightly irregular outline and were encased in a small common halo that extended ~25"x18". The nebula clearly had a dark orange or ruddy appearance. Located 0.9' SSW of a mag 12.6 star.

33" (2/19/09): very compact, but clearly non-stellar double nebula with two close condensations, appearing like an out of focus pair of mag 12 stars. The southern knot was slightly larger and brighter and the knots were slightly irregular in shape. Also unusual was a definite reddish tint to the nebula.

Howard Banich

I've only had one look at Frosty Leo with my 28 inch so far and it was on a night of poor seeing. Here are my notes and sketch:

"The seeing is pretty soft so I can't see much shape in Frosty Leo - what a great name! - but I do see an elongated core that may be two areas in contact, with a small, tightly bounded faint envelope surrounding it. There's a galaxy nearby, NGC 2958, that's a touch southeast that I mistook for F.L. at first but it seemed too big. Also, F.L. has a faint but unmistakably light blue hue at low power (155x) but it's gone at 408x. (April 30, 2011) 10:54pm, 21.12 SQM."



Thomas Jensen

Finally an object were I can contribute! I've seen this object quite a few times in my 63mm Zeiss refractor. Once I observed it from indoors, looking out a glass door! And it was still easy to see. It is small and elongated at 120x, but very clearly nonstellar. The double core is definitely visible in a 94mm refractor at 520x and there was a hint of other details, but the conditions were unstable and I did not make a drawing.

I am fairly sure the double core must be visible in a 63mm, using 300x - 400x. I'll try it, if it ever clears. My list of things to check is getting horrifyingly long, but the clouds never seem to part.

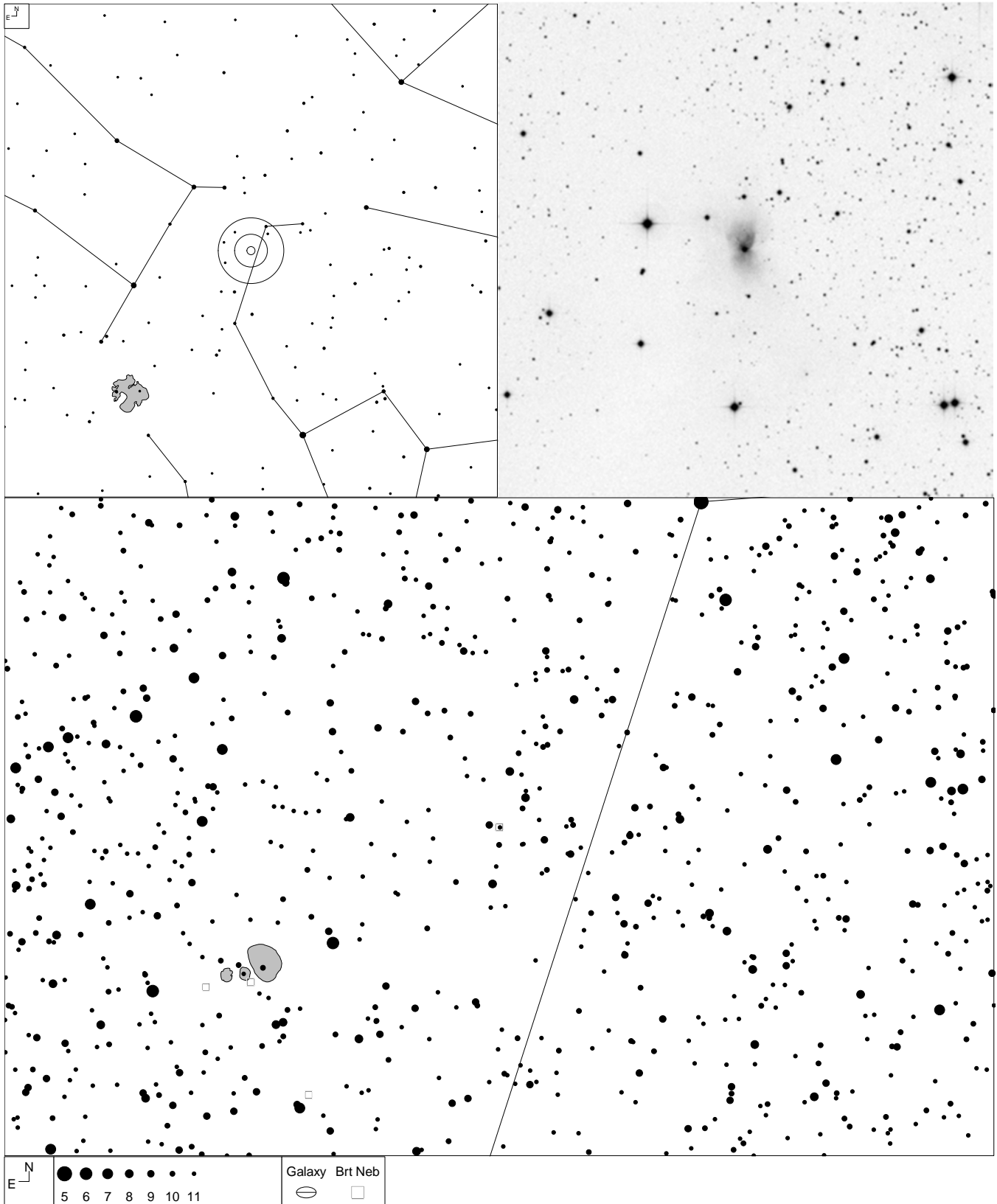
Victor van Wulfen

Visited this PN last night, 12" SCT under very good conditions. *The nebulae was obvious, elongated and non-stellar. No color at 179x, pretty much the same image at 277x. At 436x the elongated, faint outer part became more obvious but remained gray. At the (intentionally) too high magnification of 610x it had a hint of greyish-green, not unlike M57 in 8" scopes.* Speaking of M57, that PN was distinctly bluish green earlier this week using the same scope at 179x. M57's central star remains elusive for me.

Johannes Brachtendorf

I have worked on "Frosty Leo" for two nights using my 25" f 4 Dobsonian. In the first night (with good seeing at 700m) I could clearly separate the two bright lobes at 350x and 500x. The southern half appeared a little brighter and larger than the northern half. But I was unable to see the halo and ansae. In the second night (with good transparency but mediocre seeing, at 950m) I used higher magnifications (720x and 1000x), which made the dark channel between the lobes blur out completely. But the northern wing, especially the ansa, showed up momentarily now, if extremely weak. The southern wing remained invisible. Although I checked for it, I could not perceive any color in "Frosty Leo".

NGC 2163 (Orion)



Object	RA	Dec	Mag	Size
NGC 2163	06 07 49.5	+18 39 27	11*	2.0 x 1.5'

NGC 2163 (Orion)

Howard Banich

Type: Bi-Polar Reflection Nebula

Discovered by Edouard Stephan in 1874 using the 31.5 inch Foucault reflector at the Marseille Observatory, NGC 2163 went missing because Dreyer copied Stephan's declination measurement incorrectly in the first edition of the New General Catalog. For more about the history of how this fascinating object was lost and found again, check out The NGC/IC Project at <http://www.ngcicproject.org/> or O'Meara's Hidden Treasures, pages 174-177.

2163 is a beautiful example of a bi-polar reflection nebula showing two opposing outflows, with the northern flow being the brighter of the two. Notes from my first observation from April 1, 2008 state:

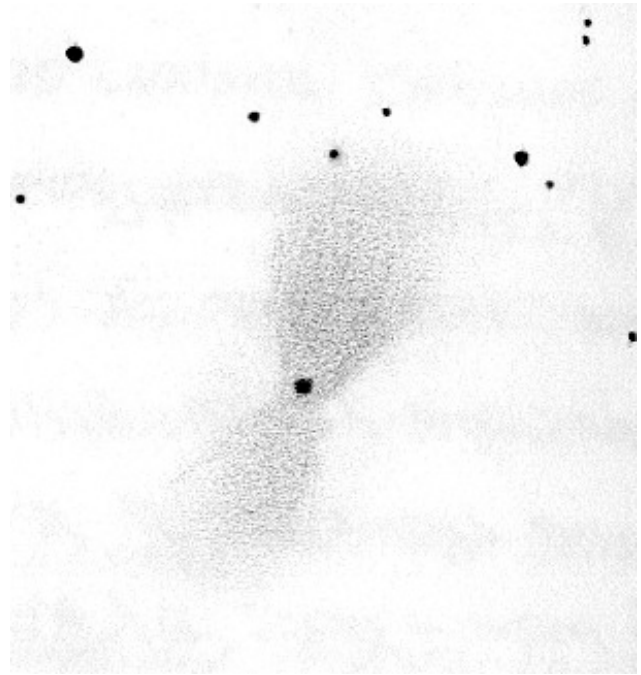
"This bi-polar nebula is considerably fainter than I expected. One side is obviously brighter, but then that's still pretty faint. The best view is at 253x and is slightly enhanced with the broadband filter. This is a nifty object; too bad it's not a little brighter. 10:23pm, 21.20 SQM." (28 inch f/4 from Chuck Dethloff's front yard, 600 feet altitude)

My second observation from September 28, 2008 was a little better:

A much better view of this bi-polar nebula than from Chuck's place – the two flows are quite distinct and relatively easy to see at low power. The northern flow is brightest and most distinct though. Best view at 253x but almost as good at 408x. 4:53am, 21.95 SQM." (28 inch f/4 from Steens Mountain, 7400 feet altitude)

No surprise, this shows how a darker, more transparent sky and altitude can improve an observation, but also that my first observation was pretty good – even though I had to work harder to see 2163 well and I didn't benefit from using a higher magnification.

Here's my sketch from Steens Mountain and a DSS image to compare – note there's a lot of fainter nebulosity in the area.



The pinched waist area was pronounced at both observations, which make the north and south outflows resemble an hourglass, although the nebula visually surrounds the star LkHA 208, from which the outflows originate. I haven't tried a smaller scope on 2163 yet, although O'Meara's sketch in Hidden Treasures shows both outflows and he used a 4 inch refractor. He notes that the nebula seems separated from the star "by a tiny spit of dust" – what do you see?

Uwe Glahn

I'm not the real "nebula guy" but this RN looks pretty cool.

I observed this nebula with 16" and noticed "bright but small RN around 11mag CS; cometary outflows to the N and S; N outflow a little bit brighter and ~1' long; S outflow half as long as N, slim with less cone structure; better defined to the W side"



16", 257x, Seeing IV, NELM 6m5+

Reiner Vogel

this is a nice one! I have observed it a few times with different apertures, also as part of my observing project on Young Stellar Objects here http://www.reinervogel.net/YSO/YSO_e.html.

My notes with 22" are as follows:

Ced 62 (NGC 2163) is a bright bilobal nebula around HBC 193 at the border Orion/Gemini that is visible already in medium sized telescopes. Not precisely like an hourglass, the nebulosity is not fully constricted at the position of the star. W side is better defined. N fan is brighter and larger with a brighter streak at its W border. S fan is weaker and appears a bit separated from the star.

It was also well accessible with my 8" Dob from my suburban backyard and appears then as a diffuse elongated glow around the young star with a hint of constriction.

If I understand it correctly, we are observing here a molecular cloud that has been cleared along the rotation axis of the protoplanetary disk of the YSO, forming a kind of double cone with the star defining the tips of the cones. The light that we see is actually light being reflected from the inside of these cones. This is similar as with Hubbles Variable Nebula or PV Cephei and several other nebula of this kind.

Thomas Jensen

I have observed this one with my 63mm Zeiss. I couldn't really see any obvious details, but there was something "funny" about the star, like it wouldn't really focus.

Andru Matuschka

After my observation (see below) I read Reiner's note: "S fan [...] appears a bit separated from the star." That was exactly what I had noted, too. But it doesn't match Uwe's and Howard's observations. It would be interesting to read whether a bigger telescope could confirm one of the versions?



14", 270x, NELM 6m5, bad seeing

Reiner Vogel

There was the question about what we actually observe: a) the molecular outflow or b) the illuminated inner side of a cone cleared by the outflow in the surrounding molecular cloud. I had always thought it is the latter one, but I did not find the papers where I read this. If I recall it correctly it was from a PhD thesis or a talk by a professional published on the web.

I have also tried to contact a professional astronomer who worked on YSOs. I have also scanned several papers on that but the professionals do not appear to address this question, at least not if it comes to continuous optical emission (outflow is usually studied in emission lines). Now I found one paper that addresses this at least for PV Cephei. The paper by Boyd is here (and it is interesting anyways as it is about the recent variability (for us: visibility :-)) of Gyulbudaghian's Nebula)

<http://adsabs.harvard.edu/abs/2012SASS...31...65B>

Boyd says:

"Light from PV Cephei shining on the inside of the cavity in the surrounding molecular cloud cleared by the northern outflow creates the variable reflection nebulosity variously known as RNO125, GM29 or Gyulbudaghian's Nebula."

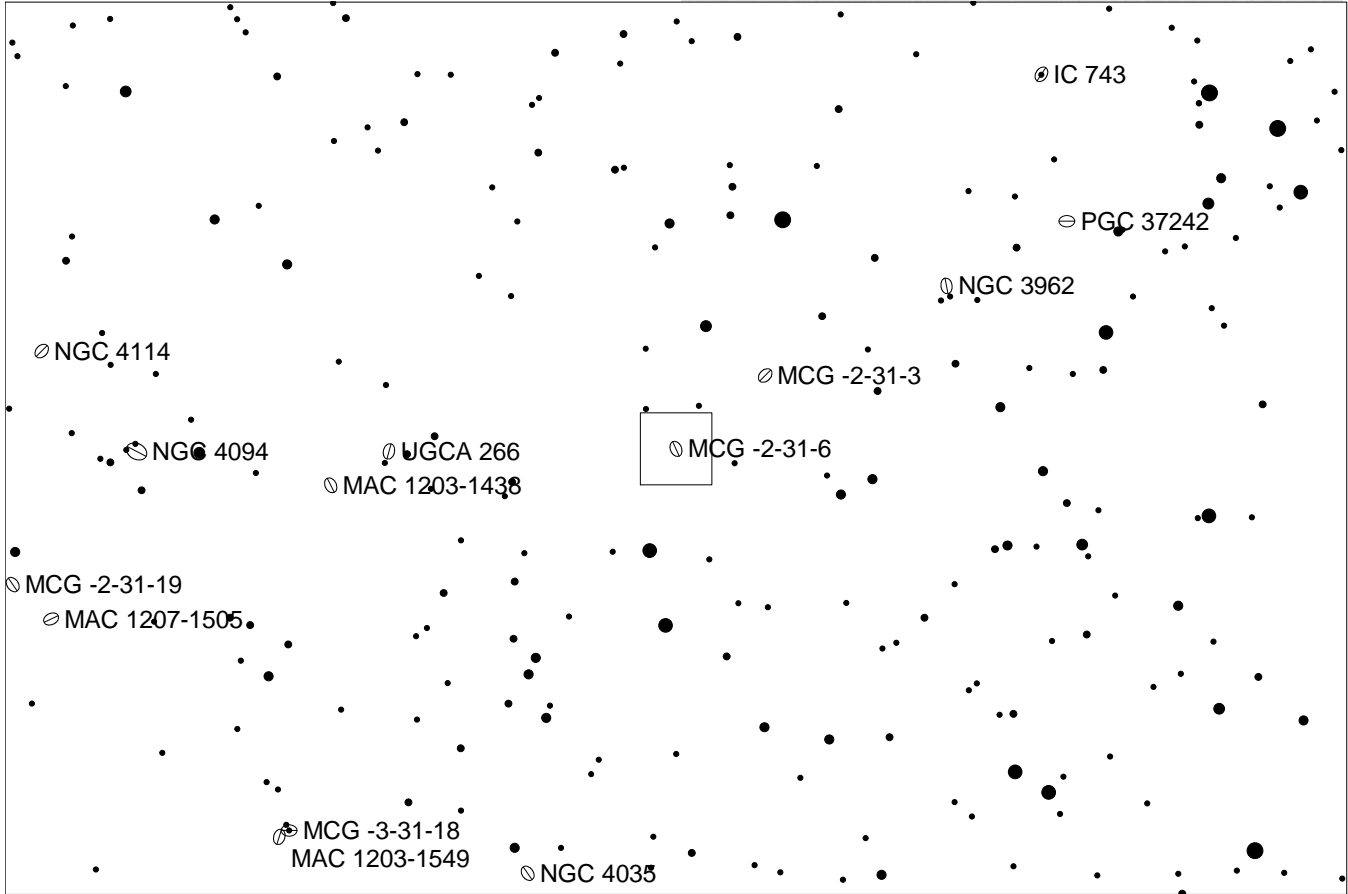
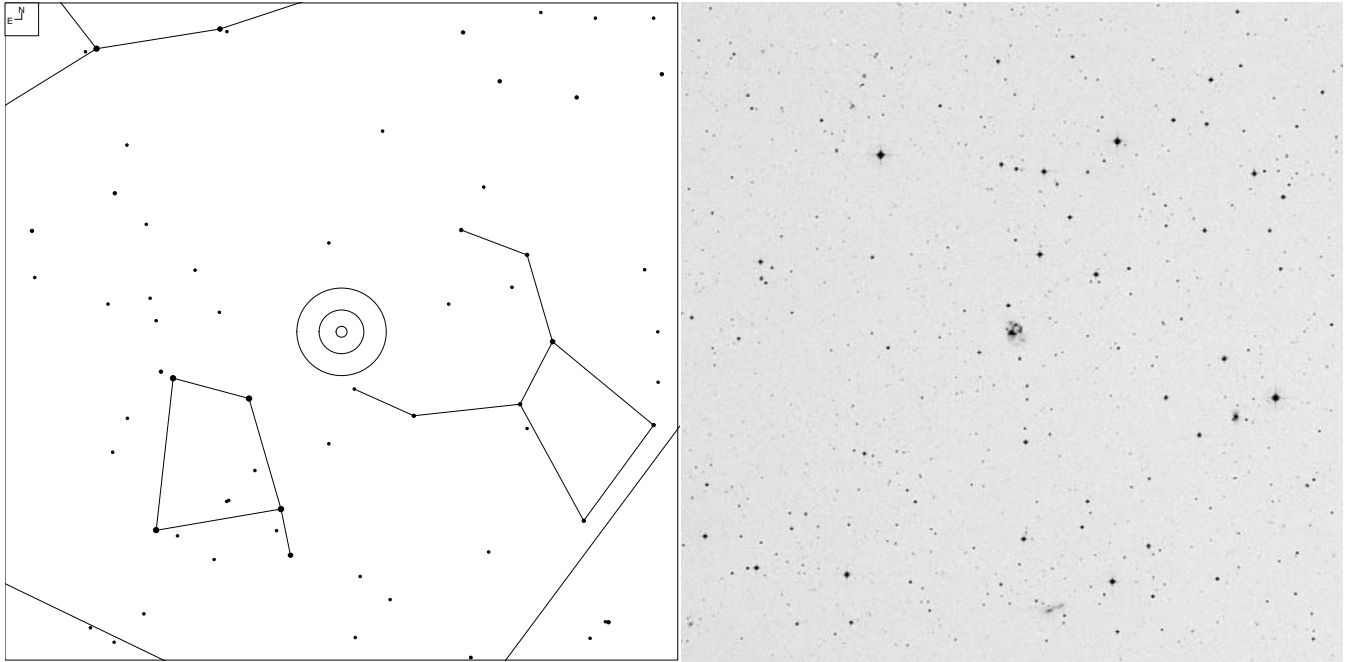
So Gyulbudaghian's Nebula is not exactly Ced 62, but on the other hand, it is not too different. Similar as Howard, I have not found anything in that regard for Ced 62.

As outflow, molecular cloud, jets, and associated Herbig-Haro objects are often confused, I thought it might be good if we find out what we actually observe. If anybody finds further information on this, it would be great to learn about it.

I'll keep you updated if I get a response from the professional astronomer.

PS: I found another interesting site about what we actually see for another YSO, R Mon and Hubble's Variable Nebula by Chris Brown. See [here](#).

UGCA 258 (Corvus)



N
 E ↙

● ● ● ● ● ● ● ●
 6 7 8 9 10 11 12

Galaxy

Object	RA	Dec	Mag	Size
UGCA 258	11 58 25	-14 31 26	14.6v	1.1x1.0'

UGCA 258 (Corvus)

Mark Friedman

UGCA 258 is a collisional dwarf ring galaxy. First cataloged as DDO 103 in 1959 by Sidney van den Bergh in A Catalogue of Dwarf Galaxies. The galaxy received its UGCA 258 designation from a survey of the blue POSS plates by Peter Nilson in the Uppsala General Catalogue Addendum. The morphology classification of UGCA 258 is Im pec – Irregular Magellanic, peculiar. Surprisingly as a relative bright galaxy there is very little known about this unusual galaxy.

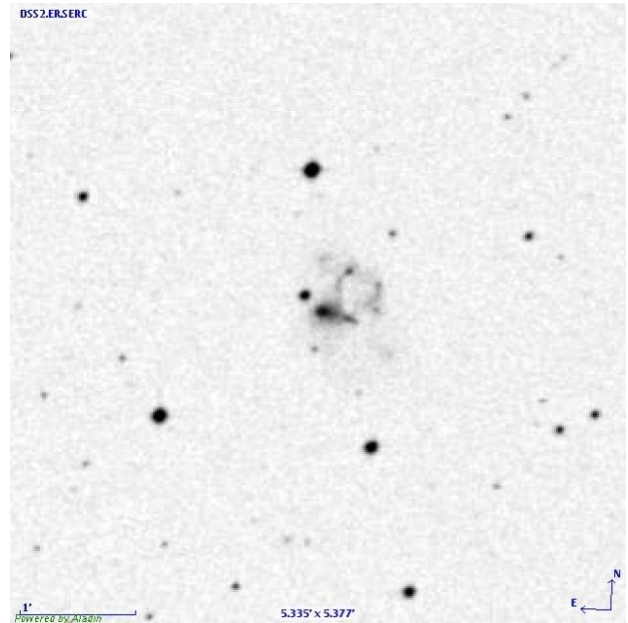
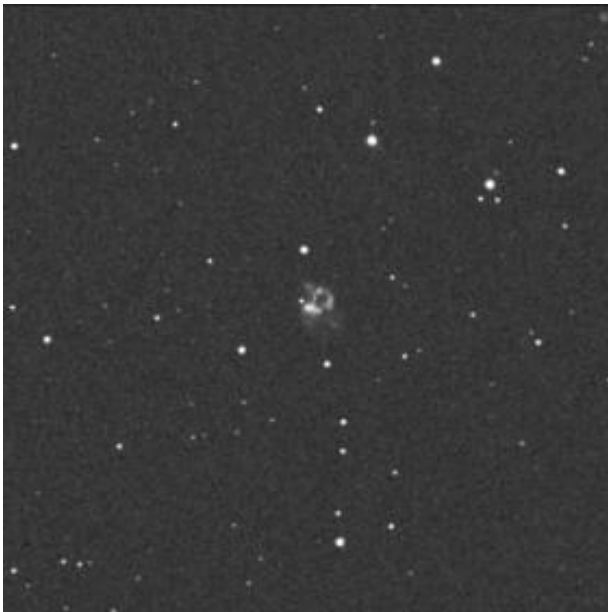
Here are my observing notes from my one and only observation so far of UGCA 258.

March 24, 2012 at the Cosmic Cowboy Observatory - Barbarella (Jimi's 48" f/4)

Seeing above average, transparency 7/10, SQM 21.56

With ZAOII 10mm 488x

found 3 stars of nearly equal magnitude that form an equilateral triangle, they required averted vision and moments of good seeing galaxy bisects the line between two of the stars galaxy was visible with direct vision slightly brighter denser portion, a knot, is on the inside side of this imaginary line, towards the center of the triangle ring portion of the galaxy is outside the line of the triangle



I haven't yet given this one a try with my 15". However it's on my list, as soon as the perpetual Ohio winter cloud cover gives way to some clear spring time skies.

Jimi Lowrey

This ring galaxy is one that is not much known. It is fairly bright for a ring galaxy and there has been little research on it.

Steve Gottlieb

Fascinating looking object, whatever is going on! I'm surprised it didn't catch the attention of Vorontsov-Velyaminov or one of the main papers on collisional rings.

By the way, the De Vaucouleurs classification **Im pec** doesn't refer to "interacting merger - peculiar" - though that may apply here -- but rather "Irregular Magellanic - peculiar"

Mark Friedman

Thanks for your clarification on the de Vaucouleurs classification of Im pec. I will edit the original article to correct.

Galaxy classification is not for the faint of heart. 😊
As I researched this further today I came across a bewildering amount of information, which to a large

extent confused me further. So in hopes of enlightening myself and others, I went right to the source, Dr. Stephen Odewahn, Resident Astronomer at McDonald Observatory, whose Ph.D. thesis was "*Properties of the Magellanic-type galaxies*". Here's what Steve shared with me.

"Im is a Magellanic Irregular. This is common to both the de Vaucouleurs and Sandage systems. So, the m stands purely for magellanic. There are many cases of merging Im galaxies though.

"The Magellanic galaxies are very late-type systems. This means they are disk dominated with little or no hint of a bulge. They often display an asymmetric optical structure, especially the SBm galaxies (barred magellanic spirals). The majority of Sm and Im galaxies are barred."

Steve Gottlieb

The DDO (David Dunlop Observatory) Dwarf catalogue by Sidney van den Bergh was based on their appearance on the POSS I and he used the following two criteria (I'm quoting) ---

- 1) Low surface brightness.
- 2) Little or no central concentration of light on the red prints. In view of the fact that these objects are found to be more frequent in clusters than in the general field, it is reasonable to assume that they are dwarf galaxies. This conclusion is supported by the similarity which many of these objects have to

dwarf galaxies in the local group. Almost all objects which satisfy criteria A and B are probable dwarf galaxies. However, many galaxies which are known or probable dwarfs do not *satisfy* both criteria.

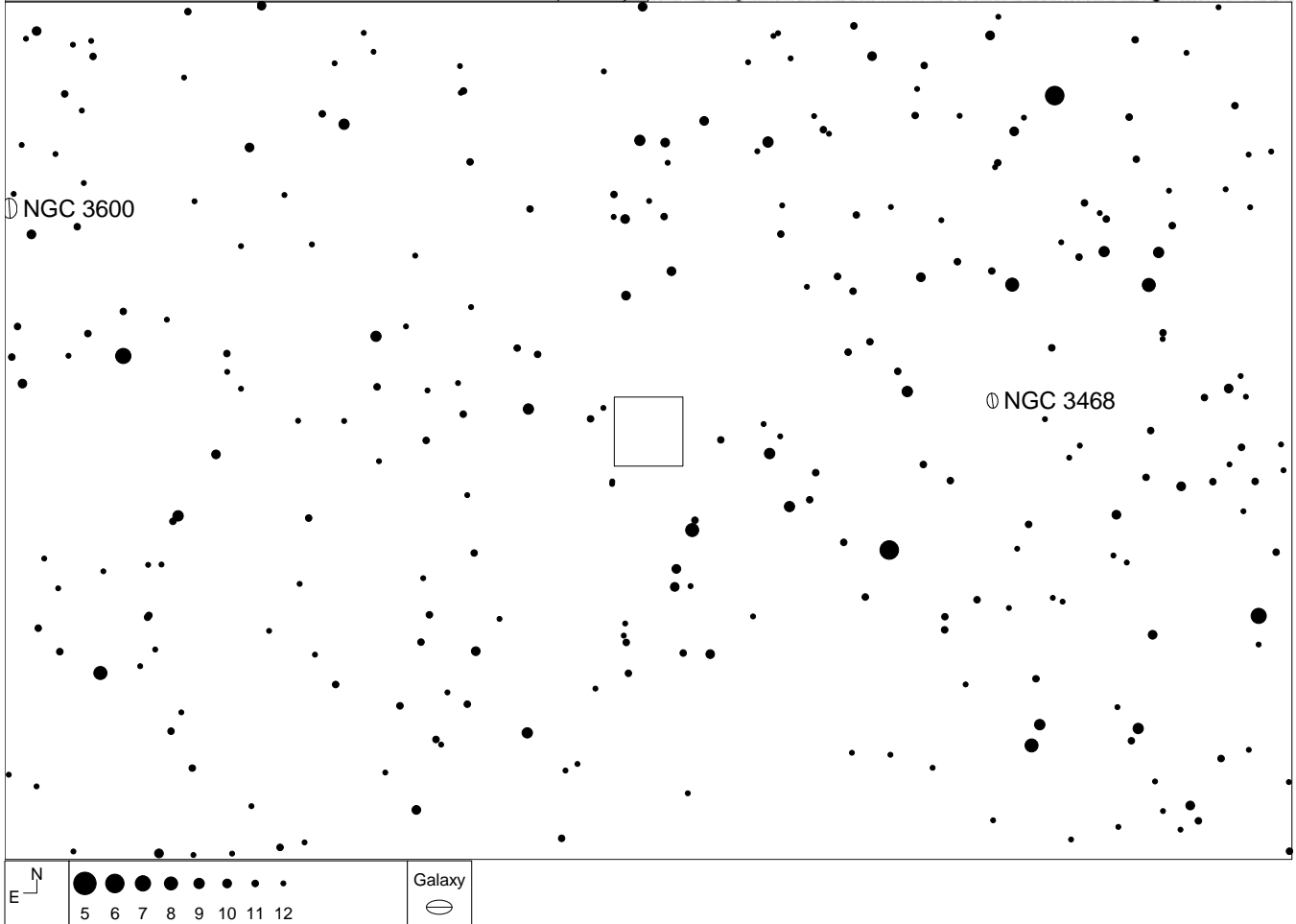
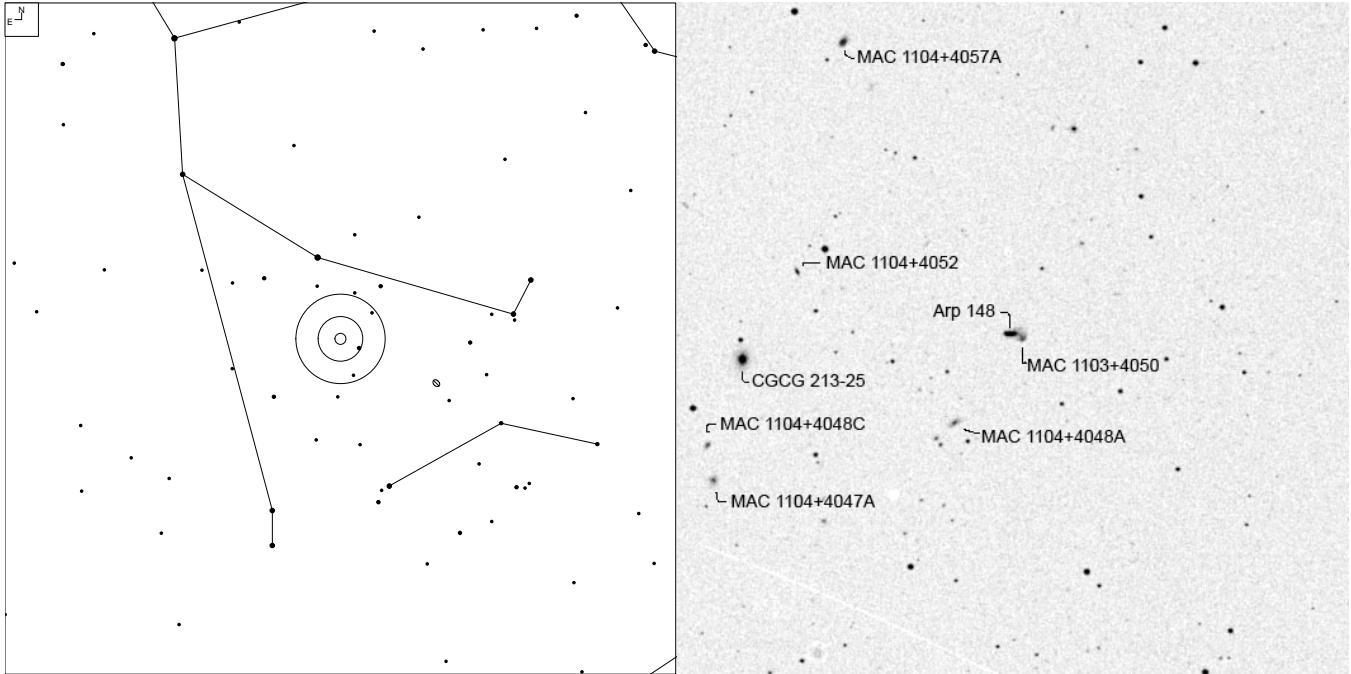
So, his criteria was really one of surface brightness or luminosity and limited by the quality of the POSS I plates.

Steve Gottlieb

I had an opportunity to take a look at this ring galaxy a week ago in Jimi's scope, along with Howard Banich, and its a good one!

48" (4/5/13): at 488x, this ring galaxy consists of several components. On the southeast end is the ring nucleus, which appeared as a very small, round, 12" knot of high surface brightness. A diffuse glow mainly northwest of the nucleus (about 0.4') contains three brighter knots forming a ring. A short, very thin extension to the west of the nucleus forms the brightest portion of the ring. Continuing counterclockwise, there is a very small gap in the ring but on the west side is the second brightest and largest section (~15"x5") which forms roughly a 60° arc. After a small gap on the northwest side of the ring, a quasi-stellar knot defines the north end of the ring. There was another gap on the east side where the ring would attach to the nucleus.

MCG 7-23-19 – Arp 148 – Mayall's Object (Ursa Major)



Object	RA	Dec	Mag	Size
MCG+7-23-19	11 03 53.9	+40 51 00	15.3b	0.5 x 0.3'
MAC 1103+4050			16.5	0.4 x 0.3'

MCG 7-23-19 – Arp 148 – Mayall's Object (Ursa Major)

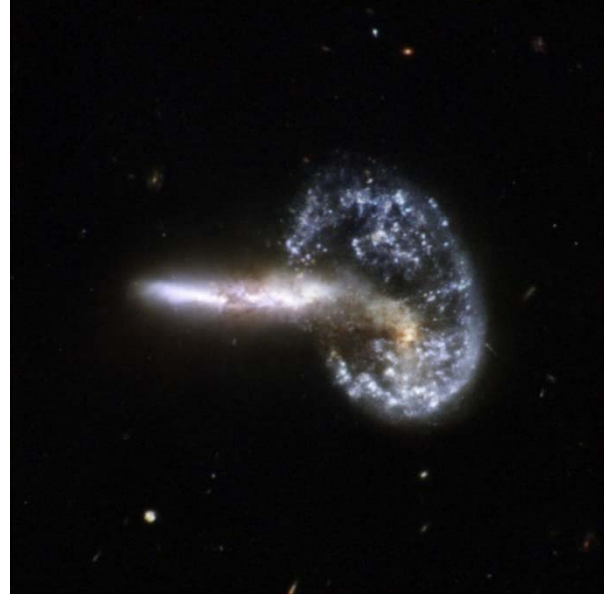
Uwe Glahn

Type: (Collision Ring) Galaxy Pair

Famous Galaxy Pair which ring-morphology was formed by a collision of two galaxies.

The birthday was during the year 1940 when N.U. Mayall discovered this galaxy pair on a photo plate from the famous 36" Crossley reflector of the Lick Observatory. He described the pair as a "[question mark](#)"

Twenty four years later [Burbidge refers more detailed](#) about the object, which was photographed 1961 at the prime focus of the 120" Lick reflector. They first saw details in the ring and the connection between the ring and the cigar shaped part.



Hubble Space Telescope

My observing notes:

16", 360x, NELM 6m5+
easy to see with direct vision, small, 1:2 E-W
elongated, no ring structure

27", 586x, NELM 7m0+
bright but small galaxy (pair); 1:2 E-W main body
with brighter spots at the ends; W following a very
faint, round glow; better defined S edge; no
structure within the ring



Lick 120"

Finally the HST showed us the great amount of detail in the shockwave and the main body.



27" Newton, 586x
(cropped from original image)

Jimi Lowrey

Uwe, I took a quick look at this unusual cosmic crash last night under less than perfect seeing. I had forgotten just how bright the edge on galaxy was. It looks much brighter than the listed magnitude. I will revisit it again soon when I have better seeing and report back.

Uwe Glahn

good to know, I also had the feeling, the the 15,3bmag could perhaps be to faint for the object, when I looked at it with the 16".

I would be very interested how the ring is visible in your scope - is structure within reach?

Alvin Huey

Great object!

I've observed it through Jimi's 48" last year. One of the highlights as I was a little surprised how bright the penetrator was. There were three bright knots along the middle. Anyhow, here are my notes

Arp 148 – MCG+7-23-19 and MAC 1103+4050 in Ursa Major

48" (488 and 610x) - The penetrator is a 3:1 elongated fairly high surface brightness glow with defined edges. The interesting feature is that it has 3 bright knots along the middle. The ring galaxy is considerably faint and even surface brightness with defined edges.

With my 22", it was not very detailed. My notes are below. Thinking about it, I think I saw only the penetrator, not the ring.

22" f/4.1 reflector @ 255, 305, 377, 458 and 575x (NELM: 6.8, seeing: 4/5, transparency: 4/5) MAC 1103+4050 required 575x and steady skies to be spotted intermittently as an extremely faint round patch.

MCG+7-23-19 is a considerably faint, 3:2 elongated patch with no central brightening. PA = 100° and 20" long.

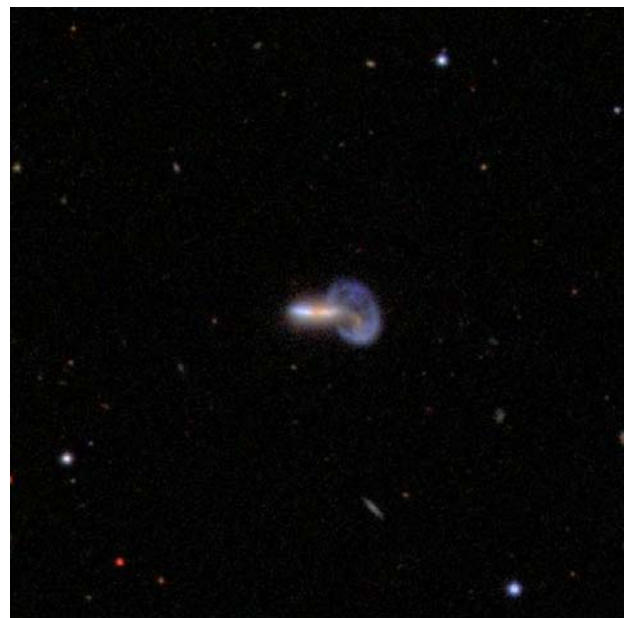
Lou Behrman

I observed this with Ursa from a fairly dark site in Western PA this past Friday night (4/5/2013). Seeing was okay. About 3/5 with excellent transparency (SQM 21.32 at the time of observation). Used my new 4.5mm Delos generating 406x. The "Penetrator" (as Alvin called it) was actually quite easy. High surface brightness edge-on in format, but I did not resolve the brightened areas Alvin referred to. Seemed to be a pretty consistent brightness its entire length. No joy on the disc (ring). Even when pushed to 523x. Not sure why that would be, as the images I've seen seem to make it appear almost as bright as the main galaxy.

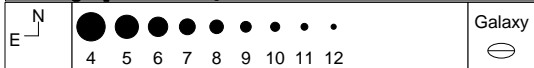
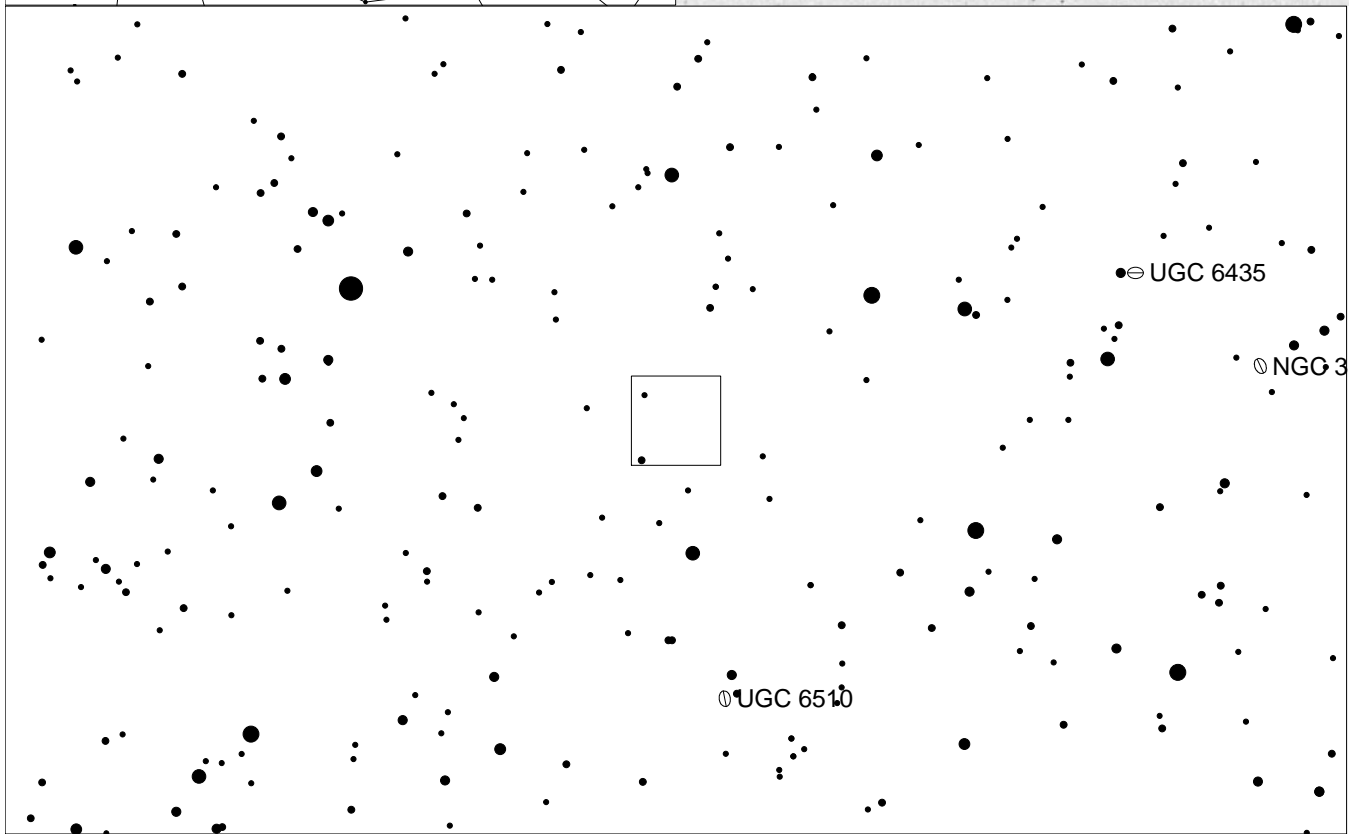
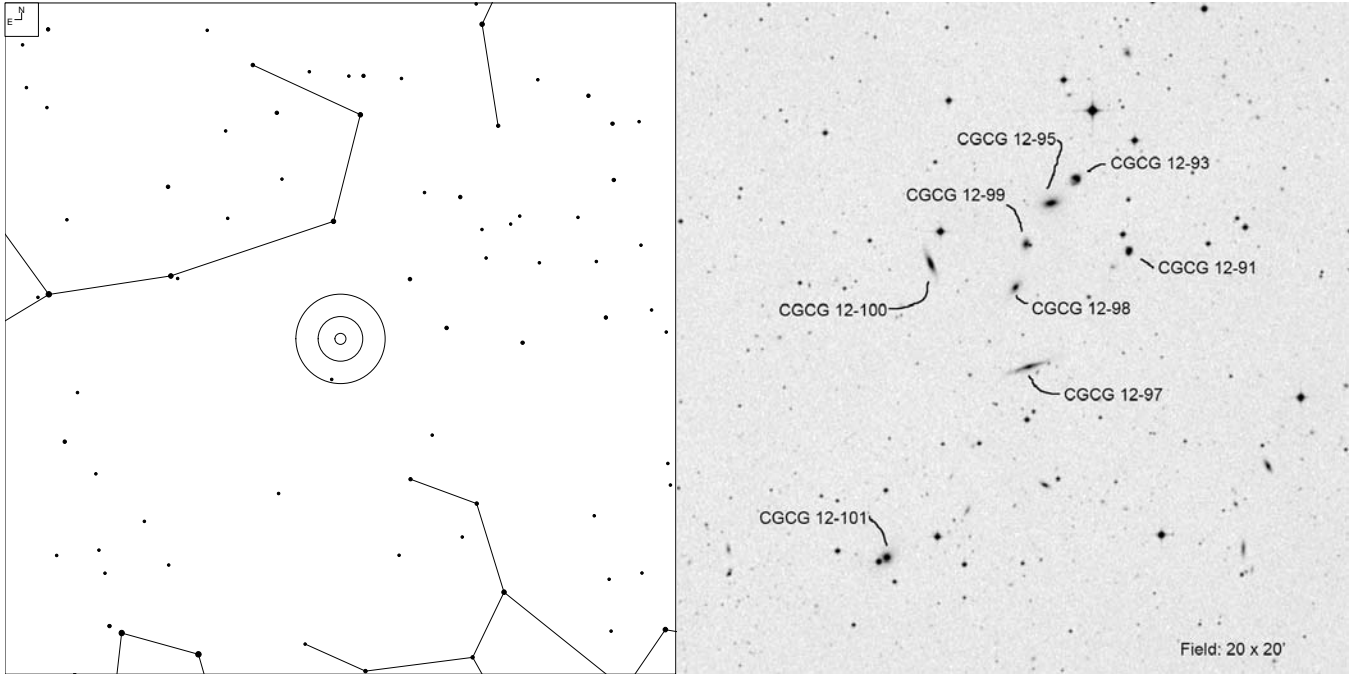
Any thoughts as to how bright the disc portion really is?

Jimi Lowrey

Using the SDSS photometry the brightest part of the ring is approximately 16.16 V Mag and the faint ring is much fainter. From my experience with the SDSS images when the object is blue looking it is low surface brightness.



The MKW 3 Compact Septet (Virgo)



Object	RA	Dec	Mag	Size
CGCG 12-91			15.3	0.3 x 0.2'
CGCG 12-93			15.3p	0.4'
CGCG 12-95			15.0p	0.6 x 0.4'
CGCG 12-98	11 49 37.3	-03 31 43	14.8p	0.8 x 0.3'
CGCG 12-99			14.2p	0.5 x 0.3'
CGCG 12-97			15.2	1.9 x 0.3'
CGCG 12-100			14.9p	1.2 x 0.3'

The MKW 3 Compact Septet (Virgo)

Steve Gottlieb

Any fan of compact groups is familiar with Stephan's Quintet (HCG 92), Seyfert's Sextet (HCG 79) and Copeland's Septet (HCG 57). But MKW 3, another excellent septet challenge, seems to have flown below amateur radar! Just like the more famous Copeland's Septet, this compact septet is squeezed into a mere 6' of sky and even the magnitude range is similar (MKW 3 is a bit fainter). Furthermore, 4 of the members are arranged equally spaced in a neat 3' chain!

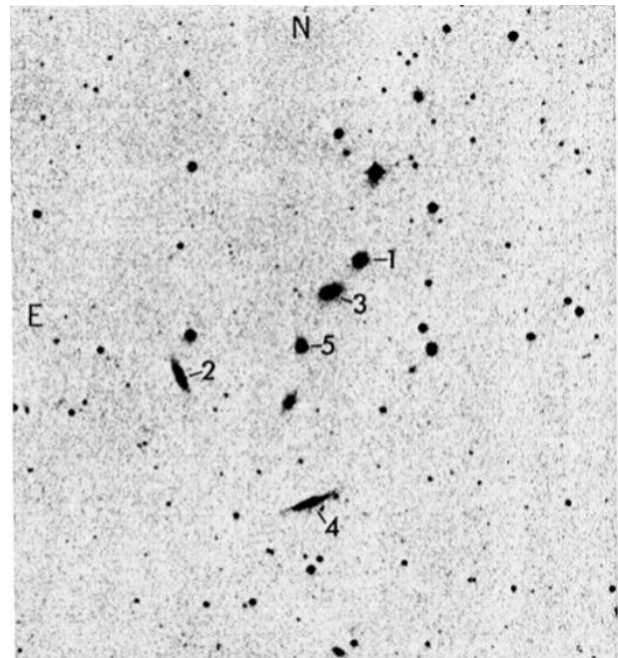


So why has MKW 3 escaped notice? The other groups were discovered visually and contain NGC numbers. Furthermore, Paul Hickson included them in his famous catalogue of compact groups. But MKW 3 was discovered on the POSS and contains only CGCG, MCG and PGC designations. The labeled image above gives all the CGCG designations. As far as catching my attention...

In 1974 W.W. Morgan, Susan Kayser and Richard White carried out a search of 73 northern POSS plates looking for potential giant cD galaxies lurking in poor clusters, where they are not generally found. Their paper titled "cD galaxies in poor clusters" was published in the *Astrophysical Journal*, Vol. 199, p. 545 - 548 and included 12 northern candidates (MKW 1-12) as well as 4 supplementary groups. Their search continued and a second paper ("cD galaxies in poor clusters. II") by Albert, White, and Morgan was published in 1977, resulting in AWM 1-7. In March 2011, I highlighted AWM 1 in a *Sky & Tel* "Going Deep" article.

As far as MKW 3, the entire septet fits nicely in a 11' field using my 24-inch at 375x (6mm Delos) and requires just enough work to be a little challenging to capture all 7 members. CGCG 12-95 is the brightest member and appeared fairly faint, elongated 3:2 WNW-ESE, 25"x16", brighter core. Visually, the faintest couple of galaxies seem a bit below the usual CGCG limit (15.7 μ g), with CGCG 12-97, a thin edge-on at the south end of the group, the most challenging.

I'm surprised Hickson didn't include this group in his catalogue, though perhaps it didn't quite meet the isolation criteria. What the smallest aperture that can capture the entire septet? (Image below from the MKW paper)



Jimi Lowrey

This is a great group Steve. I too have wondered why it is not in the Hickson catalog.

It's been a few years since I last viewed this group. Larry Mitchell had MKW 3 on his Texas Star Party Advanced Observing list in 2009. I remember much discussion about this fairly bright group at that time.

All you galaxy group fans should give this one a go, I am sure you will like it.

Mark Johnson

I'm down for this one next time. From the megastar magnitudes it seems doable in my 18" with small mag 15.3 as the dimmest two. The elongated CGCG 12-97 could be beyond my reach but what the heck, 'give it a go' I will.

In any case it is a good one Steve, Thanks!

Lou Behrman

Looks like an interesting one.

Just added it to my April list for (hopefully) a return to Pettigrew or Cherry Springs.

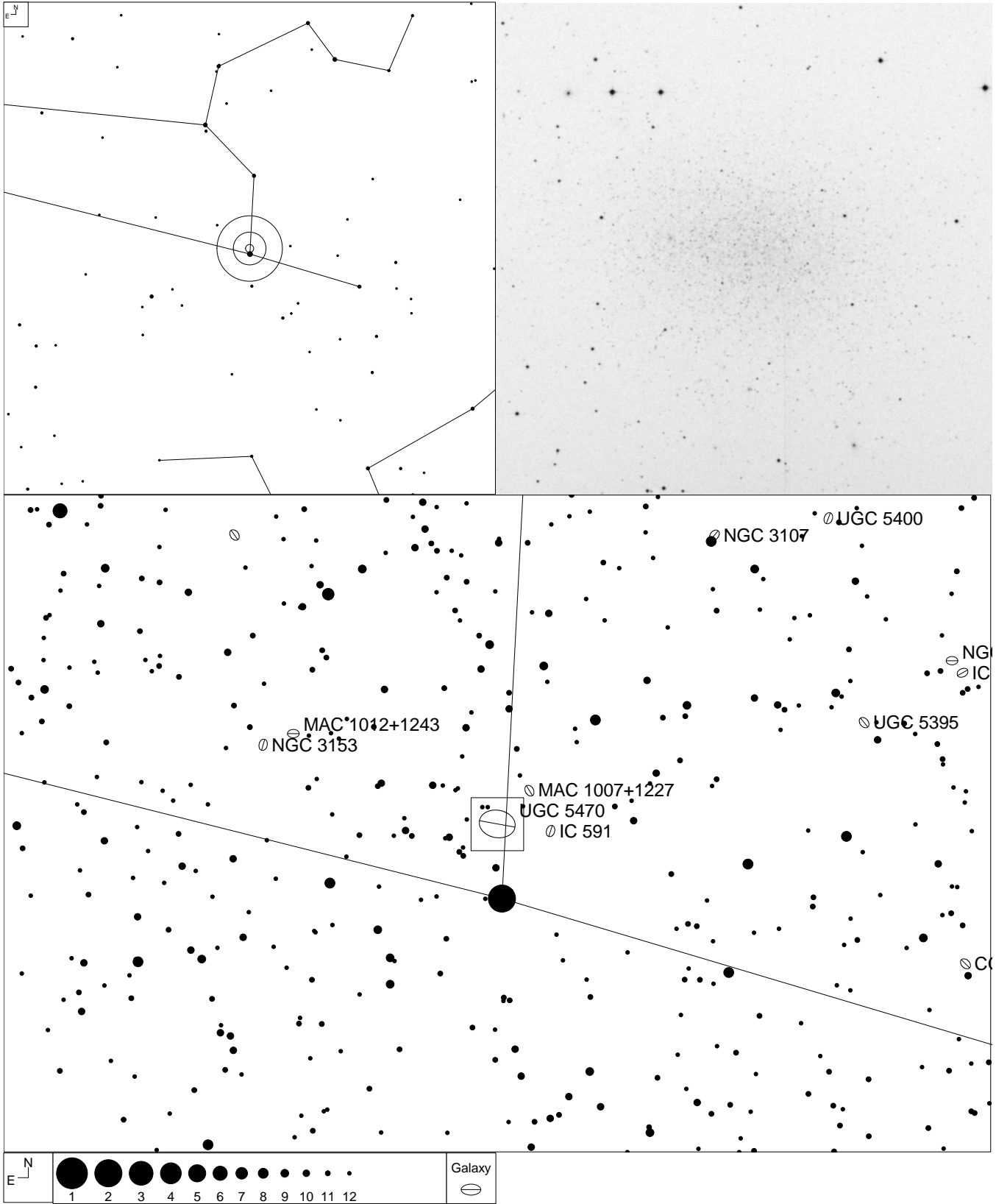
I agree with Marko, the 7 brightest all seem to be well within reach of Ursa. Plus will definitely be trying for some of the other, fainter galaxies in the area.

Steve Gottlieb

Looking forward to hearing your results, Marko and Lou. The members of MKW 3 are only 18" to 25" in diameter, so it really helps to pump up the magnification. I'd suggest at least 270x in your 18-inch scopes.

Also, like a number of groups MKW 3 has a higher redshift member -- CGCG 12-91, which may be in the background of the remaining sextet, which have nearly identical redshifts.

Leo I Dwarf (Leo)



Object	RA	Dec	Mag	Size
Leo I	10 08 28	+12 18 27	11.2	9.8x7.4'

Leo I Dwarf (Leo)

Alvin Huey

Leo I is a local group dwarf spheroidal galaxy located about 900k light-years distant. It is thought to be one of the most distant satellites of the Milky Way galaxy. 1950 by Albert George Wilson discovered Leo I in 1950, by peeling through the POSS-I plates taken with the 48-inch Schmidt camera at Palomar Observatory. Leo I was one of the four local group dwarf galaxies that he discovered by looking over the POSS-I plates.

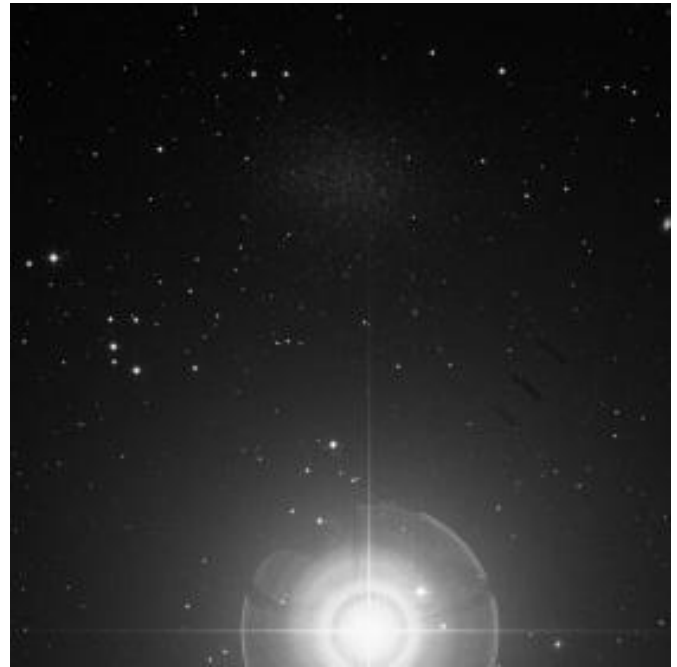
To date, no globular clusters have been found to be associated to Leo I.

Leo I is located 20' north of Regulus, thus sometimes called the Regulus Dwarf. This object was detected visually with telescopes as small as 4". From Cloudy Nights, Bill Ferris seen it twice with his 6" reflector. Noted that the key is not higher magnification and Regulus need to be off the field. Dan from CN saw it in a 132mm William Optics refractor. Don Pensack saw it in a 6" f/5 telescope. Sue French observed it at 87x with her 4" refractor.

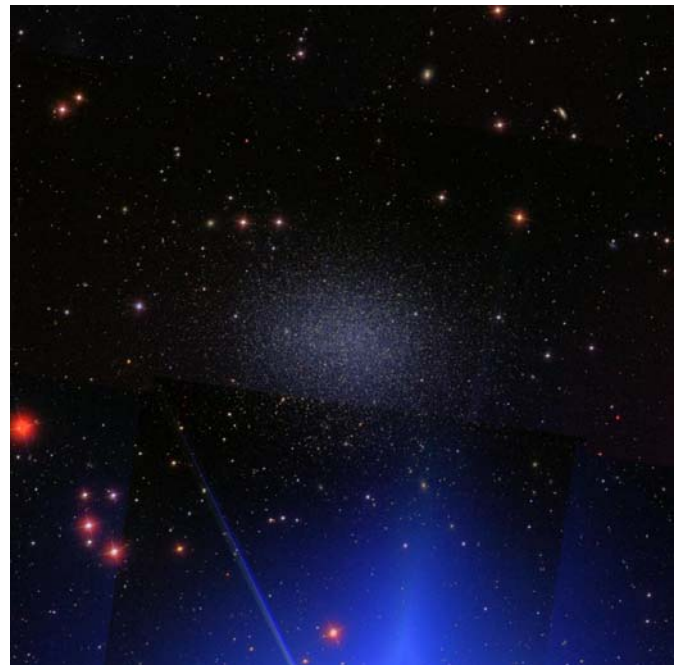
Personally, I have not looked for it in anything smaller than my old 6" f/6.5 achromat. With that telescope at 76x using the 13mm Ethos, it was a 3:2 elongated large very low surface brightness glow with very ill-defined edges. I've seen it many times with my 22" reflector at 96x with a 24mm Panoptic, but with no detail, just a large low SB glow with ill-defined edges. Nothing else. Once Regulus pops in the field, Leo I is not visible.

I think I would like to give this galaxy a shot with my 4" f/11 refractor.

On a side note, I've uploaded a major updated Local Group Observer's guide available for free download on my [website](#). Leo I is on Page 55



DSS image showing its proximity to Regulus



Sloan Digital Sky Survey image

Lou Behrman

Actually observed this through Ursa during the 2012 Texas Star Party.

This will make an excellent target for the April window just to test the improved contrast after the refigure. Should be an interesting exercise. But will be needing some dark skies to pull it off.

Al Lamperti

Lou,

You are correct about needing truly dark skies. Reviewing my notes, an attempt from the Poconos at Walters Dam (Blakeslee, PA) back in 2002 indicated the center was an averted vision object with a 20" f5. Getting away from the East coast is a must for a better view.

Mark Johnson

Regulus is a key issue with this one for sure. To see it in a 4" seems extremely difficult to me but I have not tried so that was interesting.

Sue French (also here from time to time on DSF, 'Hi Sue!') has reported use of a trick, I think for Abell 12, where an eyepiece is fitted at its focal point with a mask that may be as simple as black tape or cut-out black thin construction paper or foil. This trick allows you to get the star you want to blank out out of the way while still having the object you want to see fairly close to center. This trick may be a good one for Leo I which I have seen a few times in the 18" by placing Regulus off field but sure would be nice to try other contrast improvement techniques like this. This mask is placed at the point that reticles are often used so the plane of the mask is at a focus point for your eye. I have in the past inserted my own custom grids at that point and my experience is that for several eyepieces that point is where the plastic may meet the metal internally. (Some experimentation required) It is also at the point of the field stop I should think.

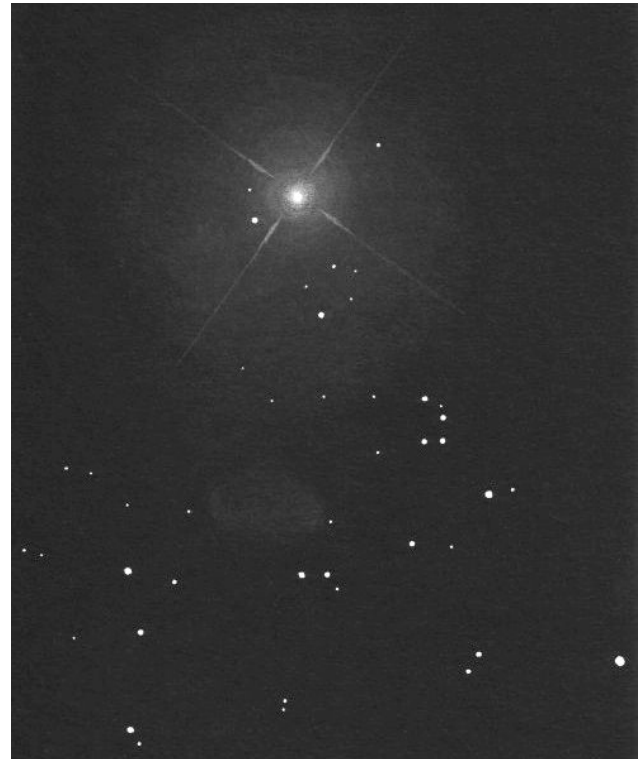
Uwe Glahn

Cool object near the lighthouse Regulus.

I tried the object several times with my small 4" f/4 Newton. With 18x (AP 6mm) under good sky conditions (NELM 6m5) I noticed:

"very tough object with 4", the halo around Regulus is clearly larger and better defined to the N - seems like a big knot in the halo, no elongation or clear separation out the halo"

With my old 16" the galaxy was always an easy target when the sky was transparent enough. My best AP was always around 5mm AP, perhaps because of the near Regulus. With 16" and 75x I wrote: "easy to detect, can hold galaxy steadily also when Regulus is in the field, elongated 2:1 E-W, structureless, at the E and W end faint 14,5mag stars, no stars within the dwarf"



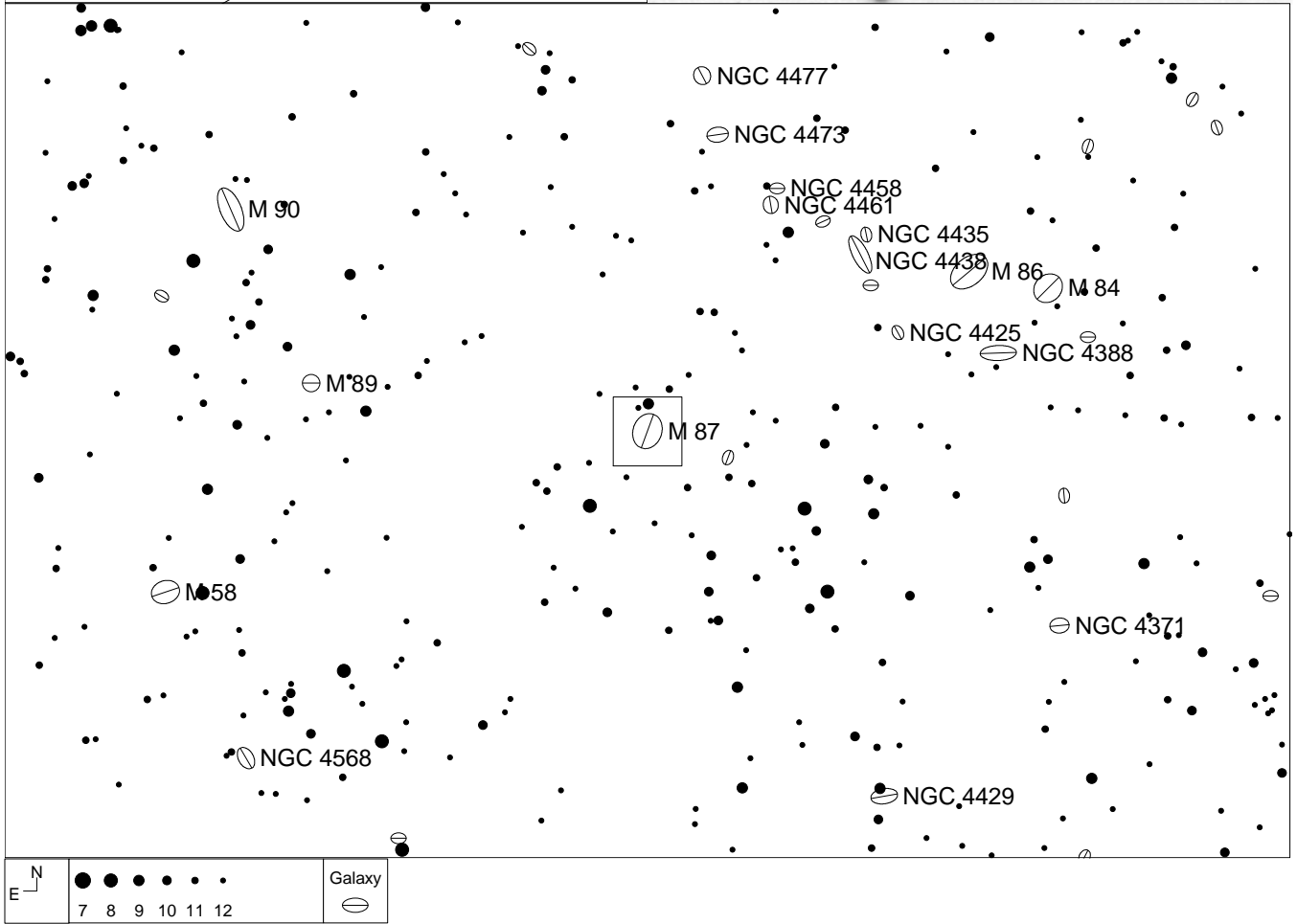
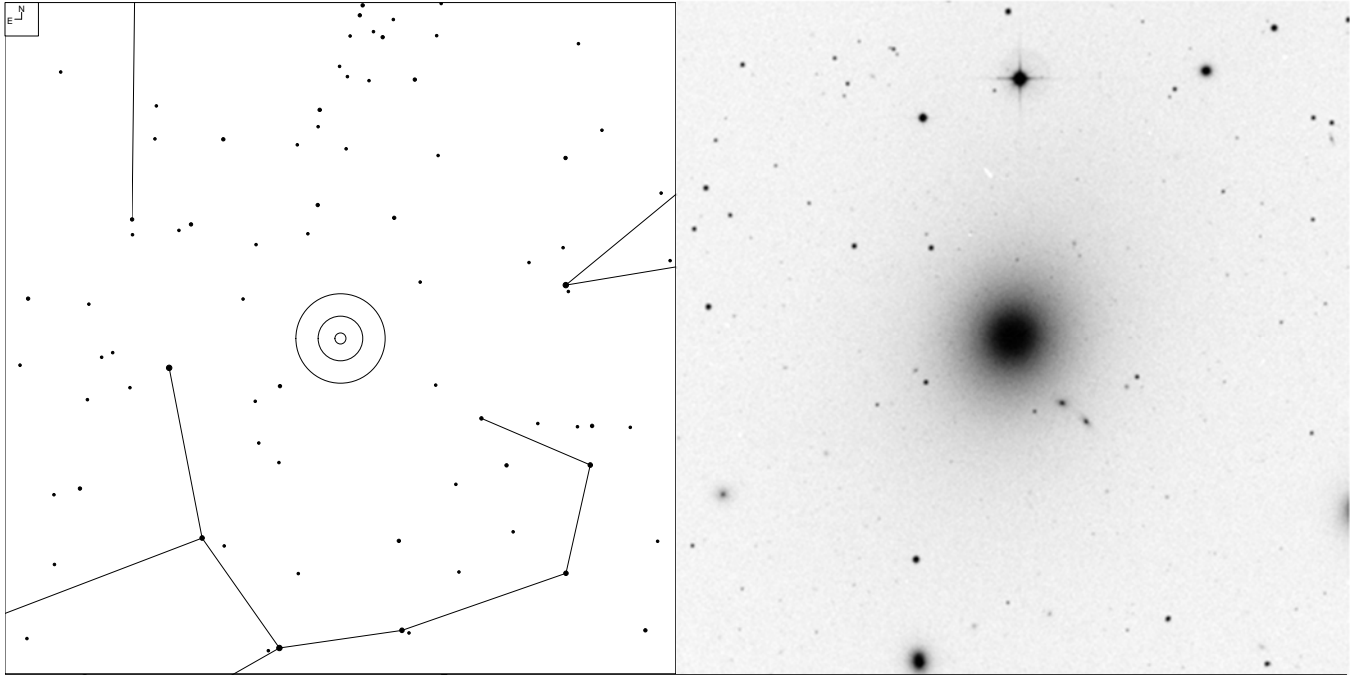
16", 75x, NELM 6m5+ (S up)

Massimo Vesnaver

I saw Leo I with my 14" at low magnifications in April 2011 in Val Visdende.

It was a very humid night sky with a 21.7 sqm, it appeared as a "puff of light", quite large, it seems a ghost vision and nearby I saw more clearly the IC-591 (mag 14,3) which appeared as a speck of light.

M87 and the DRAGN within (Leo)



Object	RA	Dec	Mag	Size
M-87	12 30 49.7	+12 23 24	8.3	7.4 x 6.0'

M87 and the DRAGN within (Leo)

Dragan Nikin

This week's OOTW isn't just about M87 itself. It is about a little known group of objects that M87 represents. Deep within M87 lays an object that is still quite mysterious to astronomers. A true monster if you will.

M87 harbors a [DRAGN](#) or a *Double Radio Source Associated with a Galactic Nucleus*. Much is still being learned about DRAGNs such as what exactly constitutes one, how many are there and how they are formed. There does seem to be a few criteria that are required for a DRAGN to be recognized, such as:

- DRAGNs are exclusively associated with elliptical galaxies.
- Most are associated with extremely large black holes some of which are on the order of millions of solar masses.
- DRAGNs will always have 2 opposing lobes as well as 2 opposing jets. The lobes will contain no more than "2 hotspots" (see image below)

Interestingly these jets, such as those in the quasar 3c405 (Cygnus A), are believed to be traveling at large percentages the speed of light! One more tidbit, DRAGNs can vary in size from the smallest being approximately 30 light years across to the largest being true behemoths at over 6 million lys across, vastly larger than its host galaxy!

Unfortunately, the lobes and jets that comprise a DRAGN are typically invisible to us visual observers. After all, they are radio sources and lie deep within giant ellipticals. But I bring to you this list more for the mental gymnastics that is associated with such an exotic object. As you observe the DRAGN catalog, know that you're looking at objects that are true monsters! The radio images [here](#) are breathtaking, especially the stacked images that have both radio and optical imagery superimposed on each other. They give a good representation of just how large these objects are relative to their host galaxy!

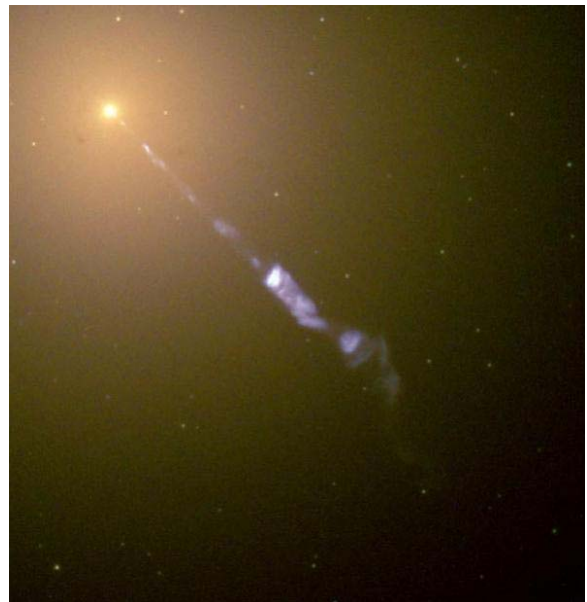
The list of known DRAGNs contain 85 different objects, 55 of which are dimmer than 16th magnitude. *Save those for the most ideal of conditions!* 🤩 15 objects on the list are in the 13 – 16th magnitude range and the remaining 15 objects are brighter than 13th mag. Of this last group, several are well known. M84, NGC 383, NGC 1275

and NGC 6166 are all DRAGNs. But the title for "Most Famous DRAGN" has to be given to M87.

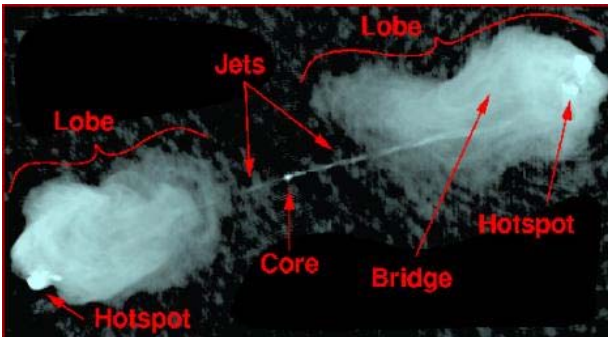
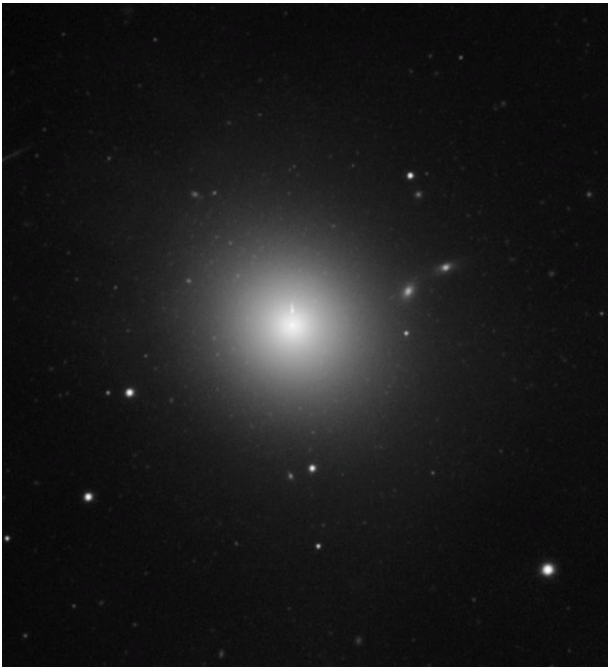
M87 is a type E+0-1 pec galaxy in Virgo. The jet of M87, which has been a deep sky challenge for as long as I can remember and is practically on every challenge list you receive at spring starparties, is typically reserved for the best of conditions. Little did I know the night I first observed the jet that it was only one half of a DRAGN. And if the jet wasn't enough to challenge your skills and equipment, M87 holds even more challenges. UGC 7652, a 16.4 mag glow and 16.0th magnitude MAC 1230+1221 both of which are background galaxies seen through the halo of M87. (UGC7652 lies in between M87 and the MAC) Which have you seen? Here's a tip to remember, don't make the mistake I did the first time thinking the UGC is the jet. It's not!

The list of DRAGNs and their host galaxies will make a good novelty challenge for any observer. Some are relatively bright at 9th mag. Others will be impossible at 20+! But for the ones we can see, it is just really incredible to know that something truly unique is going on in the cores of these galaxies.

So download the list [here](#) and add them to your list of targets. Some objects will be old friends and others may be new.



(Hubble Space Telescope jet image)



Typical DRAGN

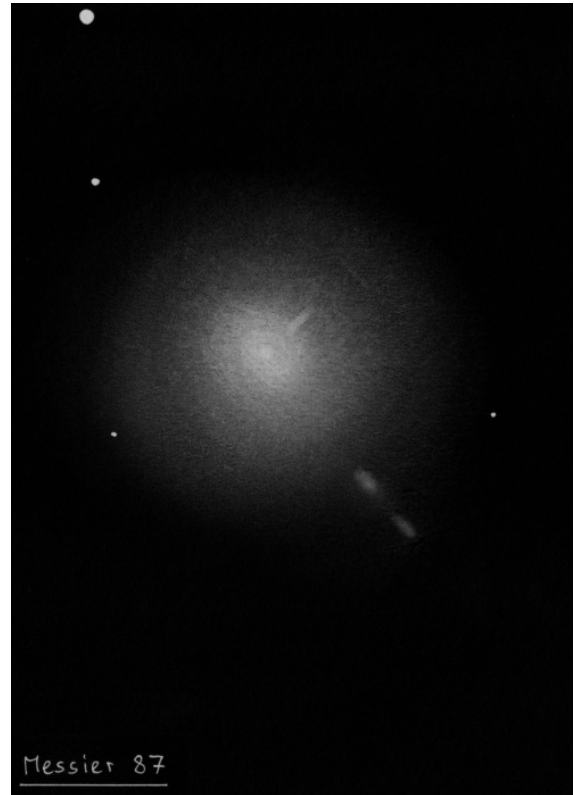
Uwe Glahn

Interesting physics behind these jets. Seems like a nice observing program for giant telescopes or radio amateurs.

My experience with the jet and the galaxies around M87 are:

16" - despite several tries a could only see the jet one time under nearly perfect conditions, the jet itself was no thin elongated detail but more like a knot out of the core of M87; both galaxies could be hold with averted vision

27" - both galaxies were easy to detect; under good seeing the jet could be seen as a small elongated low contrast detail, not difficult, but not elongated and thin than expected; with very good seeing the jet show more contrast against the halo and becomes longer and thinner, in good moments I could detect stellar peaks within the jet.



27", 586x, NELM 7m+, Seeing II

Reiner Vogel

Very good object. That's about as close as one gets to observing a black hole. Do you know whether the counterjet had been imaged in visible wavelengths?

I have tried to observe the jet several times, but most times not successful. It probably depends mostly on the seeing. Two observations were successful. These are the notes during the first successful one (with 22"):

Increasing the power to 400x, the jet was relatively easy to discern as a short and thin appendix to the core of the galaxy. The length was only 20", in agreement with the literature. During a prior observation of Saturn at the same power, I had tried to memorize this dimension in order to get an estimate of what to expect. As to be expected, structures within the jet were not visible with my Dob. Using the small background galaxies (the small PGC galaxies, not the much brighter and larger NGC galaxies!), I could further verify the correct orientation of the observed structure. These faint galaxies can be helpful under less than optimal conditions and borderline observations.

You are right, you have to be aware about the apparent size of the jet structure, otherwise the two non-NGC galaxies may be mistaken for the jet.

Jimi Lowrey

I will share with the forum a strange and puzzling observation that I have noted about the jet in M87.

When I have guest over at my observatory I ask them what they would like to see in my 48" reflector. most people ask to see the famous jet in M87 if it is up. About four years ago I noted something unusual about the jet. What I was seeing was very strange to me. What I was seeing was on some nights of excellent seeing and transparency the jet was hard to see and on other nights with bad seeing and transparency the jet was really easy to see. This was really confusing to me and made no sense at all. I decided that I would start a log and keep notes on the jet over a long period. The next two years I looked at M87 and the jet ever night that I observed if it was up. I quit taking notes after two years and I confirmed that what I had noted was true that on some night of bad conditions the jet was easy to see and on some nights of good to excellent conditions that it was barely there. I have shared my observations with several professorial astronomers and they have no clue as to why I am seeing this variability visually in the jet.

So from my experience if you are trying to see the jet in M87 keep at it. For no reason that I have been able to determined that it is much easier to see on some nights than others and the sky conditions have little to do with it. I hope one day to find out why the jet is so variable visually.

Dragan Nikin

No, I can't say I've ever heard of the counterjet being observed nor imaged visually. Personally I'd have to think its an impossibility as it would lay, in theory, on the other side of the core.

I did hunt around the internet for a radio image depicting both jets but I did not find one. To be quite honest, some of that radio stuff boggles me and I'm not really all that certain what it is I'm looking at sometimes! 🤔

But maybe someone here on DSF with more knowledge than me may know of such an image.

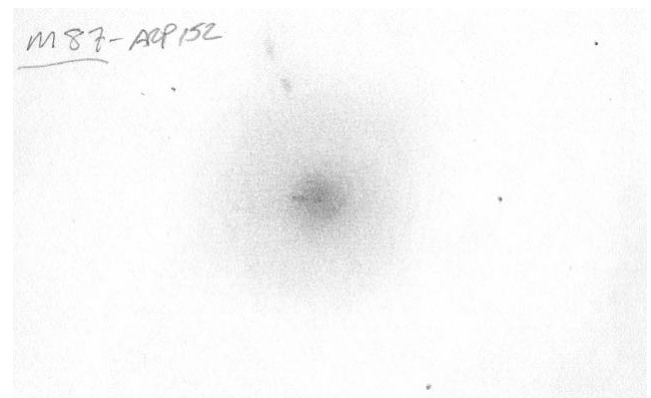
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I looked through my notes. The night I first observed the M87 jet in Barbarella back in '09 I labelled seeing as 5/10 and transparency as 7/10.

Now here's an interesting note. Last March with Mark and John, we observed the jet again and *that* night I had both seeing and transparency estimated as 5/10 with seeing varying all night.

Howard Banich

I had a nice view of M87's jet last April from Likely Place California with my 28 inch, which to date is the best view I've had in my own scope. I had my lifetime view several years ago through the Bok 90 inch scope at Kitt Peak which, as you might expect, was tremendously wonderful - the jet was an exceedingly thin spike with several condensations along its length. Through my scope last April the jet was observed in average seeing but otherwise good conditions - transparent, calm, 21.68 SQM skies. I used 695x for the best view and although the jet appeared fairly stubby it was readily visible. My thought at the time was that I was seeing the two brightest condensations in the jet rather than the jet itself but the view was spellbinding even so - any visual manifestation of a super massive black hole is pretty awesome!



I've failed to see the jet at least a hundred times over the years and I've always thought the reason was poor seeing because, well, the seeing was poor. I did have success once with my old 20 inch under better than normal seeing / darkness / transparency conditions but even so it was a tough observation. I haven't had the pleasure of viewing M87 under steady seeing conditions so I can't add anything to Jimi's dilemma, but that is a head scratcher.

Iiro Sairanen

I spent one hour with M87 last night. The conditions were fairly good expect of seeing, SQM 21.6 mag/arcsec and NELM 6.8. I was able to see UGC 7652 and MAC galaxy on the SW side with a 18" Dobson. Also several "dots" were inside the M87 halo but the jet was invisible. Seeing wasn't good and M87 core warped to different shapes @ 457x. I have to try again tonight.

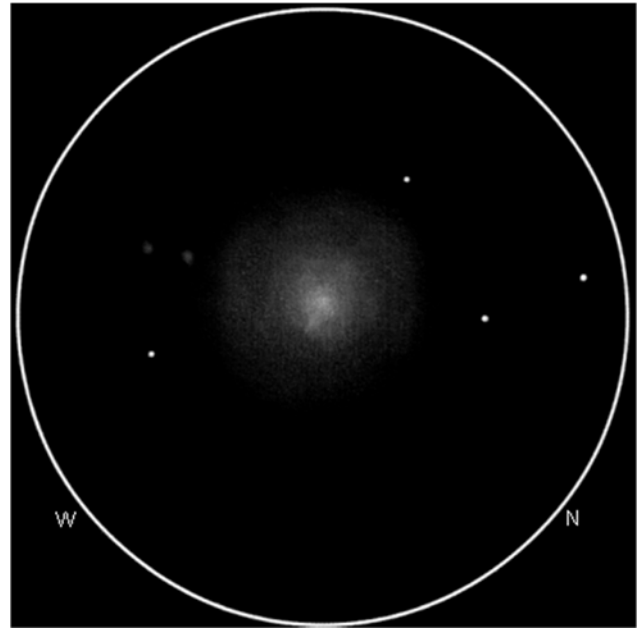
Jimi Lowrey

Be sure to look right in the core of M87 from my experience showing it to lots of different people some look to far out in the halo of M87 Howard's drawing above is a great and very realistic drawing of the jet as it appears in the eyepiece.

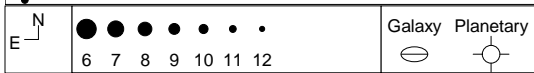
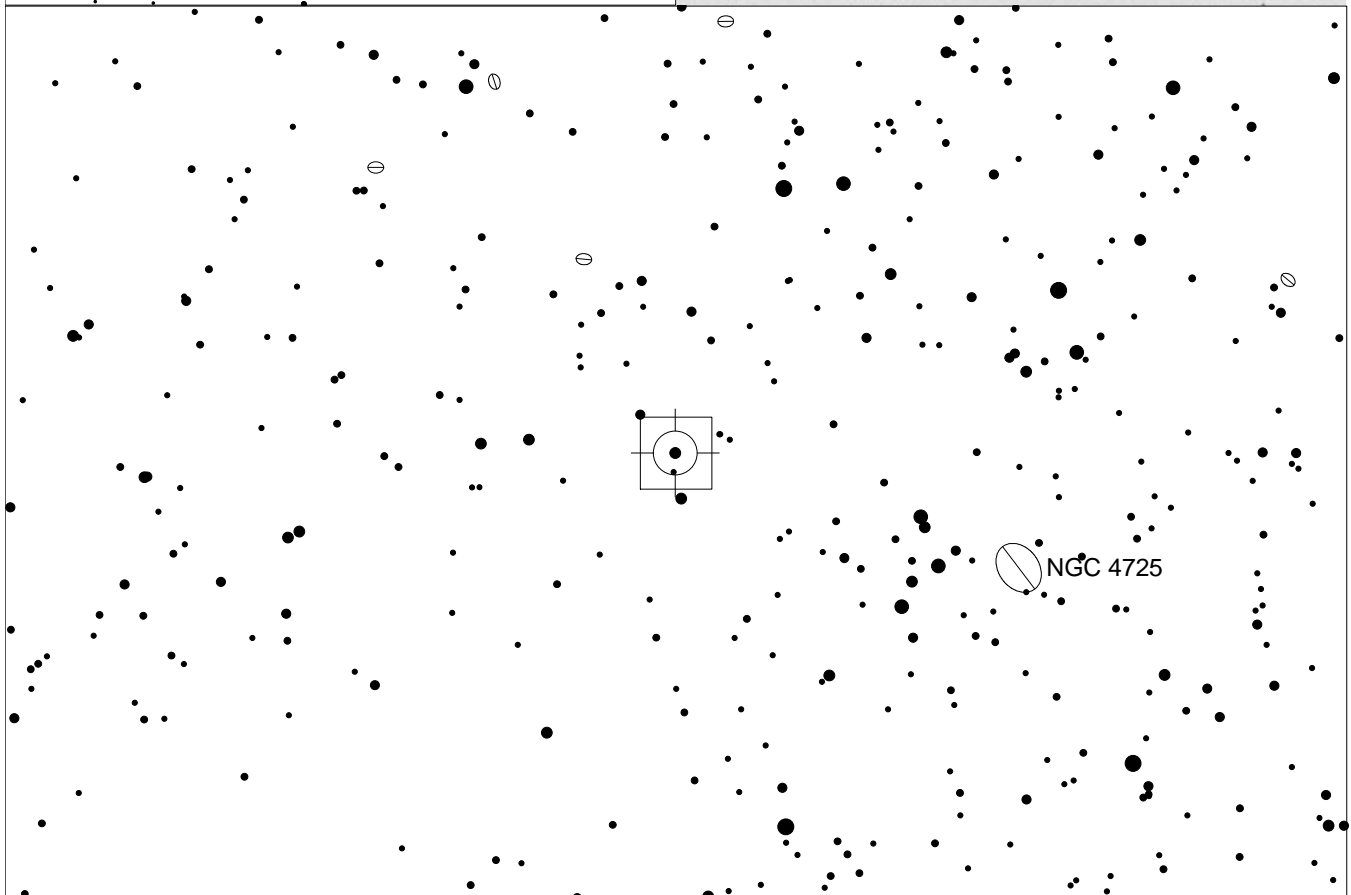
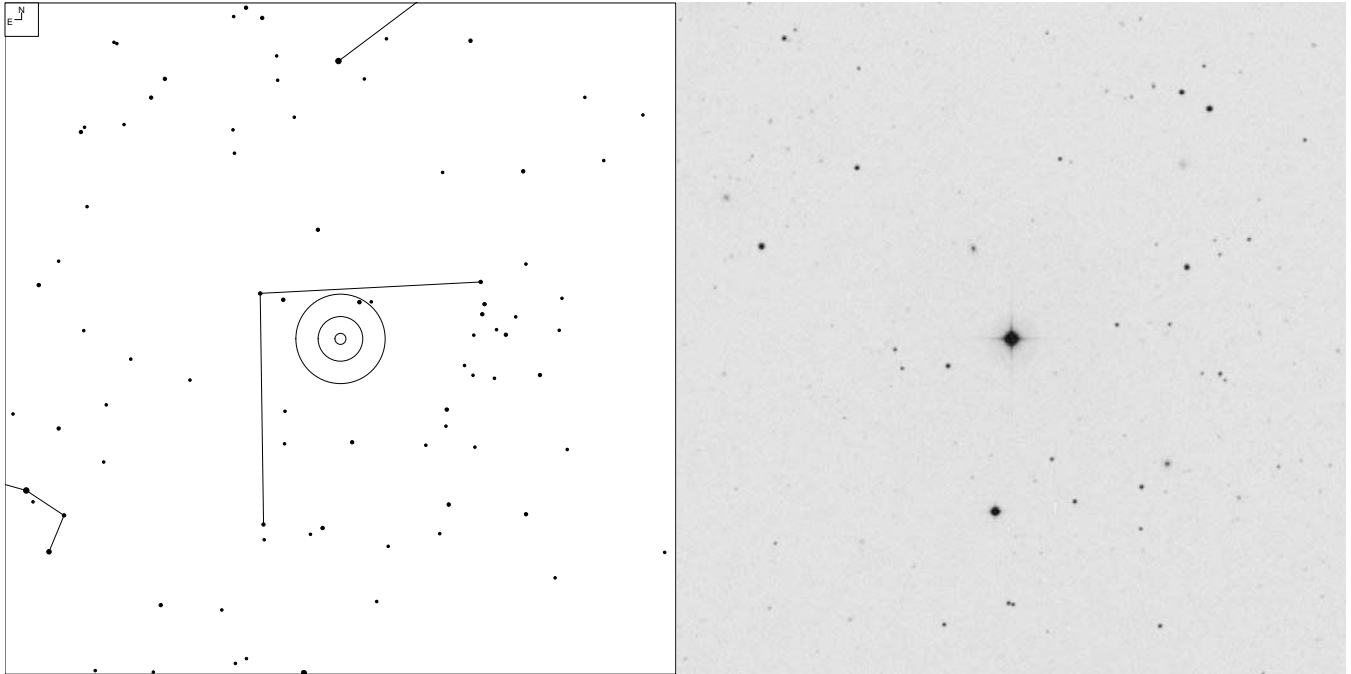
Iiro Sairanen

Here was another great night and sky conditions were little bit better than night before. SQM reached 21.70 and NELM 6.9. Now I spent over an hour with M87 and was able to see something in the right place several times. The jet wasn't sharp because of seeing (?) but there was clearly some kind of overhang pointing to NW from the core. It was visible only occasionally. 5 mm Baader Hyperion gave the best views @ 457x. The jet is very close the core like Jimi said above. Two small galaxies on the SW side were much easier than the jet.

Have you noticed some kind of granularity or extremely faint stars inside the halo with bigger telescopes? I seem to see something with averted vision but couldn't be sure.



A Whiff of a Planetary: Longmore-Tritton 5 (Coma Berenices)

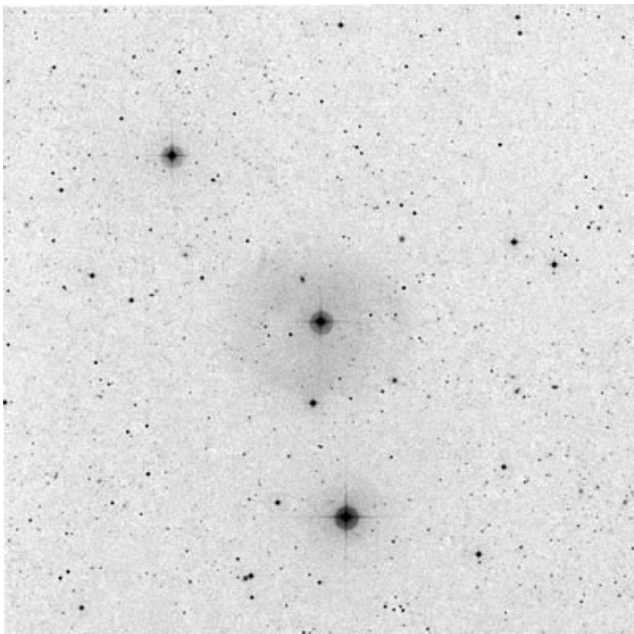


Object	RA	Dec	Mag	Size
Lo-Tr 5	12 55 33	+25 53 30	-	8.8'

A Whiff of a Planetary: Longmore-Tritton 5 (Coma Berenices)

Reiner Vogel

Longmore-Tritton 5 has a diameter of about 9' and is therefore one of the very large PN. However, compared with most of the other members of that illustrious list, it is an "easy" object with OIII filter (it's only very faint instead of extremely faint :-)).



DSS images of LoTr 5 (color and blue inverted).

LoTr 5 was discovered by A.J. Longmore and S.B. Britton in 1980 by visual inspection of blue plates of the ESO/SRC Southern Sky Survey taken with the UK 1.2m Schmidt telescope. LoTr 5's galactic coordinates are $339^\circ +88^\circ$, the PN is therefore at a

(for a PN) very unusual position close to one of the galactic poles: A single PN amidst thousand of galaxies at the Coma/Virgo border. At the time of its discovery, it was the PN with the highest galactic latitude. Its central star IN Com is a binary formed by a relatively bright (8m7 vis) G5 star and an extremely hot (150 000 K) white dwarf. Further, a third M5 companion to the G5 star had been suggested.

LoTr 5 is a bipolar PN, even if it doesn't look like it at the eyepiece

(<http://adsabs.harvard.edu/abs/1980MNRAS.193..521L>). Its bipolar axis deviates only 17° from our line of sight, such that we are viewing this PN "head-on".

Good images of this PN were obtained by Stefan Binnewies and Josef Poepsel

<http://www.capella-observatory.com/l.../PNs/LoTr5.htm> and by Stefane Zoll

http://www.astrosurf.com/zoll/images...LORGB_1280.jpg. On these deep images, the bipolarity becomes evident and the PN appears as two slightly excentric rings.

I have observed this PN already several times under various conditions with both my 14" and 22" Dobs:

Under fair skies, it is difficult to separate the diffuse glow of this PN from stray light of its mag 8.7 central star, even with OIII filter.

Under excellent conditions, the PN reveals a faint disk with well defined edge towards S, coinciding with the weak star in between the central star and the bright star S of it. Under such conditions, it is also visible using the UHC filter, albeit with somewhat lower contrast. Due to the relatively bright CS, it is very difficult to nail down any internal structure.

So when you're hunting in the Virgo Cluster, don't forget to switch to your OIII filter and take a look at this unusual PN. Can you see evidence of the bipolarity and the two slightly excentric rings?

Uwe Glahn

Fine object that I have to revisit, thanks for the idea.

Under good transparency it was never a problem to see the PN as a very faint glow around the bright CS. I was also of the opinion to see differences within the glow. For me the eastern part was always a bit brighter. But it does not fit perfectly with the pictures.

I remember a lecture of Bernd Gährken about CS in PN for small aperture. Funny, but this CS is one of the few which is visible in binoculars 😊



16", 51x, [OIII], NELM 6m8

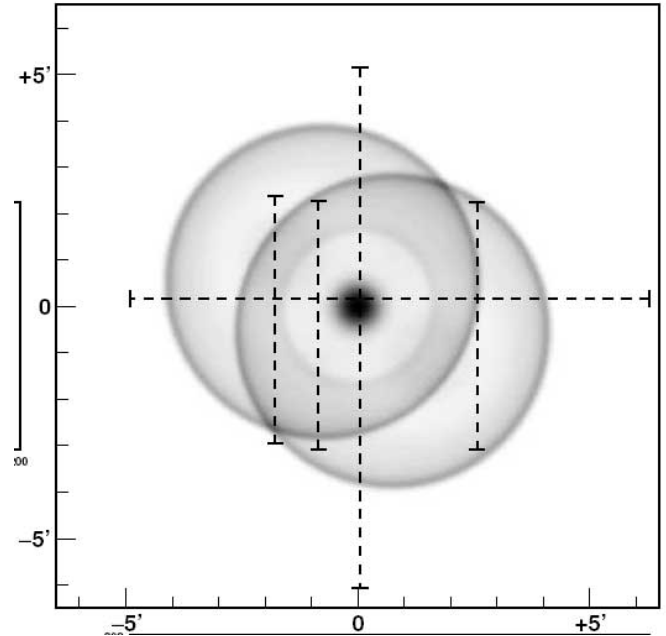
Reiner Vogel

That's the point and this is actually the main difficulty in observing this PN under less than optimal conditions: Separating it from the glow of the CS (not the true progenitor star, which is now a White Dwarf, but its bright G5 companion).

I just noticed that I used the wrong link in my first post. The link goes to the discovery paper by Longmore and Tritton.

The paper about the bipolarity (shown by a spectroscopic analysis of the shells) is here <http://articles.adsabs.harvard.edu/c...NRAS.347.1370G>

Here's a figure from the paper showing the two exocentric rings due to the bipolar character of the PN.



Jimi Lowrey

I had Steve Gottlieb and Howard Banich observing at my place last week and we took a look at this large faint PN last Friday night. The conditions here were not the best we were having an air glow event from the solar maximum and the seeing was below average that night. The best view was with a OIII filter at low power with a 24MM Brandon eyepiece @ 203X. I could not make out a solid ring I could only make out what looked like a little wider than a half moon shape object. Unfiltered it almost disappears from view with only a small brightening barely detectable on one small edge. I hope Steve and Howard will jump in and add their observations here.

Alvin Huey

Jimi and I took a look at my last time I was observing with his 48" ...it was pretty much what Jimi described it to be.

Reiner Vogel

"half moon shaped" - does this mean you saw only one half of the PN disk? This is interesting, as I also found the side where there is that small star superimposed on the rim of the disk is more distinct with better defined rims. Was your observation on the same side?

Jimi Lowrey

I think you are right. I will do a quick drawing of LoTr 5 and post it here next time I am at the telescope to show you the orientation and star field. I should be able to do it tonight as the weather looks good. I did not see it as a full disk as in Uwe's drawing above the other night.

Howard Banich

Jimi's description matches what I saw too, only one side of the planetary was seen and it was really faint. Oddly, it didn't seem centered on the "central" star but rather centered between it and the nearby field star of similar brightness. As soon as I scan my notes I'll post my sketch

Iiro Sairanen

I had a chance to observe this planetary nebula two nights ago. Conditions were fairly good; SQM 21.55, NELM 6.8. I found the right place easily and observed it about one hour with different eyepieces and filters. Despite of that I cannot be sure if I saw it or not. 21 mm and 17 mm Hyperions with an O-III filter showed very occasionally something with sweeping and optimal averted vision. This might be also a glow of central star... I cannot certainly say how large the glow was and was there any brighter areas like others have been reported. I must try again on the next time. Sadly observing season is over here in Finland and next good skies will be on August. Weather forecast promises cloudy and rain and after that the Moon is too big for deepsky observing...and after the Moon bright summer nights starts.

Jimi Lowrey

Here is my rough eyepiece drawing that I did last night . The best view was with a 17MM Ethos @ 287X and O III filter. The PN is much dimmer that the drawing suggest :-)



Rolandos Constantinides

Hi guys, we attempted this planetary on Friday night. Unfortunately, it was after we had someone light up truck headlamps right in the middle of our observing site (Grrrr!). Anyway, after waiting for about 30 to 40 minutes we attempted it with my 18". I could see nothing with the Nagler 31 and Lumicon OIII, but I sort of suspected something around the correct star when I increased the magnification with my 13mm Ethos and OIII. I would not call it a positive observation, but I would not consider it a failure - at least we found the field! NicosCY was also with me at the time. Sky conditions were quite good with good transparency and above average seeing, SQM reading 21.04 at the time towards Coma. Maybe we should try it from a darker, mountaineous location, or before our dark adaptation gets ruined!

Uwe Glahn

Yesterday we - Christian Rausch and myself tried the PN again with 12" and 27".

With 27", 113x, AP 6,1mm + [OIII] we saw the PN as a complete circle around the bright CS. There was definitely structure within the PN glow, but a could not hold any differences. But we both suspected brightest parts in the W to NW.

With 12", 49x, AP 6,1mm + [OIII] the PN was easier to see than in the 27"! No problem to detect the glow around the CS while the other similar bright stars has nothing around. We both saw the glow fully around the CS again. Brightest side was to the N.

Reiner Vogel

Thanks to you all for your reports, in particular to you Uwe!

Once again, a puzzling object, in particular in regard of the quite different observing results. Like Uwe, I never considered this PN to be extremely hard (like PuWe 1 or similar ones), in particular as it has a very good filter response. It certainly needs good transparency, but I would not consider my usual observing location at 1200 m as a place with outstanding atmospheric properties (in particular not as compared with the excellent dry sites of some of you as for instance in western Texas).

Jimi, Howard, and Steve, you said that you had pronounced airglow during your observation. Could this have interfered in particular with the OIII lines during your observation?

Rolandos Constantinides

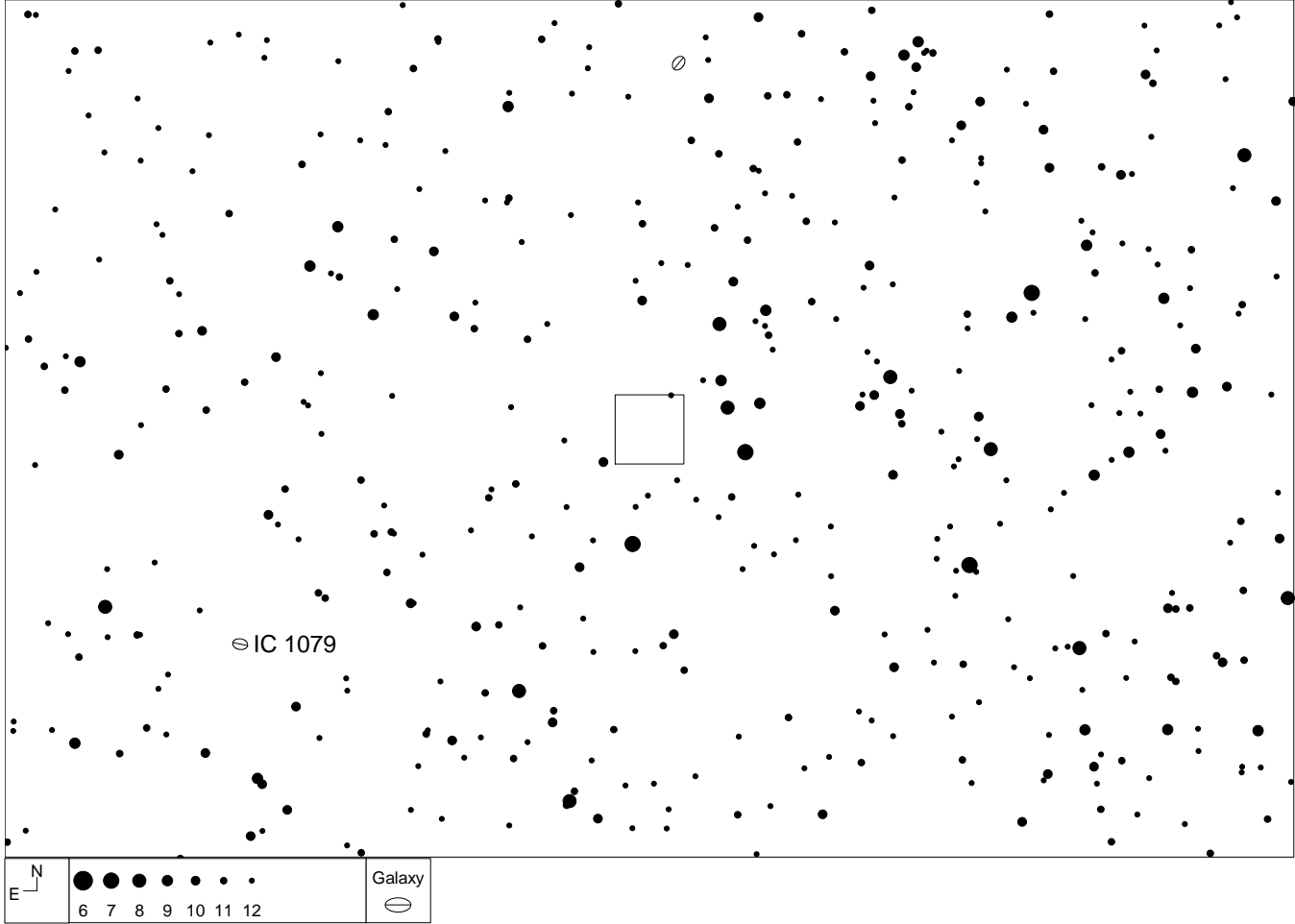
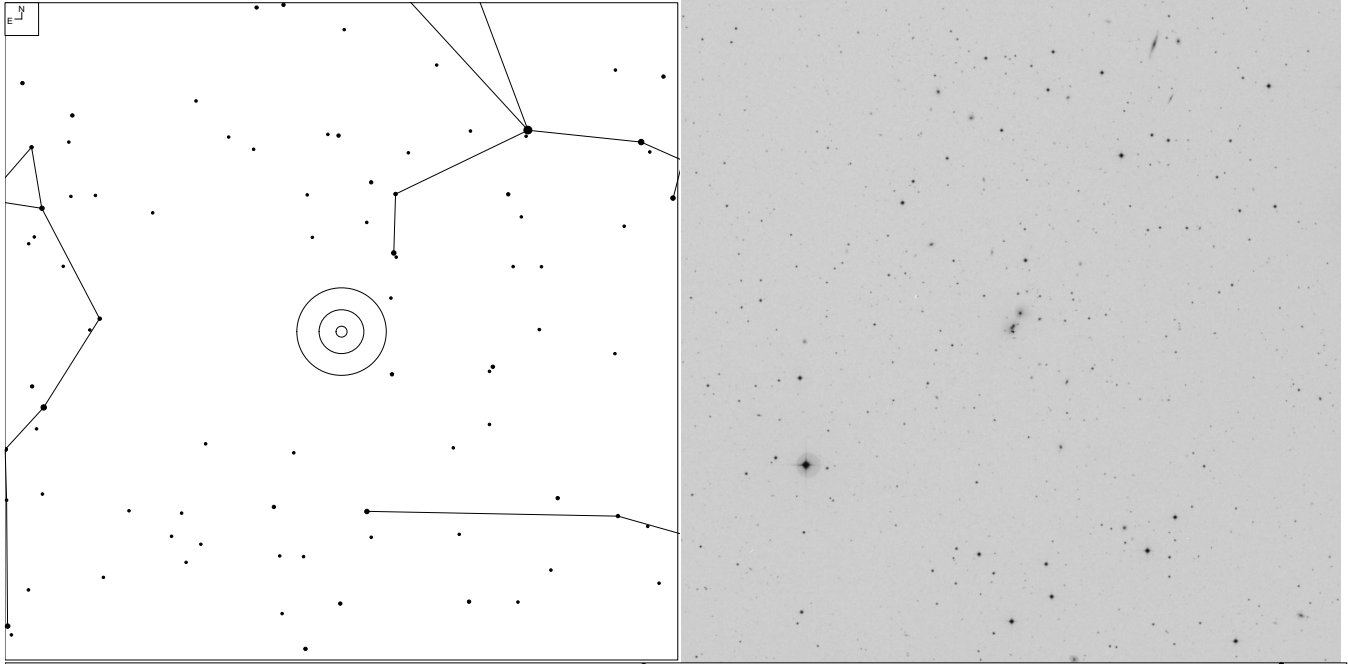
Hmmm! Interesting! One of the rare cases of TOO MUCH aperture it seems! It has happened before to me, on one particular evening I could see more detail in IC342 with my 80mm refractor than with the 12" dob I used to have before the 18"...

Johannes Brachtendorf

I observed LoTr 5 two days ago through my 25" f 4 Dobsonian at 950 m altitude. Transparency was good, seeing was mediocre. I saw the nebula as a

circular disc around the bright star with the star offset from the middle to the west. I had studied the halo of "Frosty Leo" and CW Leonis before turning to LoTr 5, and in comparison to these objects the planetary was not difficult to see. Magnification of 230x with UHC filter yielded the best result, even slightly better than OIII. The photos that Reiner linked show a curved dark wedge intruding into the rim of the nebula from the south and west. I assume that this is the central congestion separating the two lobes. The streak of nebulosity beyond that wedge to the west would then be the rim of the far side lobe. I searched for that dark wedge and finally came to suspect its location. But when I looked up the photos back home it turned out to be at a different place. So my suspicion was wrong. Apparently it is very hard to pin down the internal structure of this object.

UGC 9555 – Rose 23 A New Found Giant (Bootes)

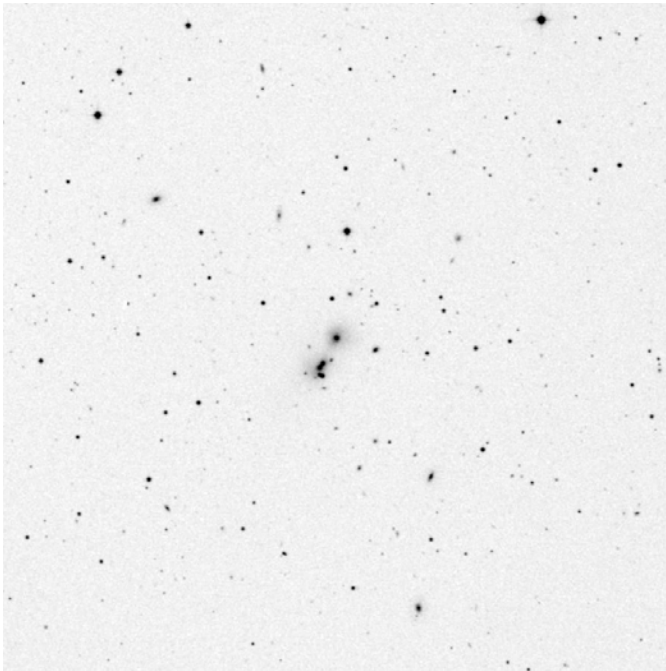
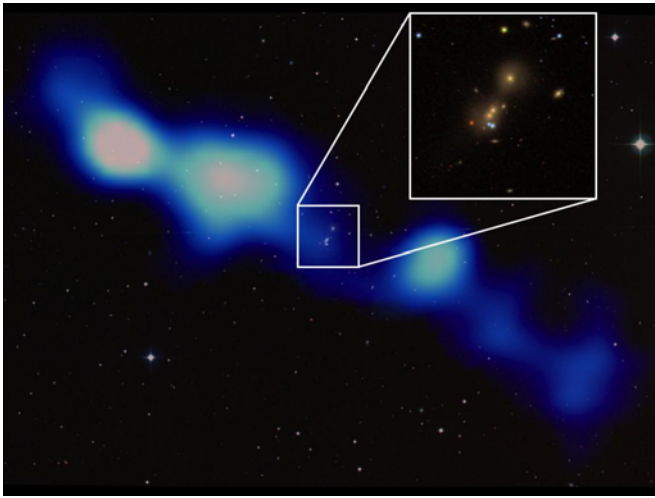


Object	RA	Dec	Mag	Size
UGC 9555			15.2v	0.5 x 0.5'
MCG +2-38-18	14 50 47	+10 07 28	15.0v	0.4 x 0.2'
MCG +2-38-17			15.5	0.3 x 0.2'

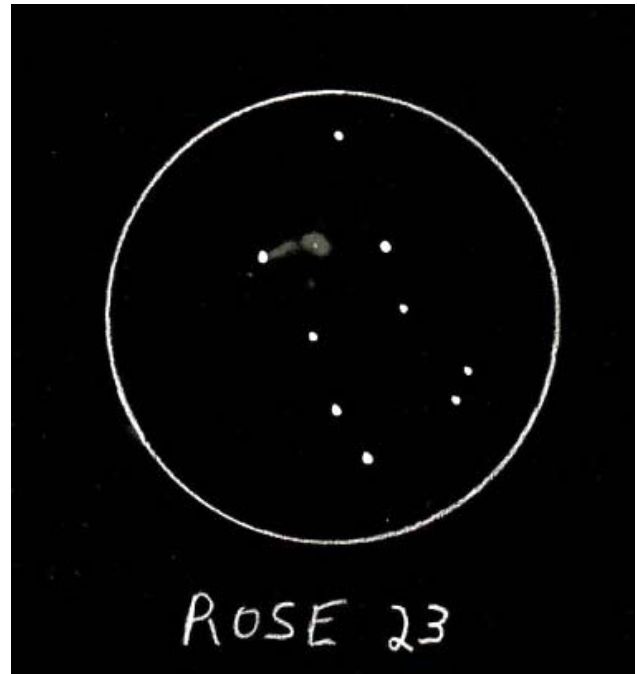
UGC 9555 – Rose 23 A New Found Giant (Bootes)

Jimi Lowrey

The Netherlands Institute for Radio Astronomy made a recent press release about their new find, a unknown Giant Radio galaxy (GRG) centered around UGC 9555 galaxy triplet group. The material that was detected was ejected from the galaxies millions of years ago and would be about the size of the full moon as seen from Earth and is extending millions of light years across intergalactic space. The center of the new GRG is associated with the central galaxy and is located at a redshift of $z=0.054536$, or 750 million light years from Earth.

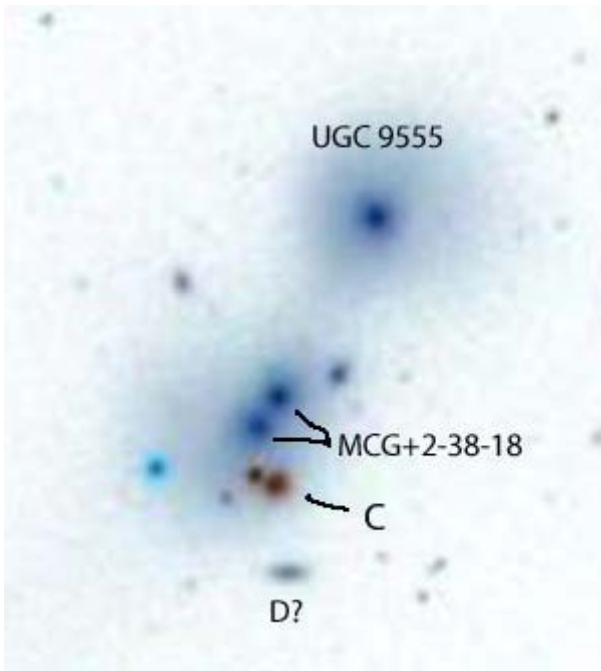


I had observed this group a few years ago when I was doing the Rose compact galaxy groups and after the press release I put it on my list to revisit for this dark time observing. I observed it several times the past few days and under excellent conditions last night from 375X to 813X with 10 out of 10 transparency! I was able to see five galaxies near this group. One SDSS J145049.18+100638.0 I have never seen before. I did a eyepiece drawing below that shows the five galaxies that I observed.



Alvin Huey

My observation from 2009 is as follows:
22" (306 and 460x)
This chain of four galaxies is only 1' long.
The northern most galaxy, UGC 9555, is a considerably bright round glow with a much brighter center. About 15" across.
MCG +2-38-18 is an unresolved double galaxy and is considerably faint slightly elongated glow. Even surface brightness. PA = 135° and 15" long.
Components C and D were not detected.



SDSS image

Jimi Lowrey

The object you have marked as C is a star I think? it looks stellar in the eyepiece like a double star. The galaxy that you have as D is SDSS J145049.18+100638.0 . Do you think the 4th member is the 2MASXJ14504432+1007127, that is a east and a little south of UGC 9555?

Alvin Huey

You are correct. I've look at NED and it is a star. I was questioning D as it appears dimmer than 17.5 mag (NED = 18.9). Perhaps, Rose thought C was a galaxy as it appeared as a fuzzy blue "star". I don't know. I wish Dr. Rose sent us the cards that he said that he still had at the time when I contacted him.

Back when I worked on my guide, I thought about 2MASX j14504432+1007127, but it was outside of Dr Rose's listed dimensions of 1.35 x 0.55'. If that were to be the 4th member, then the dimensions would be 1.1 x 0.9'.

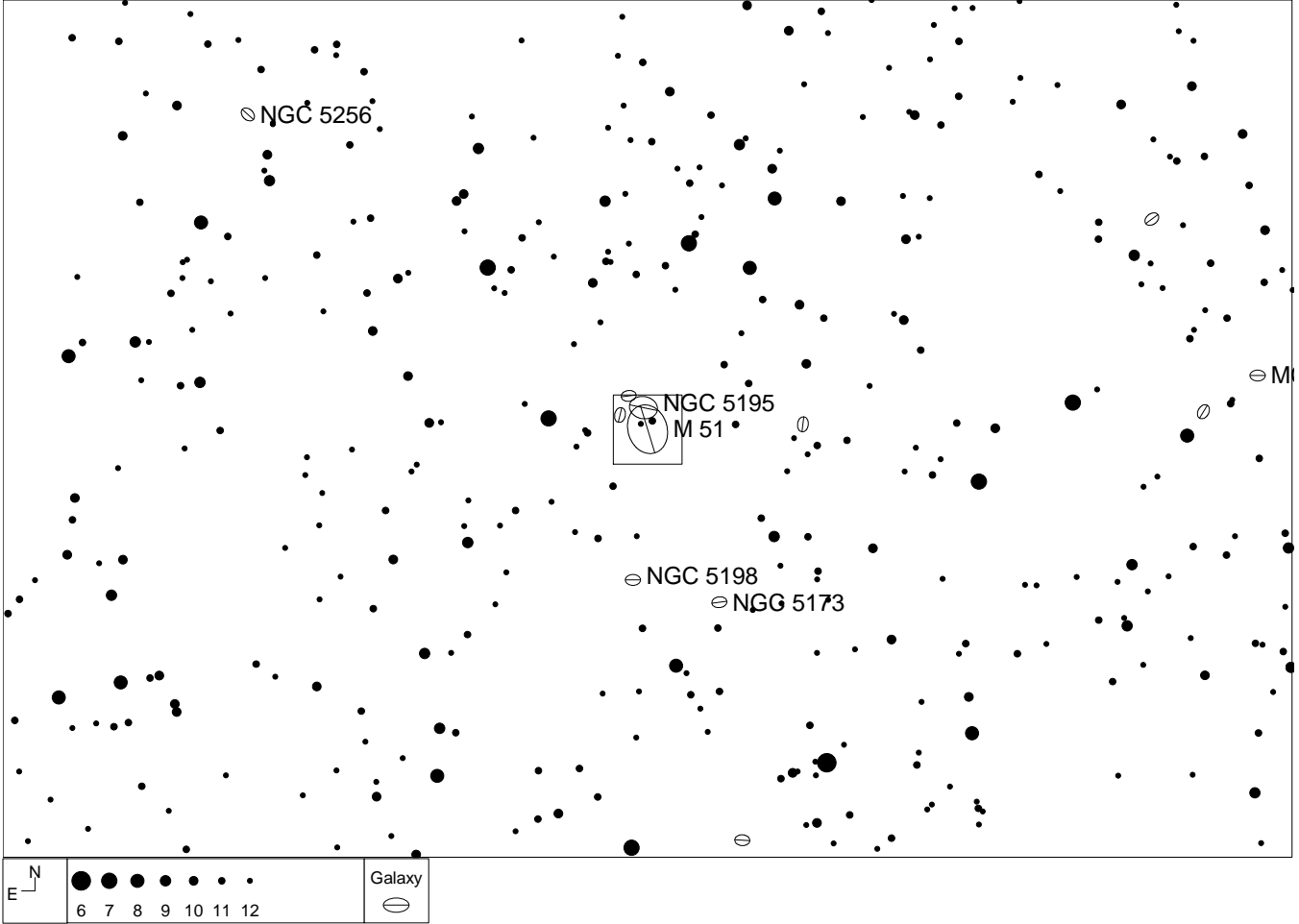
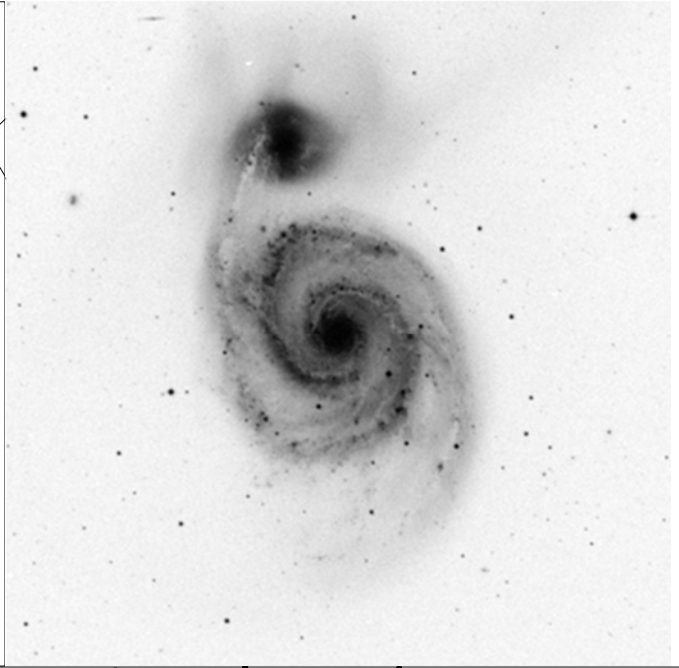
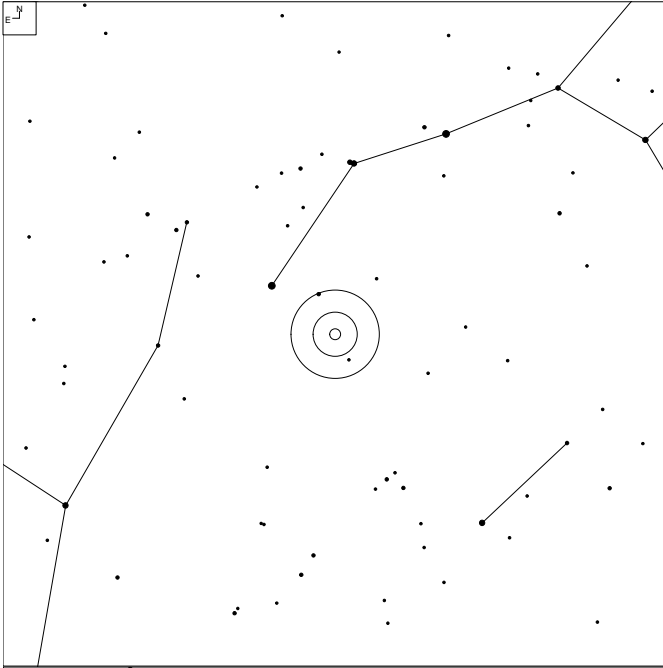
Uwe Glahn

Last new moon under good transparency and good seeing I tried the group with my 27" and made a sketch of it.



27", 586x-837x, NELM 6m5+, Seeing II

M-51 (Canes Venatici)



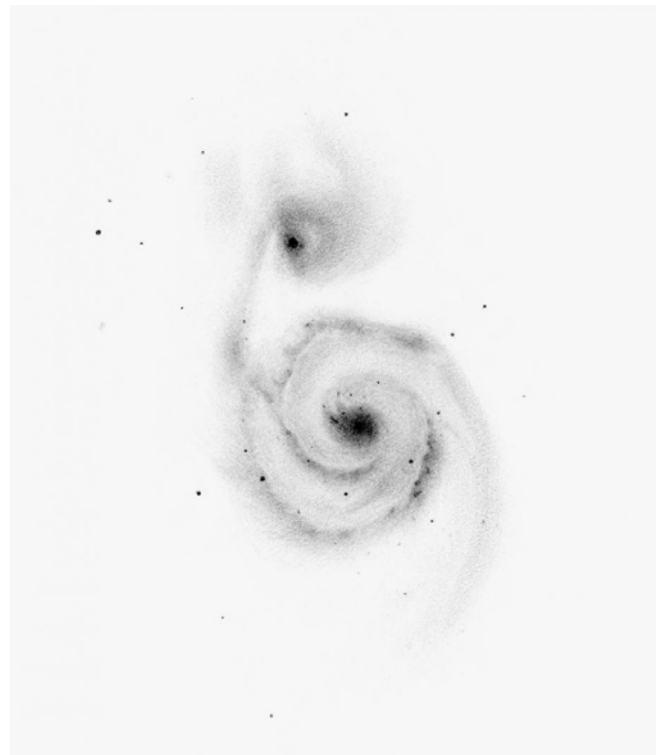
Object	RA	Dec	Mag	Size
M-51	13 29 52.7	+47 11 43	9.0b	10.3 x 8.1'

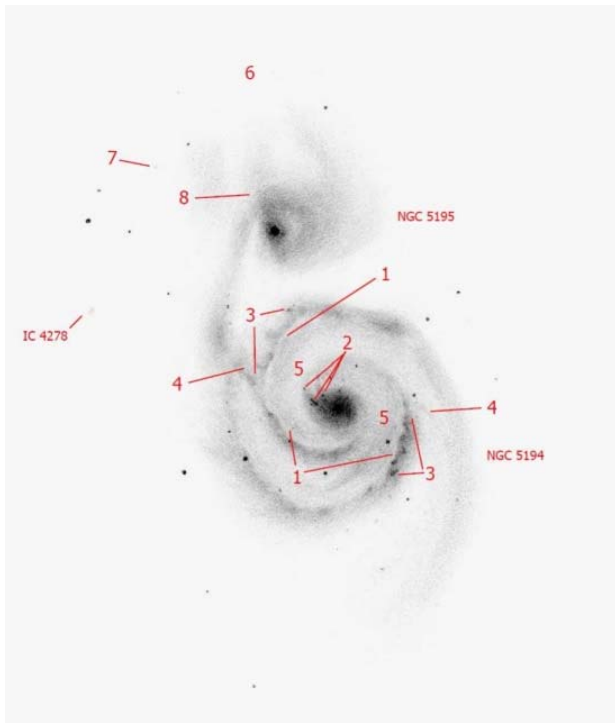
M-51 (Canes Venetici)

Howard Banich

168 years ago, in April 1845, Lord Rosse discovered the spiral structure in M51 so I propose we honor Lord Rosse's landmark discovery by not only appreciating the overall structure and beauty of M51 but to delve deeper and enjoy some of its more elusive delights, such as:

1. The dust lanes that define the inner edges of the spiral arms are much more subtle than photos suggest and require the most transparent nights to see. But not the darkest – my best view of them was on a 21.25 SQM night at 7200 feet with superb transparency.
2. The super star clusters near the core appear stellar at high power and help define the two-pronged beginning of the southern spiral arm. It takes steady seeing and high power for these tiny glimmers to sparkle into visibility.
3. HII regions help define the brightest parts of both spiral arms. I've found that high power is best even if the seeing isn't very steady.
4. The spiral arm spurs that connect the northern and southern.
5. Following both spiral arms all the way into the core is more difficult than I thought, again needing exceptional transparency.
6. How many of NGC 5195's tidal tails can you see?
7. Has anyone seen IC 4277 as an edge on background galaxy? What magnitude is it? I've barely been able to see its core just east of NGC 5195.
8. And my new favorite, that until recently I assumed was an HII region of NGC 5195. Jimi pointed out it's actually a distant background galaxy, 2MASXi J1330023+471654. I tried unsuccessfully for the past three years to see it with my 28 inch scope – so it's not shown in my sketch - but Jimi, Steve Gottlieb, Jim Chandler and I saw it through Jimi's 48 inch earlier this month. Has anyone else seen this surprisingly elusive galaxy through NGC 5195?

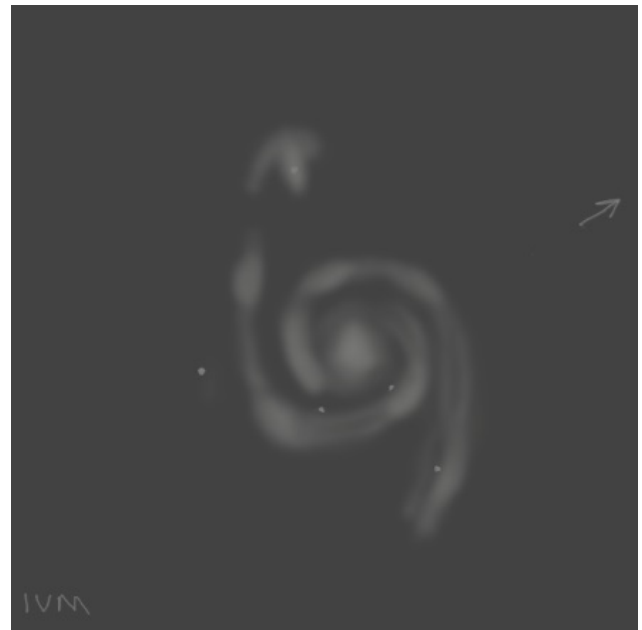




Ivan Maly

Great choice, Howard. So far I have seen 1 (dust lanes), 3 (HII regions, or as I call the large ones that I have seen, star clouds), and 4 (spiral arm spurs - the eastern one clearly).

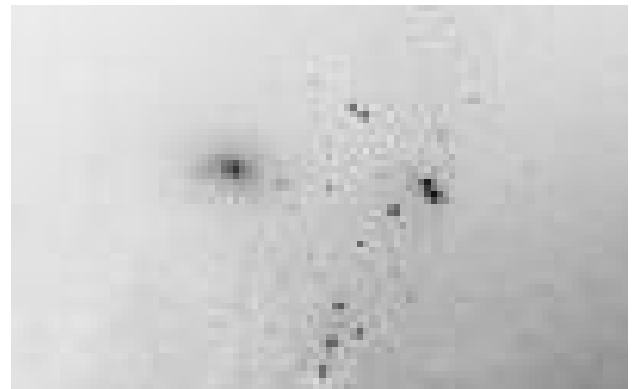
As far as dust lanes, I found helpful the extreme dark adaptation that is achieved naturally as clouds pass over a dark location. This is assuming that you are tracking M51 and the transparency is good once the clouds pass. The attached sketch may look strange but it is quite precise as far as the appearance of the dust lanes that night. Both arms indeed appeared cleanly split along the middle, except where dense star clouds made them appear thicker. It was an unusual view and not my best view of M51 in general, but it has so far been my best view of the dust lanes. I just had to track M51 as the clouds were passing and be prepared to observe immediately when they cleared. I almost never observe unless it is completely clear, but this and a few similar experiences made me interested in further experimentation with extreme dark adaptation.



16", up to 225x, blue zone site, 2400 ft. I did not measure it on that night but 21.7-21.9 by SQM-L is typical there (Cherry Springs, PA).

Jimi Lowrey

Here is the Hubble image of NGC 5195 zoomed in and inverted that shows the 2MASX galaxy #8 "The little goober". It looks like it is interacting and is being pulled apart.



I was surprised at how it looked in the eyepiece it was not a stellar knot like it looks in deep images but was a diffuse soft round glow that was just a little brighter than the foreground NGC 5129 galaxy. I think it will be easier for Howard to see it in his 28" now that he knows what to look for.

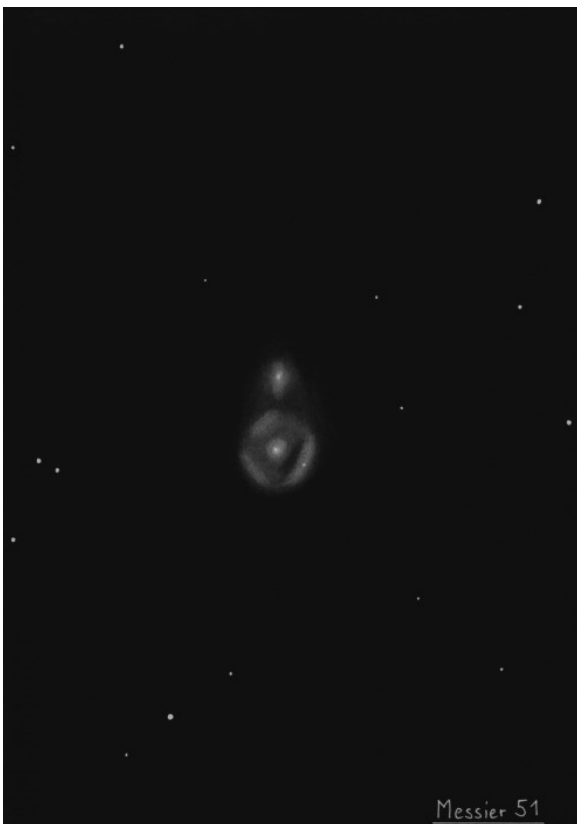
Uwe Glahn

what a fantastic drawing, one of the most beautiful and above all one of the most realistic I ever saw - great result.

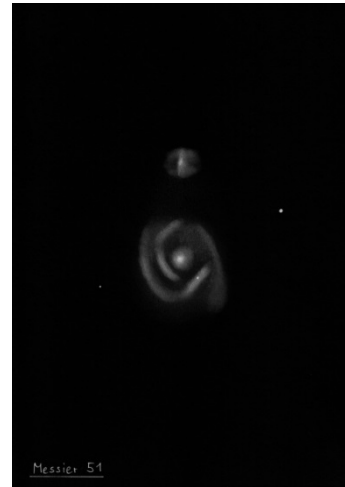
Funny, my plan was also to observe and to sketch M 51 with my 27" this spring but the worst weather period I remember prevent this. I only got a quick view of this galaxy last clear night. To your points.

- 1. You are absolutely right, the dust lanes are a difficult detail.
- 4. I missed the connection with 14,5", [Rainer Mannoff](#) saw it with 18", with 27" easy but not really prominent
- 6. With 14,5" I only saw one large glow, no streamers, with 27" I did not manage to look for it
- 7. Yes, I saw it last night but I could not hold it steadily. I was able to see the elongation but not with this extreme proportion. The IC catalog says 16,5bmag / 15,7vmag. The biggest problem is the elongation. After my experiences with a lot of "Superthin Galaxies" these mags are hard to detect visually.
- 8. I don't tried it yet.

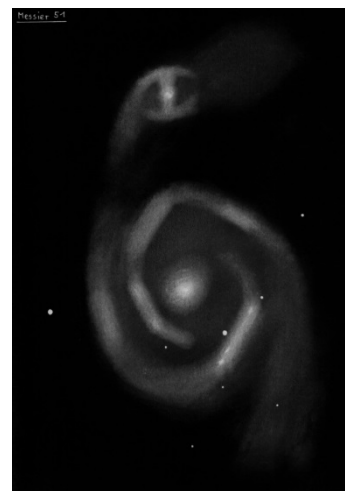
My goal in the past was to see what could be possible with different aperture so a tried to sketch M 51 several times. Here my results:



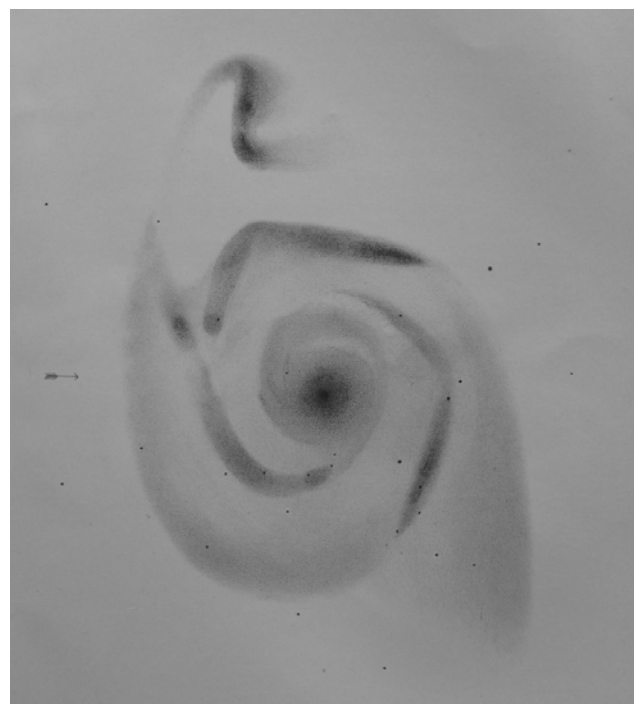
4", 88x, NELM 6m5+



7", 159x, NELM 7m0+



14,5", 202x, NELM 6m5+



Last but not least the wonderful sketch of S. Hunter with the 72" of Lord Rosse during the year 1864

Howard Banich

I added the inverted drawing to my original post, good idea Jimi.

By the way, I should have mentioned that the view of M51 through Jimi's 48 inch scope a few weeks ago was - at first glance - at least twice as detailed as my drawing, which currently has about 8 hours of eyepiece time into it with my 28 inch. With a bit of time to study the 48 inch image the amount of detail was astounding! I could have observed M51 all night...

I'll continue to pursue the 2MASX galaxy (#8) with my 28 but I know I'm going to need exceptionally good transparency to have a chance because it was subtle even in the 48 on a pretty good night.

--

Thanks Uwe, I'm really proud of this sketch. I also hope to have several good chances this spring to observe M51 but like you the weather so far has not been cooperative, although I did have half a night in March that was good enough that I added a few details to my drawing. Your drawings are excellent as well, I especially like the one made with a 4" scope that shows the spiral arms as a ring - just like the Herschel's saw it!

Good luck to everyone for some clear skies this spring.

--

That's interesting because my best ever view of M51 came on a night in central Oregon with passing clouds - the sky between the clouds was nearly perfect, at least until they took over the sky. This was the view that made me promise to make as good a drawing of M51 as I could, and in the 5 years since then I have not had a sky as dark, transparent and steady as that partly cloudy night. I didn't have a SQM at the time and I haven't been back to that specific spot since, but it is in a grey zone.

Your observation of the dust lanes is really impressive. I've tried several times with Chuck and Judy Dethloff's excellent 16 inch but have not seen them in that scope yet. I have seen a couple of the star-like super clusters near the beginning of the southern spiral arm in that scope though.

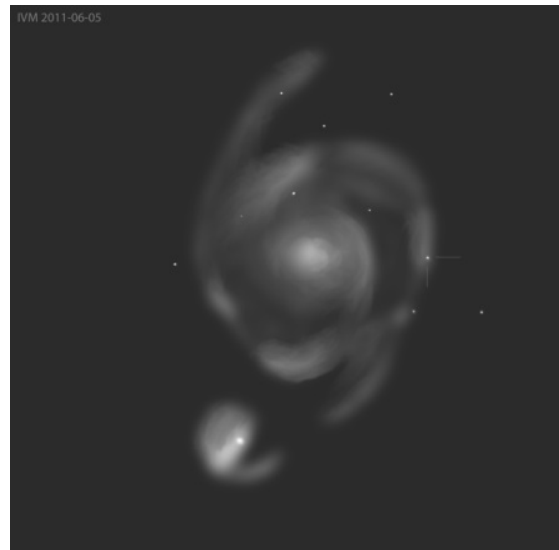
Ivan Maly

Great sketches, Uwe, and thanks for posting the historical Hunter drawing.

I will try for these superclusters, Howard. Thank you for the tip.

The other explanation for the effect of (or correlation with) the clouds may be that when passing they "scrape" the sky and leave it unusually transparent. This of course is known for large passing fronts, but I am not certain it is true for the kind of "iffy" weather in our two cases. I actually did not think transparency in the wake of the clouds was unusually good on the night I mentioned, but then I was too busy absorbing the view through the eyepiece to estimate it. It may be a combination of the two factors (dark adaptation under the clouds and "scouring" of the sky by the clouds).

I find the dust lane in the arm segment S of the core comparatively easy. It is the only clear-cut dust lane segment that I have seen on other nights. In the drawing below, S is to the upper right. It was made after a night-long observation when the supernova of 2011 was near its peak, with the same telescope (16"), magnifications, and from the same site. The texture shown was general perception only, not actual detail.



The split and gap in the outer arm E of the core (in the arm segment pointing at NGC 5195) in this view comes from some combination of the inter-arm spur and the actual dust lane in the outer segment there. And of course the visible notch in NGC 5195 is due primarily or exclusively to the continuation of the dust lane of NGC 5194 superimposed on the companion!

Ivan Maly

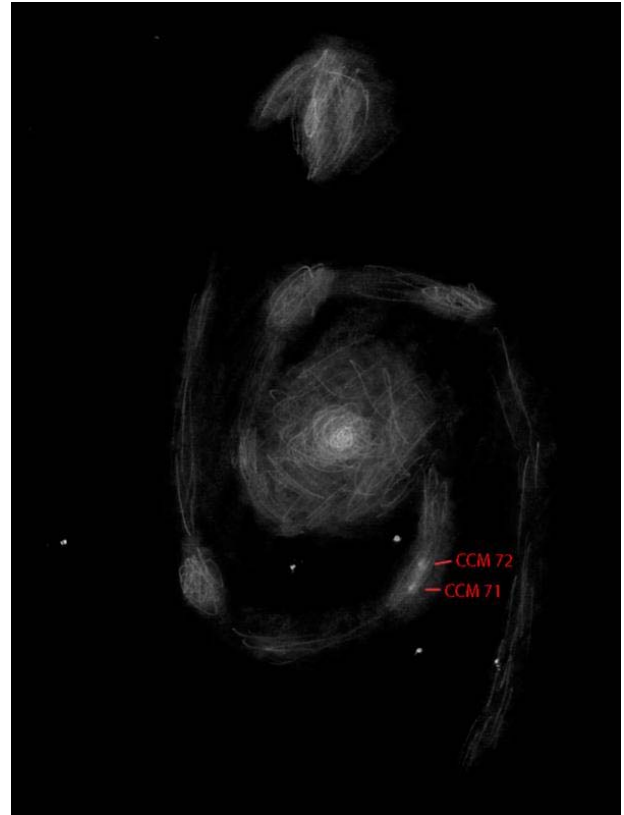
Saturday night I managed a quick look at M51 with the same scope from the same site. At 300x with a ZAOII-6, two of the brightest and largest HII regions were visible. They were cataloged by Carranza, Crillon, and Monnet in a 1969 Astronomy and Astrophysics paper (1:479) as #71 and 72. I refer to this catalog as "CCM".

On the photographic chart in Stoyan's Atlas of the Messier Objects they (or their star like cores) are labeled L 203 and L 180. I was unable to determine the origin of these "L" designations or what type of objects they represent.

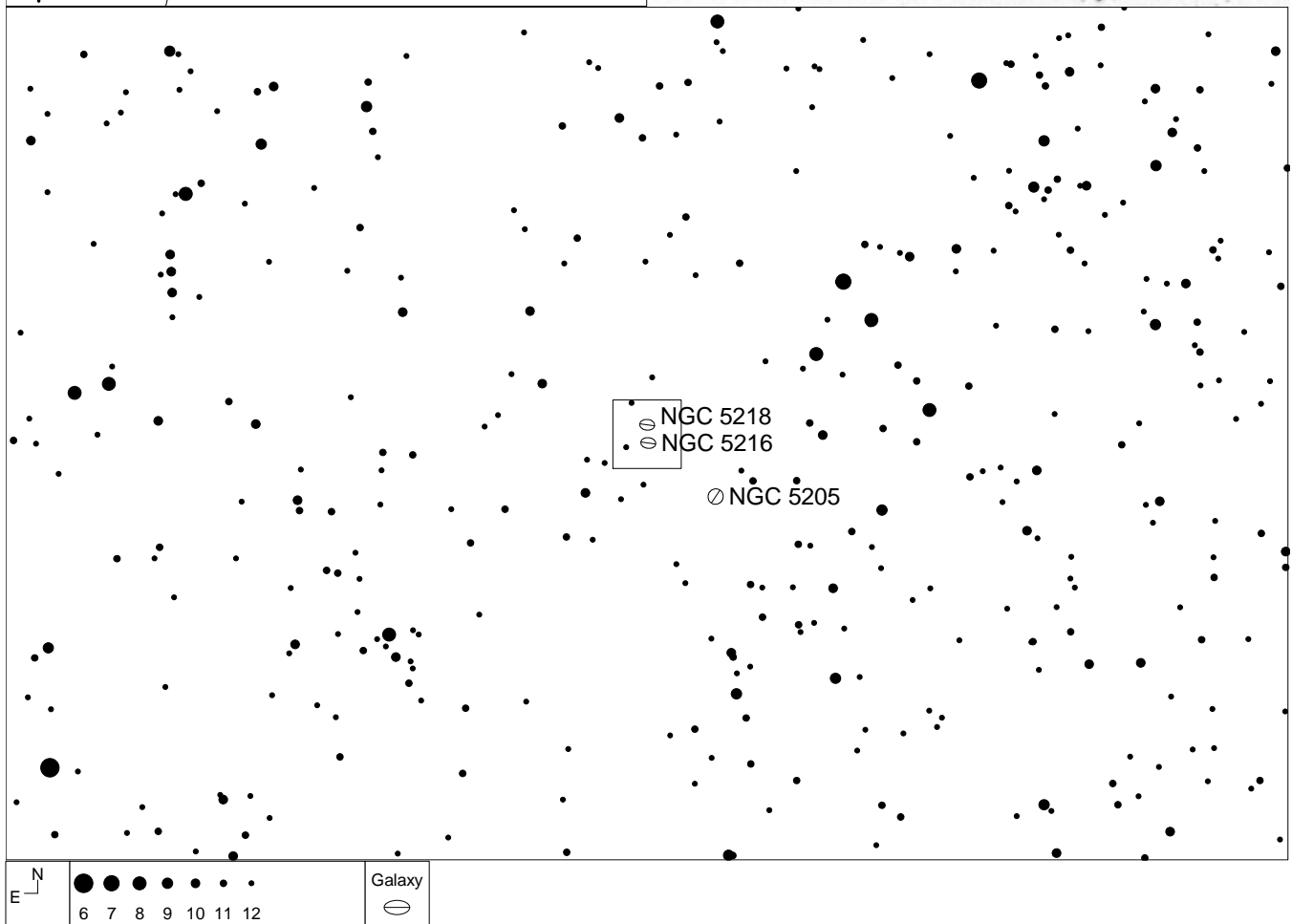
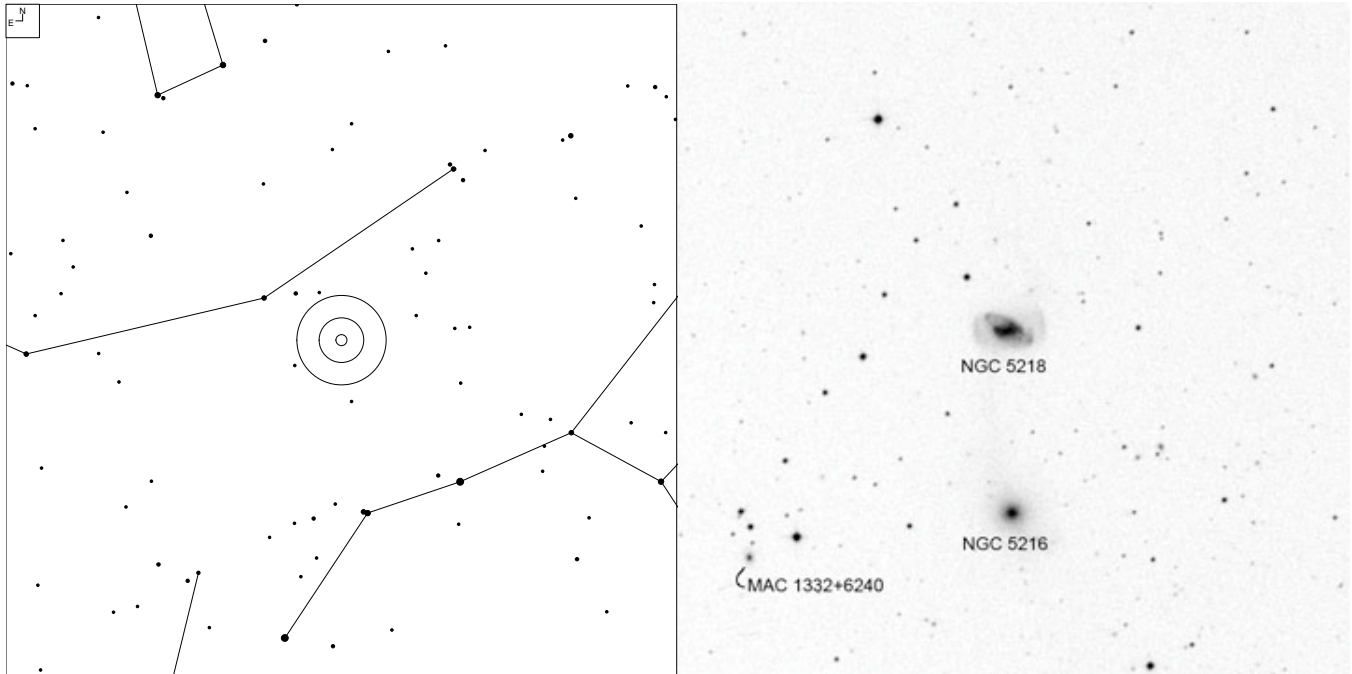
CCM 71 was labeled as such on Howard's sketch in his July 2011 S&T article. Based on location, I am certain that the much more compact object to its NW in Howard's sketch is CCM 72, although the difference in size between it and CCM 71 in his sketch is greater than in my view.

At 225x I saw the star like center in 71 flickering in the center of a compact nebulosity that has a weak narrow extension terminating around the position of CCM 72. At 300x, the two objects were fully resolved and looked similar in brightness and size, 72 still being more prominent and each exhibiting a star like center surrounded by compact, strongly concentrated nebulosity.

16", Cherry Springs, good seeing, poor transparency, 50% humidity, 12C, 200-300x, north up, west right.



Arp 104 – NGC 5216 and NGC 5218 – Keenan's System (Ursa Major)

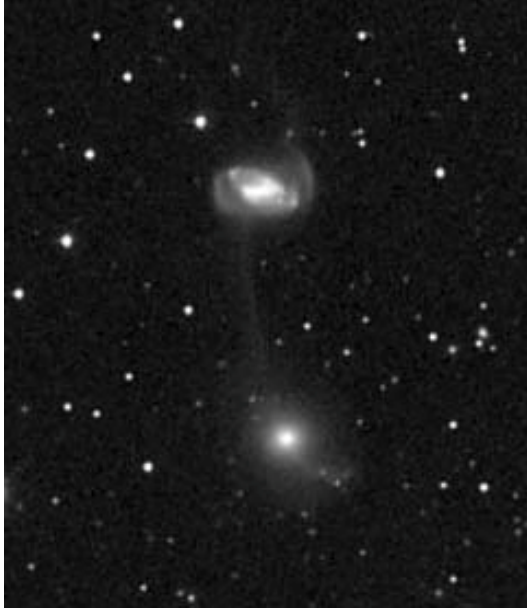


Object	RA	Dec	Mag	Size
NGC 5216	13 32 06.9	+62 42 03	12.7v, 13.6b	1.9' x 1.1'
NGC 5218	13 32 10.4	+62 46 04	12.3v 13.1b	1.8' x 1.2'

Arp 104 – NGC 5216 and NGC 5218 – Keenan’s System (Ursa Major)

Mark Friedman

Imagine this. Start with two relatively bright, undistinguished galaxies. Then separate them by 22,000 light-years. Finally throw in galactic debris connecting the two. The result is Keenan’s System, aka Arp 104 and VV33.



The galaxies NGC 5216 and NGC 5218 were discovered and cataloged by William Herschel in 1790. Edwin Hubble studied them as Intergalactic Nebulae in 1926. Then in 1935 on a photograph taken with the Yerkes 24-inch reflector Philip C. Keenan noticed a “faint but definite band of nebulosity” connecting the two galaxies. He also noted a “short curved arm” continuing beyond the other side of NGC 5216. Keenan published a paper with his findings; however it received little notice for decades.

AN UNUSUAL PAIR OF NEBULAE: NGC 5216 AND 5218

In the course of a survey of extra-galactic nebulae the two objects NGC 5216 and 5218 (α 13^h30^m, δ +63°1) were photographed with the Yerkes 24-inch reflector on February 20, 1934, the exposure lasting one hour. On later examination of the plate it was seen that these two apparently well-separated galaxies are connected by a faint but definite band of nebulosity. A second plate centered on the same field confirmed the reality of the nebulous link, which is invisible on short exposures and seems not to have been remarked before.

The case is striking, among the small number of pairs known to be physically connected, because of the considerable separation of the two objects in proportion to their size. The distance between their centers is 4.1—more than twice the major diameter of the larger nebula, NGC 5218, which is of type SBb. Also of interest in relation to the dynamics of such pairs is the short curved arm which apparently continues the connecting band beyond NGC 5216, and can be seen extending toward the southwest in Plate VI.

On the assumption that the larger nebula is a typical spiral, the average distance of the system was computed by Shapley’s method.⁴ From the apparent photographic magnitude of about 13.4 the dis-

⁴ “Space Reddening in the Galaxy from the Colors of 733 B-Stars,” *Pub. Washburn Obs. U. Wisconsin*, 15, 217, 1934.

⁵ *Harvard Ann.*, 88, 96, 1934.



In 1958 this pair of galaxies was “rediscovered” by observers at Lick and Palomar Observatories. The pair was included in **The Catalog of Interacting Galaxies** as VV33, published by B.A.Vorontsov-Velyaminov in 1959. In 1966 they were included as Arp 104 into Halton Arp’s **Catalog of Peculiar Galaxies**.

A recent study by Beverly Smith (et al) with the Spitzer Infrared and Galaxy Evolution Explorer UV Space Telescopes has shown the bridge to be a remarkable filament. It revealed “beads on a string” - a series of star-formation complexes. According to their findings, “Our model suggests that bridge material falling into the potential of the companion overshoots the companion. The gas then piles up at apogalacticon before falling back onto the companion, and star formation occurs in the pile-up.”

Here are my somewhat sparse observation notes on Keenan’s System aka Arp 104

March 24/25, 2012 at the Cosmic Cowboy Observatory - Barbarella (Jimi’s 48” f/4)

Seeing above average, transparency 7/10, SQM 21.75

Brandon 24 at 203x and Ethos 13 at 375x bridge between 2 galaxies [seen with] direct vision in both eyepieces

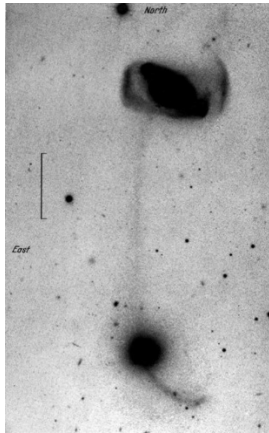
[E13] some brightening in bridge 1/3 way up from 5216

5216 condensed, stellar core

5218 elongated

In addition to the bridge both galaxies have a countertide - a fingerlike extension pointing in a different direction to the debris trail, a typical structure of interacting double galaxy systems. I have no recollection whether I saw either countertide – my sparse notes don't make mention of either a positive or negative observation.

Observing the galactic bridge, in this case, was rather easy between 48 inches of aperture and the dark, transparent skies of southwest Texas. Once again the weather pattern this Spring in Ohio hasn't given me a single night to observe with the Moon out of the way. I am patiently waiting to give Keenan's System a go with my 15" scope, though this one might be a stretch. Meanwhile let us know your results with both the bridge and the countertides. Be sure to note your aperture and sky conditions.



Jimi Lowrey

This is a really cool object good choice Mark.

I have never looked for the "finger" filaments before. The bridge for some reason in the 48" looks wider than in Images I have seen.

Next time I am at the scope Ill try for the "finger" filaments and do a quick sketch to show how wide the bridge looks to me.

Bob Douglas

On March 9, 2013 I observed Keenan's System with a 28" f/3.6 Starstructure. I used an 11 Nagler (with no Paracorr), so 233x. I didn't see any connection between the galaxies. But I must admit I presumed it wasn't possible using my size scope (or even Jimi's 48"). Did my presumption preclude any detection? Maybe. I observed about 80 miles north of San Francisco (at Lake Sonoma). I didn't take a sky

reading, but it was quite dark--I had my best view ever of the twin quasar through my scope. I definitely will observe Keenan's System again.

Uwe Glahn

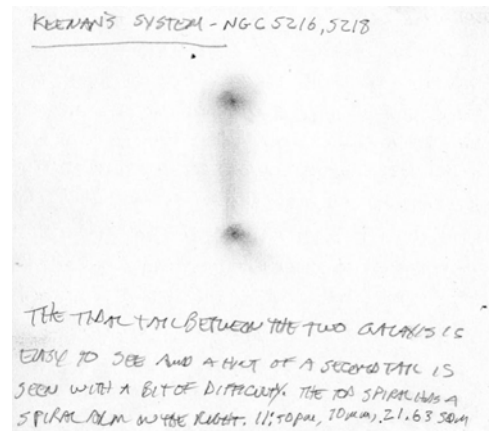
Same result like Bob, no sign of the bridge with 27" and fairly good conditions.

The brighter "ears" of NGC 5218 and its inner structure were the only details I could pick up.

Howard Banich

This is my observation of Keenan' System a few weeks ago with Jimi's 48:

"The tidal tail between the two galaxies is easy to see and a hint of a second tail is seen with a bit of difficulty. The top spiral (galaxy) has a spiral arm on the right. 11:50pm, 10mm, 21.63 SQM."



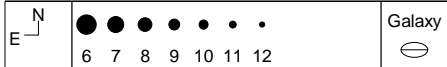
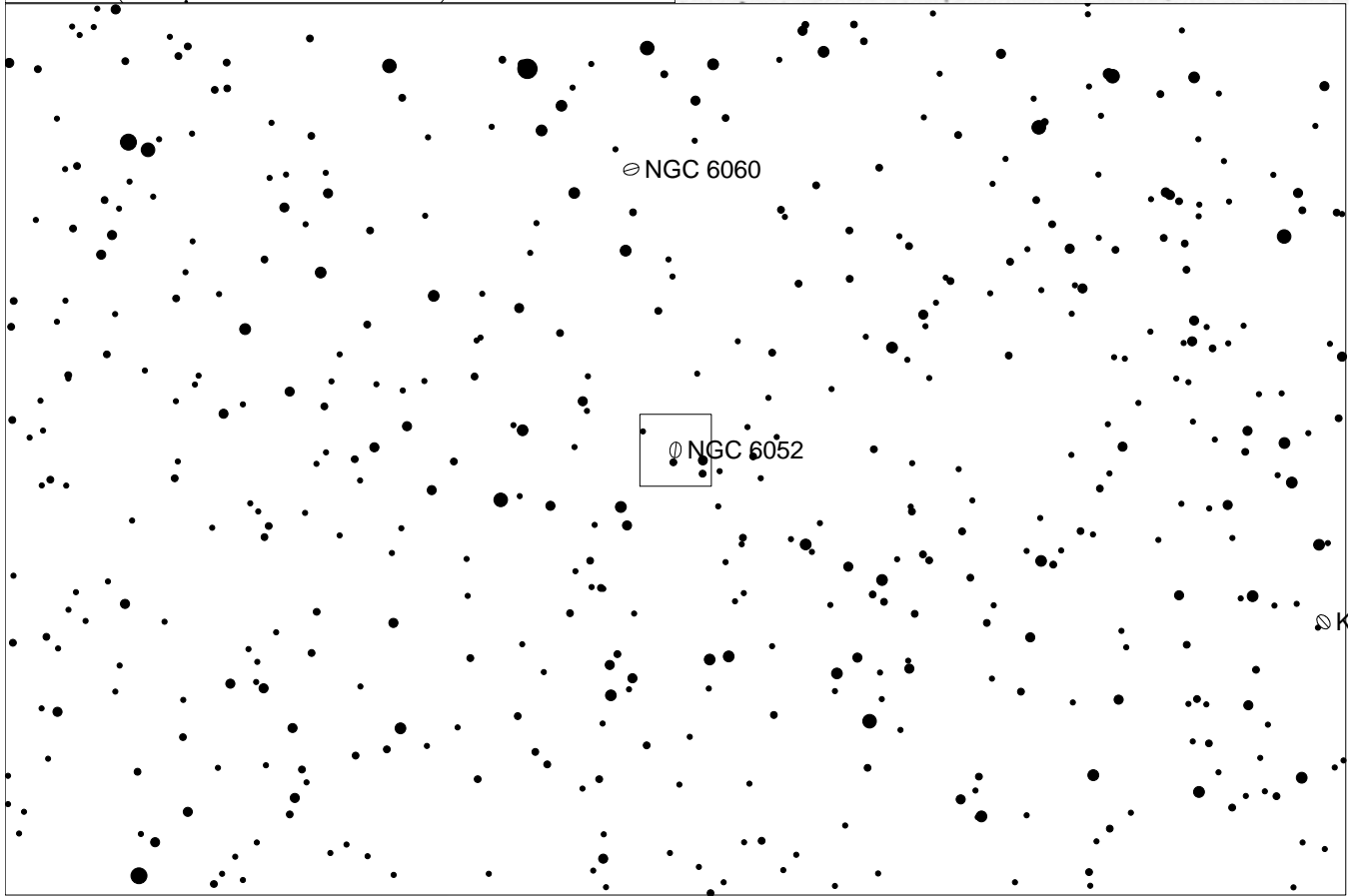
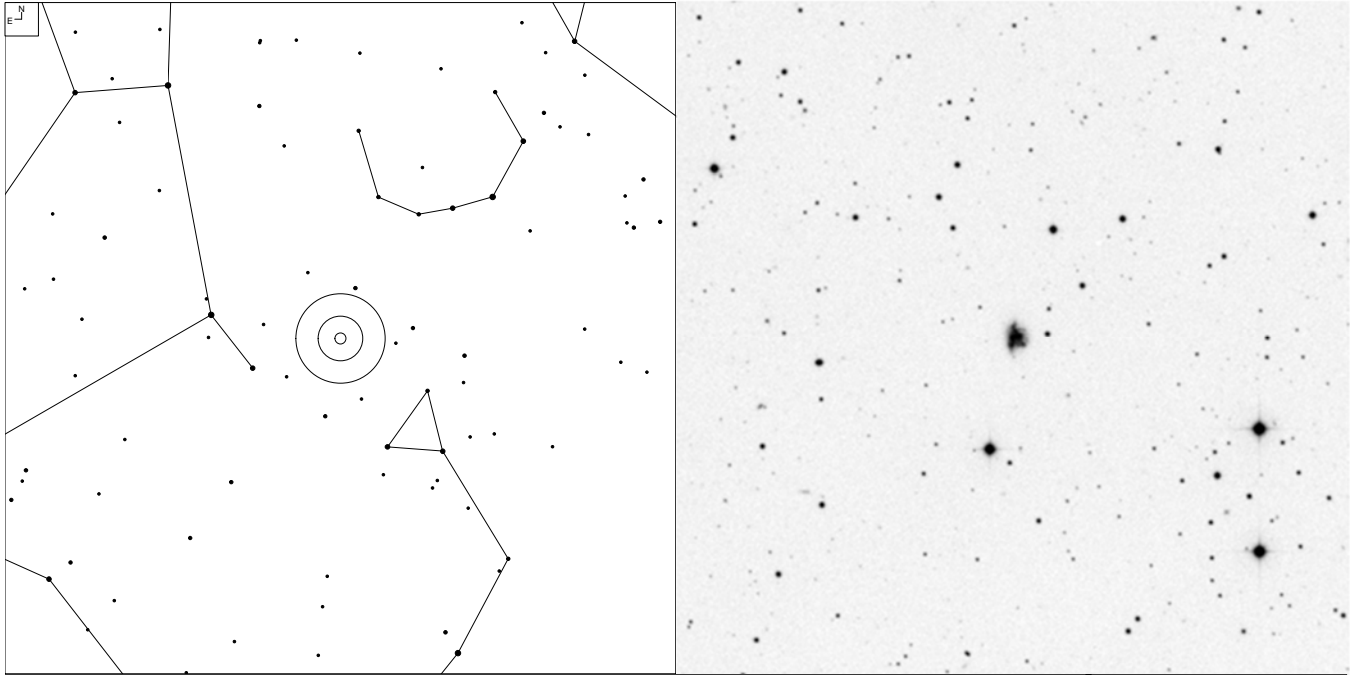
When I looked at a photo of this system afterward I was surprised to see how narrow the main tidal tail appeared because it looked really broad through the 48 inch, nearly as wide as NGC 5216 and 5218. But it was a direct vision object and there was no doubt it looked the way I sketched it.

Jimi Lowrey

I have wondered why the bridge looks so much wider visually than images of it . Howard's drawing is just how it looks in the eyepiece of the 48"

I showed several people during the Texas Star party " Keenan System" with the 48 and all were surprised at how wide the bridge appeared in the eyepiece.

NGC 6052 – Arp 209 – VV 86 (Hercules)



Object	RA	Dec	Mag	Size
NGC 6052	16 05 13	+20 32 31	14.1V, 13.3B	~0.7'x0.4'

NGC 6052 – Arp 209 – VV 86 (Hercules)

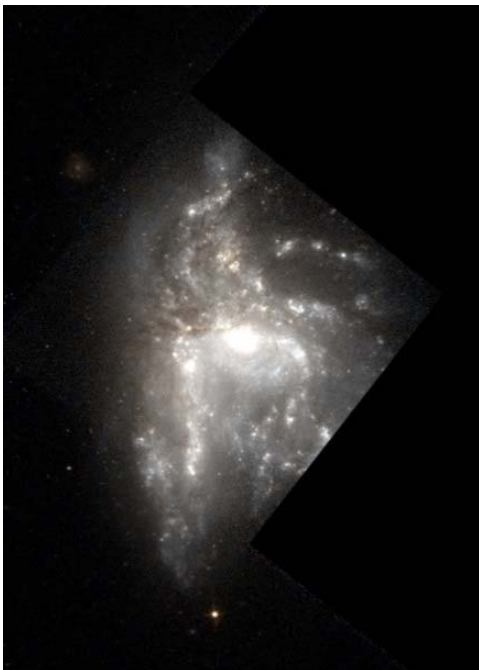
Uwe Glahn

If you open a star map or planetarium software you first see lots of circles and numbers over the position of NGC 6052 – a sure sign of an interesting object.

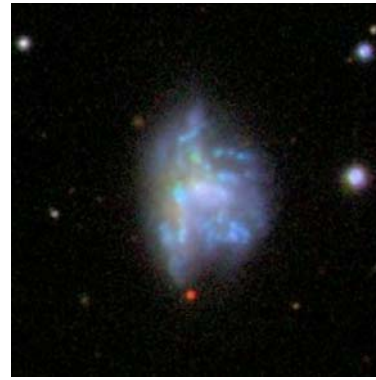
The confusion began within the NGC. Albert Marth counts as the discoverer in the year of 1864. He uses the 48" Lassell Reflector in Malta. But William Herschel noticed a nebula with the same DEC but with 2' difference in RA – NGC 6064 – 80 years before.

In both cases the NGC listed two objects. First modern catalog which listed the galaxy as interacting galaxies was as often Vorontsov-Velyaminov with the number 86. ARP listed the galaxy as number 209 "Irregularities, absorption and resolution – chaotic with loops". Chaotic is the right expression because it was not clear what this object was. [Alloin and Duflot](#) supposed a collision. The HST showed strong HII regions and knots of star bursts.

The very small galaxy could easily be seen with an 8" telescope. Bigger telescopes showed the chaotic structure. Lots of knots spread over the small but bright ~0.7'x0.4' area. The challenge is to see and separate these knots. Helping charts and pictures are shown below.



HST



SDSS

Fig. 2: Velocity map of the object: on the optical contours, we have plotted $(V-4536)$, with dots of linearly increasing diameters. Position angles of the spectra are indicated by arrows. As usual, north is to the top, east to the left.

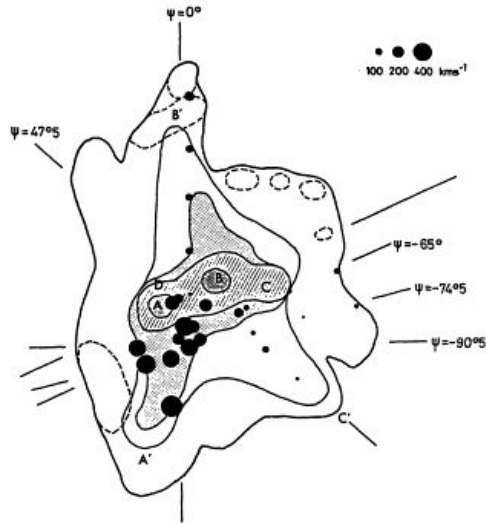
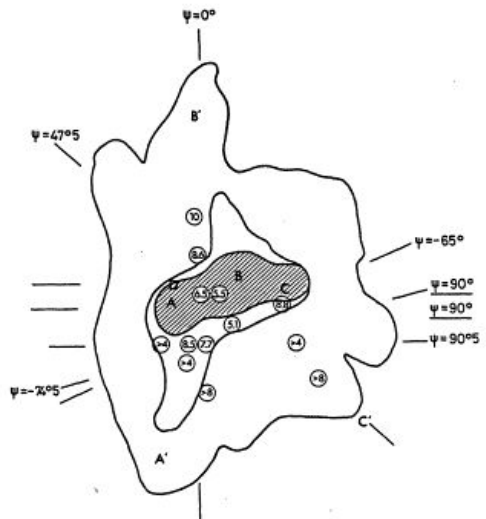
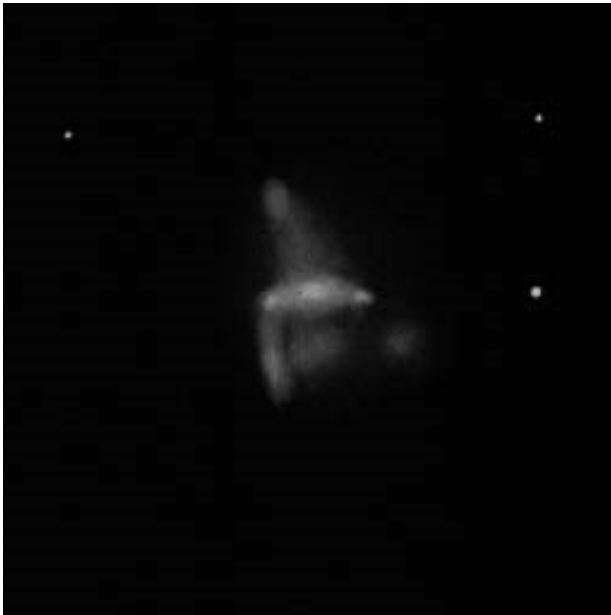


Fig 2bis: observed $H\alpha/[NII] 658.4$ line intensity ratio in different locations within the object.



"NGC 6052 - A collision of two late spirals; Alloin, D. & Duflot, R."



Sketch with 27", 586x-837x, Seeing II, NELM 6m5+

Steve Gottlieb

I'm surprised there haven't been any replies or other observations of NGC 6052 as this is an excellent target -- particularly for larger scopes. I've observed it twice in Jimi's 48-inch, mostly recently last month. This observation is from last year ----

48" (5/15/12): at 488x, the disrupted system NGC 6052 = Arp 209 had a very strange appearance. Attached on the SE side is a faint, elongated glow, ~22"x6", extending out from the main portion of the system and giving the strong impression that an edge-on galaxy was involved in this merger. Also on the NE side, a fainter and broader extension or plume was visible oriented N-S. Although these two features seemed detached, they may be part of the same partially merged edge-on. To the west of these extended features is the most prominent region or core of the galaxy, which appeared bright, irregular round and mottled. The halo was very irregular in shape and brightness, particularly on the west side which had a mottled, tattered appearance.

I didn't resolve any individual HII regions on the west side of the galaxy, but I bet on a good night they would be seen.

Rolandos Constantinides

Well, there are other observations! I just didn't get a chance yet to transfer my sketch to the computer. I did observe this object under SQM 20.98 skies last Monday night. I do have a habit of not reading the

whole text of an OOTW before observing it for the first time, so that I concentrate on seeing it through the eyepiece without any previous "biases". Well, this object got me first by surprise by how easy it was to see through 18". After spending quite some time on it and using magnifications from 66x to 294x, I did notice some things.

The first really interesting note was it's shape. It was distinctly triangular, with a quite high surface brightness. I did check nearby stars to make sure nothing changed in my collimation. Nope, it WAS triangular!

The second interesting observation was the distinct unevenness in brightness within the triangular shape. Now, I don't have the sketch in front of me and I can't recall the position of the brightening from memory, but there were at least three distinct knots.

Howard Banich

I had a look last night with my 28 but the seeing wasn't steady enough to see any detail other than 6052's triangular shape. The SQM was very dark for the observing site though - 21.52 - and transparency was excellent so it did appear very bright. The view through the 48 inch last month was much like the SDSS image in Uwe's original post though.

Nearby is a lovely double system, NGC 6062 A and B. Much more subtle than 6052, they rewarded extended viewing.

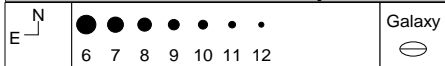
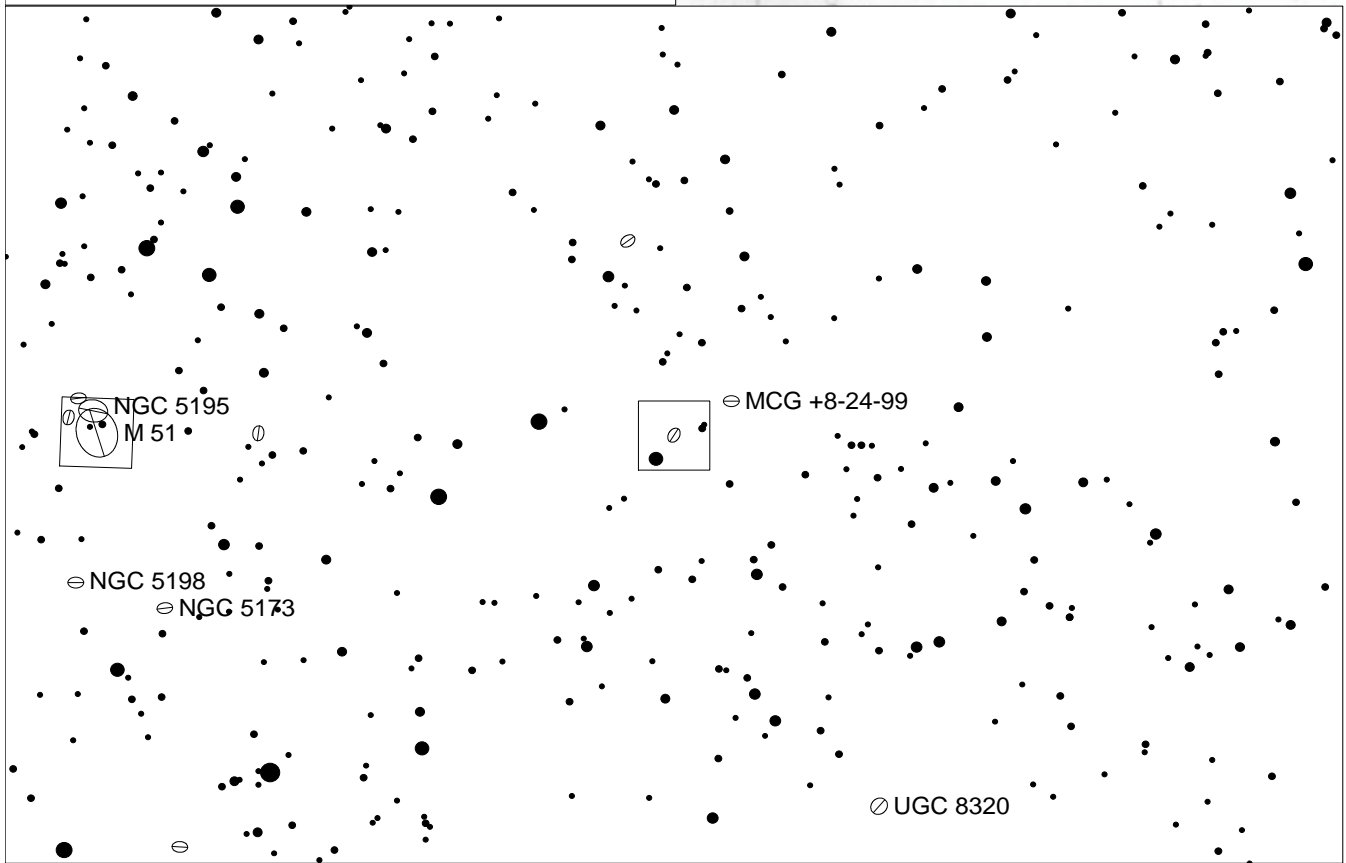
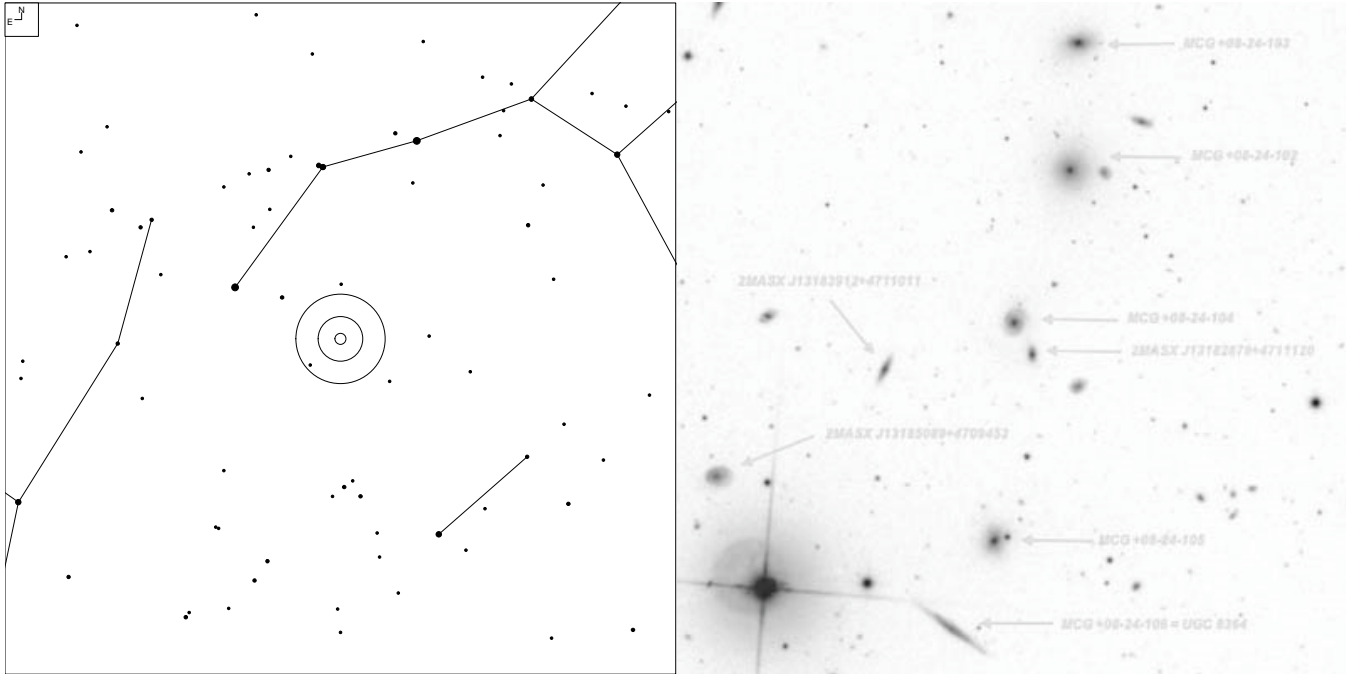
Reiner Vogel

I gave this galaxy a try last night with my 22"

First, it is really small :-). But it is quite bright :-)

Seeing was not very steady so my observation was similar as Howard's. The triangular shape was very distinct with a brightening towards one of the sides. I could use magnifications only up to 350x and there were hints to more internal structure but this was difficult to pin down (nothing compared to the fine detail you reported in your excellent sketch). Needs definitely to be revisited again in a night with better seeing.

MCG Galaxy Chain near M51 (Canes Venatici)



Object	RA	Dec	Mag	Size
MCG+8-24-102			15.3	0.4 x 0.3'
MCG+8-24-103			15.9	0.4 x 0.2'
MCG+8-24-104	13 18 26.11	+47 13 23	16.9b	0.4 x 0.3'
MCG+8-24-105			16.8	0.3 x 0.2'
UGC 8364			17.0	1.2 x 0.2'

MCG Galaxy Chain near M51 (Canes Venatici)

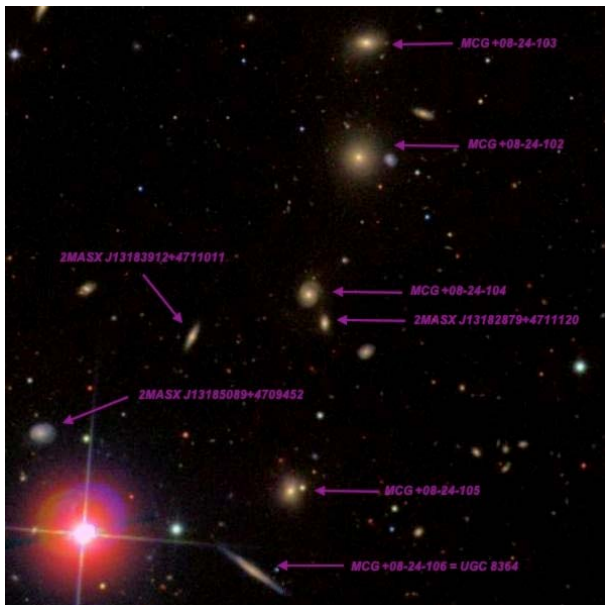
Steve Gottlieb

Galaxy chains have appeared several times in the OOTW -- Shakhbazian 166 and HCG 55 in Draco, UGC 3274 in Orion, HCG 56 in Ursa Major. Why? Well, they're unusual objects, fun to try to bust apart, and well worth several visits as better conditions can resolve new members.

This OOTW does not go by any popular name, but you'll find it less than two degrees west of M51! Furthermore, it lies just northwest of a mag 8 star (HD 115809), so it's a snap to find. I think the lack of a popular name has contributed to its obscurity -- though its similar in difficulty to many Hickson compact groups.

NED gives two designations for the chain -- NSC J131822+471007 and [YSS2008] 264. The first is from the 2003 paper "Northern Sky Optical Cluster Survey" in AJ, 125, 2064. The second is from the 2008 paper "A Spectro-Photometric Search for Galaxy Clusters in SDSS" in Astrophysical Journal Supplement, 176, 414. This study was based on SDSS Digital Release 5.

The chain consists of 5 MCG galaxies - MCG +8-24-102/103/104/105/106, which are oriented nearly N-S and span 7'. The first four have similar redshift (about $z = .056$), but MCG +8-24-106 = UGC 8364 is a foreground object at half the distance. The SDSS study revealed 7 members (labeled on the image below) within a radius of 1.7 million light years (.52 Mpc).



My first view of this chain was in my 18-inch Starmaster in May 2010. I didn't have a detailed chart or image at the time but picked up 3 of the 5 members in the chain -- MCG +08-24-102, -103 and -105. I'm pretty sure at least 4 in the chain should be visible in this aperture, though UGC 8364 will be a challenge. In April 2011 I took a look in Jimi Lowrey's 48-inch and all 5 members were easily picked up, as well as a few additional members.

18-inch (280x): MCG +08-24-102 appeared very faint, very small, round, 12"-15" diameter. Forms a close pair with MCG +08-24-103 1.5' N. MCG +08-24-103 was featureless, just an extremely faint and small knot, ~10" diameter. MCG +08-24-105 was the faintest member I noticed and appeared again as a featureless dim knot, ~10" diameter, just 2.8' WNW of mag 8.1 HD 115809.

48-inch (488x): MCG +08-24-103 appeared fairly faint, small, slightly elongated E-W, 15"x10", bright core. Similar MCG +08-24-102 lies 1.5' S and also appeared fairly faint, small, round, bright core. MCG +08-24-104, 1.9' further SSE, was logged as fairly faint, very small, round, 15" diameter, bright core. Forms a close pair with 2MASX J13182879+4711120, a compact companion 26" SSW. MCG +08-24-105 appeared moderately bright, fairly small, elongated nearly 3:2 N-S, 20"x14". Forms a close "pair" with a mag 17 star just 8" W. Finally, MCG +08-24-106 = UGC 8364 appeared very faint, extremely thin 5:1 SW-NE, 30"x6", very low surface brightness. Situated 1.2' SSE of MCG +08-24-105 and just 2.3' WSW of mag 8.1 HD 115809, which makes viewing more difficult.

2MASX J13182879+4711120 is located just 26" SSW of MCG +08-24-104 and appeared very faint, very small, round, 8" diameter, stellar nucleus. 2MASX J13183912+4711011, 1.2' ESE of MCG +08-24-104, was very faint, 10"x6" NW-SE. 2MASX J13185089+4709452 (missing from Megastar) is located just 1.4' NNE of the mag 8.1 star. Despite the glare of the bright star, it was easily picked up as a faint, very small, round glow.

I'd be interested in hearing how many of these galaxies can be picked up in various apertures.

Jimi Lowrey

Great OOTW pick Steve this is one that flies below the radar. I have wondered why Hickson did not have this one in his catalog? If you have not seen this I highly recommended it next time you are near M51.

Reiner Vogel

Thanks for showing us this group. It looked interesting and I put it on my to-do-list. Last night was the first opportunity to give it a try with my 22" (out weather conditions in southern Germany had been a bit suboptimal for the last months :- ().

The star pattern was easy to find, but at a first glance no galaxy was visible at all. It took some time with averted vision until the first galaxy could be discerned. That was 102 which appeared to me to be the *easiest* of the group (being not easy at all), accessible from that triangle of stars. Neighboring 103 was a bit tougher and took some time to be seen with confidence. Switching to the brighter star at the other end, I could resolve 105, being equally difficult as 103. I was not sure about 104. Something appeared to pop in and out over time, but I would not say that I saw it with confidence. Sky conditions were OK, but not great.

This is a challenging group and a lot of fun hunting the single galaxies.

Steve Gottlieb

Thanks for posting your observation, Reiner. Out of curiosity, do you take SQM readings when you observe? As a reference, the site where I observe this chain typically has SQM reading of 21.5-21.6, with 21.4 on a sub-par night and 21.7 on an excellent night. It does seem recently, though, conditions have been sub-par to average -- don't know if this is related to solar activity.

Reiner Vogel

No, I don't take SQM readings. There had been some hype here about SQMs several years ago, but that has changed. For my observing locations in southern Germany, SQM readings do not correlate well with perceived sky quality (reflected by the observability of difficult deep sky objects). Our skies are limited mostly by transparency (rather the lack of it), and not by light pollution. And SQM readings do not correlate well with transparency.

Last summer, we had had a discussion here as well in how far increasing sky glow had picked up with increasing solar activity. Uwe might tell you more about this, I had not followed it closely.

The last two nights, I had an fst of around 6.0. At 48° N, we do not have yet those true "white nights", but nevertheless, I have the feeling that it does not get fully dark. In winter, my location has usually fst 6.5, and reaches 7.0 in very few exceptional nights.

Rolandos Constantinides

Last night we had (finally!) some decent observing conditions. Unfortunately, our "seaside" site which gives us amazing views of the southern horizon has been destroyed by three little "surfing clubs" (!) which sprang up, so with only a few hours available for observing we picked our alternative site on a private ranch to which I have access. From this ranch the best skies are at the zenith and to the north to west. With M51 being superbly placed, I decided to give a go to this challenging galaxy chain with my 18".

It was very easy to locate the field (I would have never thought a few years ago that I would be using M51 as a star-hopping stone for nearby galaxies!). The bright star on one side of a 294X field with the little triangle on the other side were very characteristic. The only problem, at first, was the ... lack of galaxies!!!! No galaxy was visible! On goes the DSA hoodie, deep breaths, and I try again. Yes! With averted vision I suspect something. It is on and off, between the bright star and the triangle, nearer to the bright star. I can hold it with averted vision most of the time (I do lose it momentarily). At some point it kind of goes. Another deep breath, here it is again, I can hold it better now with averted vision. I do have the impression that the extremely faint patch of light I see there is lumpy, but I cannot really say that I can see individual galaxies. It is a general lumpiness in a patch of light slightly above the sky brightness. Fellow DSF member NicosCY also confirms that he can see something in the area but cannot really pin it down.

I did try a bit more on this chain, hoping I would finally be able to "break" it down to individual galaxies, but to no avail. as the time moved on I could hold the fuzzy brightness with averted vision all the time, but I was never really able to say that I could split the galaxies. Based on the photographs I

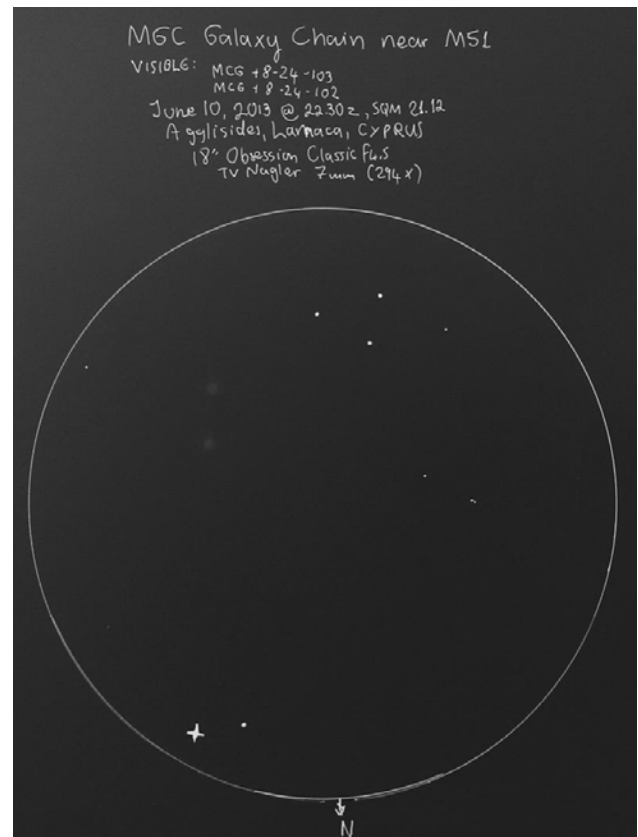
believe what I perceived was the combined light of -102 and -103. I hope to be able to re-observe this group in early July from darker mountain skies, before M51 starts to dive to the west.

The above observation was made with my 18" Obsession and a TV Nagler 7mm, under SQM 21.0 skies...

--
I was lucky enough to have a second go on this group last night, from the same exact locality, but with significantly improved conditions, especially in regards of transparency (and the SQM improved to 21.15 from 20.98 last night). Knowing the exact field, it was just a matter of concentrating hard and taking all necessary precautions to prevent stray light (thanks Dragan for the Hoodie!). Initially all I could see was again what appeared to be a general brighter patch to the northwest of the distinct asterism. I tried increasing the magnification to 488X but I could no longer locate the brightness. Back to 294X I could again perceive the glow. It was definitely easier to see and hold than during the previous evening, but I would not call it easy!

By taking deep breaths and keeping HD 115809 out of the field of view I slowly started to see two distinct roundish glows where I could see the general glow before. After spending several minutes I could steadily hold with averted vision two very faint spots. I took a break, walked around, returned to the eyepiece, and again I could steadily hold with direct vision two very faint smudges (like slightly out of focus stars) at the same location. With direct vision the two smudges would initially disappear, only to re-appear as an on-off general glow in that area - practically what I could see with averted vision the previous evening.

I had yet another 10 minute rest and I tried again with the same results. The two spots would disappear with direct vision, or if HD 115809 was in the field. I tried hard to see other potential candidate galaxies of the chain, but to no avail. The presence of the asterism on top (south) of the field, the 8th mag star to the north, and a pair of 16th mag stars north of the asterism were helpful to "anchor" the correct position of the galaxies on the sketch I produced. The positions correspond to MCG +8-24-102 and -103. Needless to say, the galaxies appear much brighter than real in the sketch! Thanks to Steve Gottlieb for pointing out this treasure!



Lou Behrman

Was able to give this a look this past Saturday from High Knob Overlook in North Central Pennsylvania. Decent transparency (5/5) and seeing (4/5) with SQM of 21.15 at the time of the observation.

Cut from my ST3 Log:

TeleVue Delos 6mm, 351x

MCG 8-24-106 Observed as very faint edge on in format. Took very carefull averted vision to resolve. Confirmed by Josh Wright. LEDA 2293741 and LEDA 2293849 observed as stellar, no extension with averted vision. MCG 8-24-103 resolved as extremely faint smudge with averted vision. No stellar core.

Having spent a significant amount of time chasing Hicksons I found this chain to be difficult at best. The odd thing was the two LEDA's in the middle of the chain. I assumed they were field stars and was surprised that they appear to be stellar cores for those two galaxies. Can't have two side-by-side galaxies that just happen to align with field stars... Right?

And Steve... 21.4 is a sub-par night? I have GOT to get back west. These Pennsylvania skies are killing me...

Steve Gottlieb

Thanks for posting your observation, Lou. It's interesting we picked up different objects -- I missed the edge-on UGC 8364 = MCG +08-24-106 in my 18" (also CZ optics), but found MCG +08-24-102 brighter than nearby MCG +08-24-103 (1.5' separation), though both were visible.

The two LEDA galaxies you noted as stellar are actually fainter than all 5 MCG's. Here are the mags I could dig up...

LEDA 2293741 = 2MASX J13182555+4710490
V = 17.3 (computed using g and r mags in SDSS Data Release 9)
B = 18.0 (from HyperLeda)

LEDA 2293849 = 2MASX J13182879+4711120
V = 16.9
B = 17.6
logged as "very faint, very small, round, 8" diameter, stellar nucleus" in the 48-inch

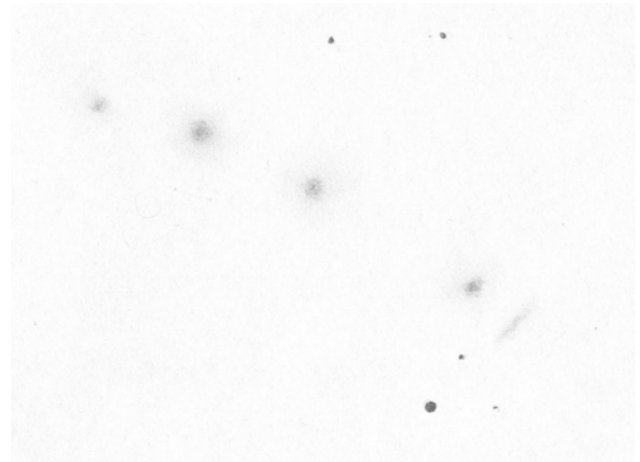
> And Steve... 21.4 is a sub-par night? I have GOT to get back west. These Pennsylvania skies are killing me...

Mark Johnston and I were back to same site on Saturday night and I believe the SQM readings were in the 21.55 range (Mark may have more accurate figures), but the seeing was miserable so still sub-par! Nevertheless, I'll post some observations in the next day or two of several KTG triplets and ROSE quartets from the past two weekends.

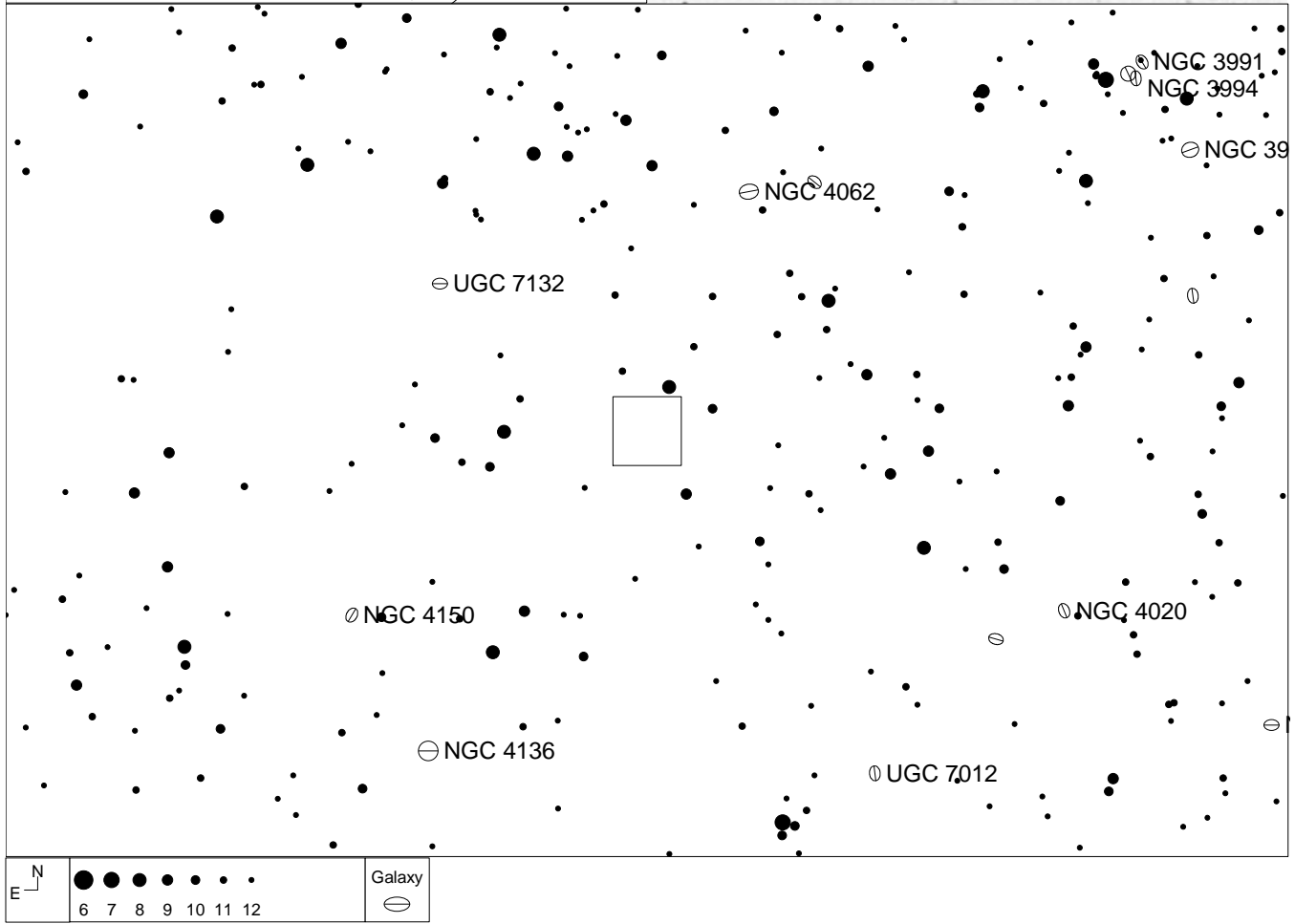
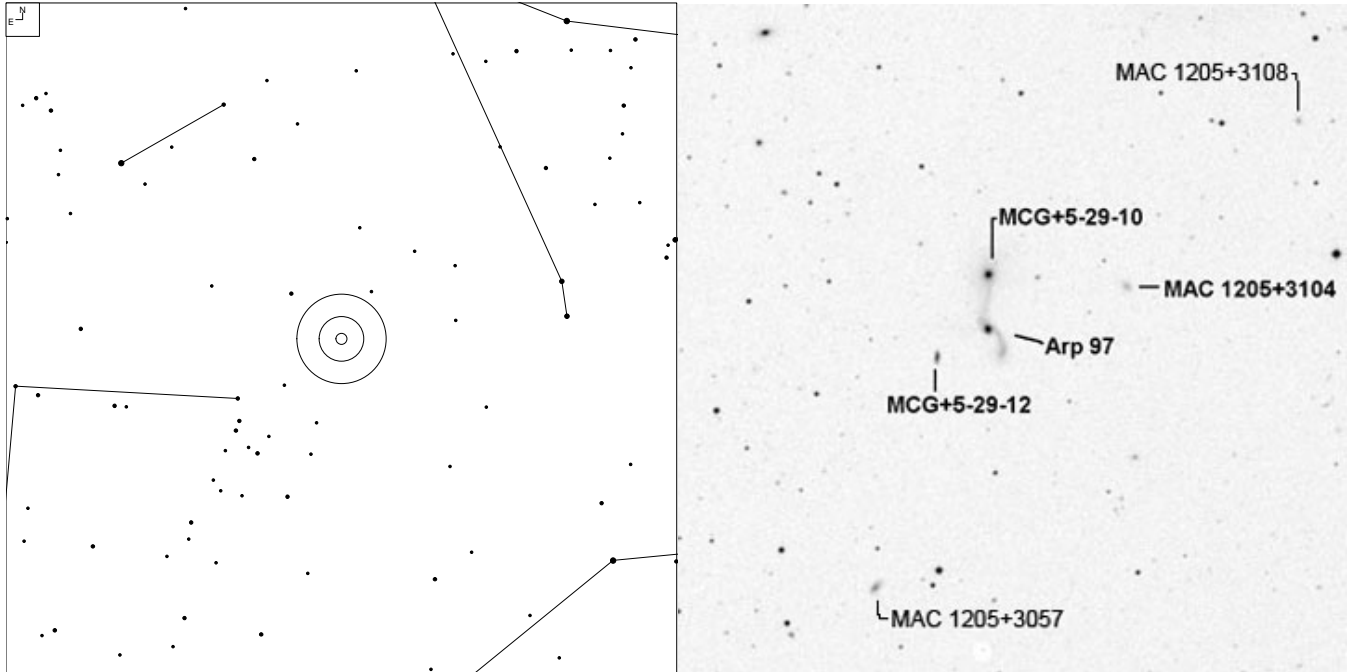
Howard Banich

Here's my observation and sketch from the 2013 GSSP:

"All five galaxies are seen, and the two by the brightest field star are the most difficult. Putting the star outside the fov makes both much easier to see. It took me a while to start this observation because about a dozen people stopped by for a look at M51, and after they left the circular baffle in the scope came loose! I quickly put both baffles where they normally go and was back in business in a few minutes this all added up to about an hour delay to this observation. 253x - 408x, 21.65 SQM."



Arp 97 (Ursa Major)



Object	RA	Dec	Mag	Size
MCG+5-29-10			15.7	2.4 x 1.4'
MCG+5-29-11	12 05 47.8	+31 03 39	15.3	1.4 x 0.5'
MCG+5-29-12			15.5	0.4 x 0.2'

Arp 97 (Ursa Major)

Alvin Huey

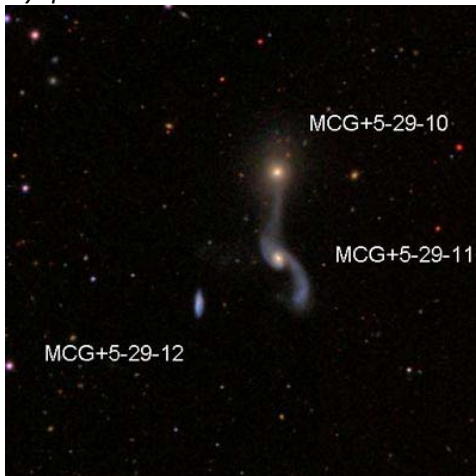
In actuality, Arp 97 consists of just the two interacting galaxies (-10 and -11) while the nearby -12 is just in the right place where if you took the image and rotated it counterclockwise 120 degrees, you get a "coat hanger". That is how it appeared in Jimi's 48" scope. Pretty cool object. The redshifts of the three galaxies suggests that they are approximately the same distance from us. -10 and -11 is about 318 mly, while -12 is 340 mly distant.

Below are my two observations of this object:

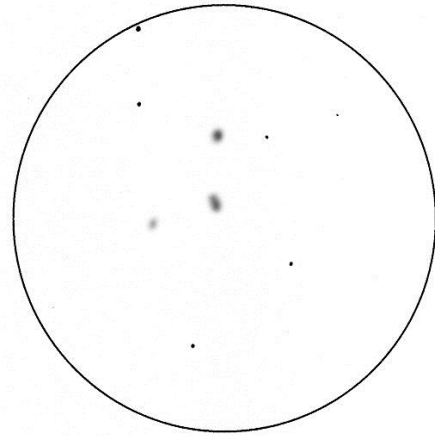
48" (488x) (NELM 7.5) - *Very cool coat hanger looking group of galaxies. The hook off MCG+5-29-11 is considerably faint, but obvious. It hooks to the west side hooking to the south. It is brighter than the connecting streamer to MCG +5-29-10, which lies 2.4' due north. The two mentioned galaxies group forms a coat hanger with MCG+5-29-12, despite that there are no bridges to MCG+5-29-12. Very cool object in the 48"*

22" (255, 305, 377 and 458x) (NELM 6.5)

MCG+5-29-11 appeared as a 3:2 elongated even surface brightness patch with no central brightening. PA = 20° and 15" long. The "hook" was not detected. Its companion, MCG+5-29-10, lies 1.2' north and is a faint round even surface brightness patch. No faint extension detected. Probably need a better night and a larger scope. 10" across. MCG+5-29-12 is a very faint round even surface brightness patch. Lies 1.3 SE from -11. Note: This observation was done more than 10 years ago with "high-glass" eyepieces. This object deserves a re-observation with the same scope, but with my ZAO-II eyepieces.



SDSS image



Sketch with my 22"

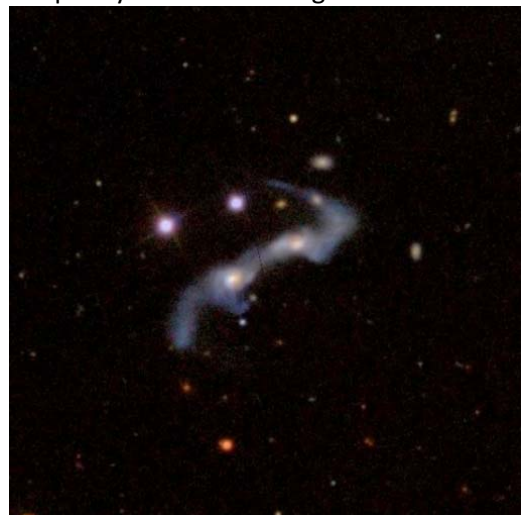
Jimi Lowrey

Alvin, last year when you and I looked at Arp 97 I was stunned by the appearance of the coat hanger look of the three galaxies. This will be on my top 10 list of galaxy groups now. This is a cool looking object!

Steve Gottlieb

Alvin, I happened to literally stumble across Arp 97 two weeks ago, when my intended object was KTG 41 = Rose 8, an easier triplet just 15' NW of Arp 97! When I moved to the field, though, I first noticed a pair of very faint, very small glows (cores of the main galaxies in Arp 96), but wasn't sure what objects they were. After identifying the KTG 41 triplet which was outside the eyepiece field, I realized the initial pair I spotted was Arp 97 and took a second look. I didn't notice the "hook" or connecting bridge with my 24-inch.

Also, Arp 97 reminds me in structure to Arp 238, another pretty remarkable target.



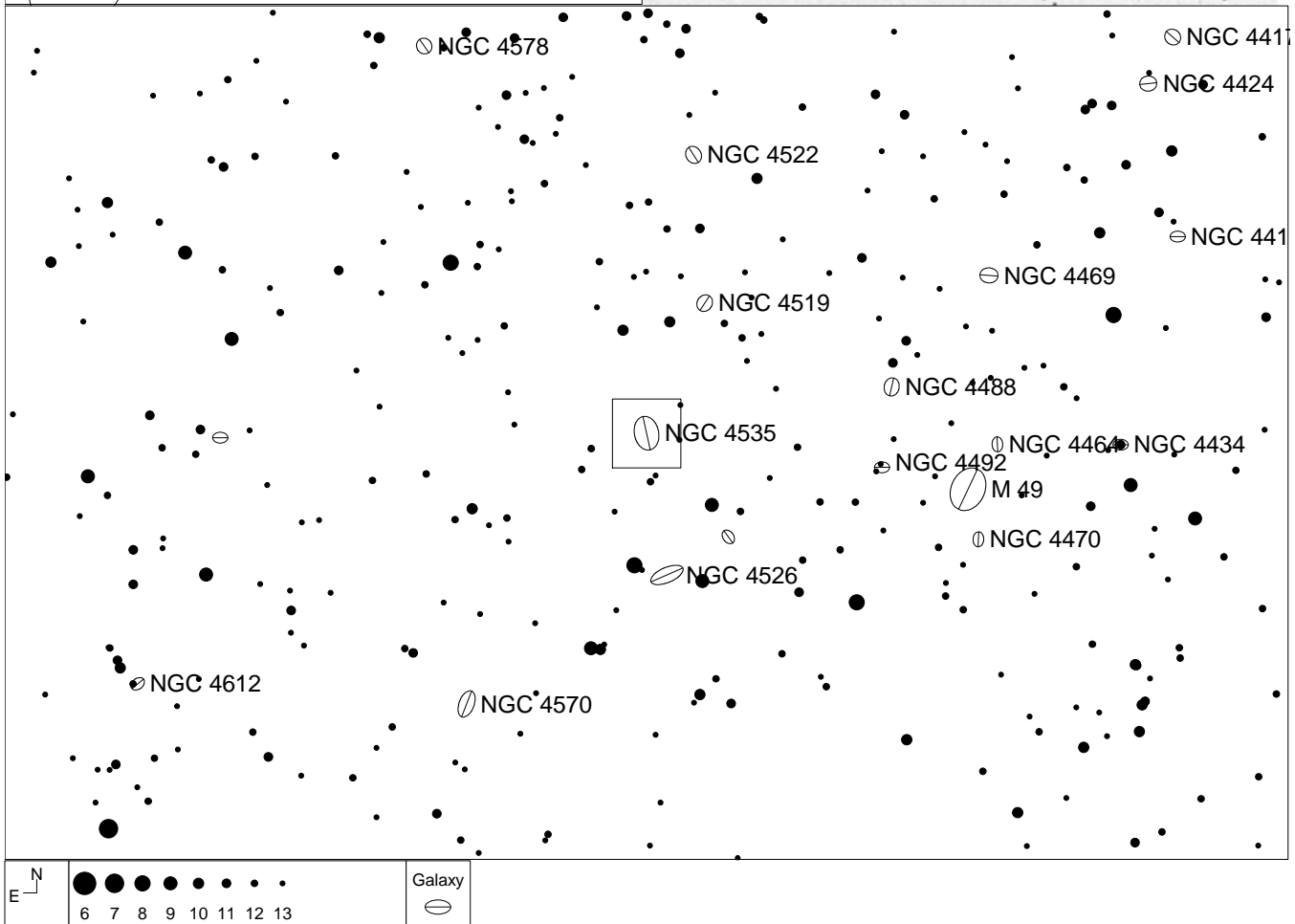
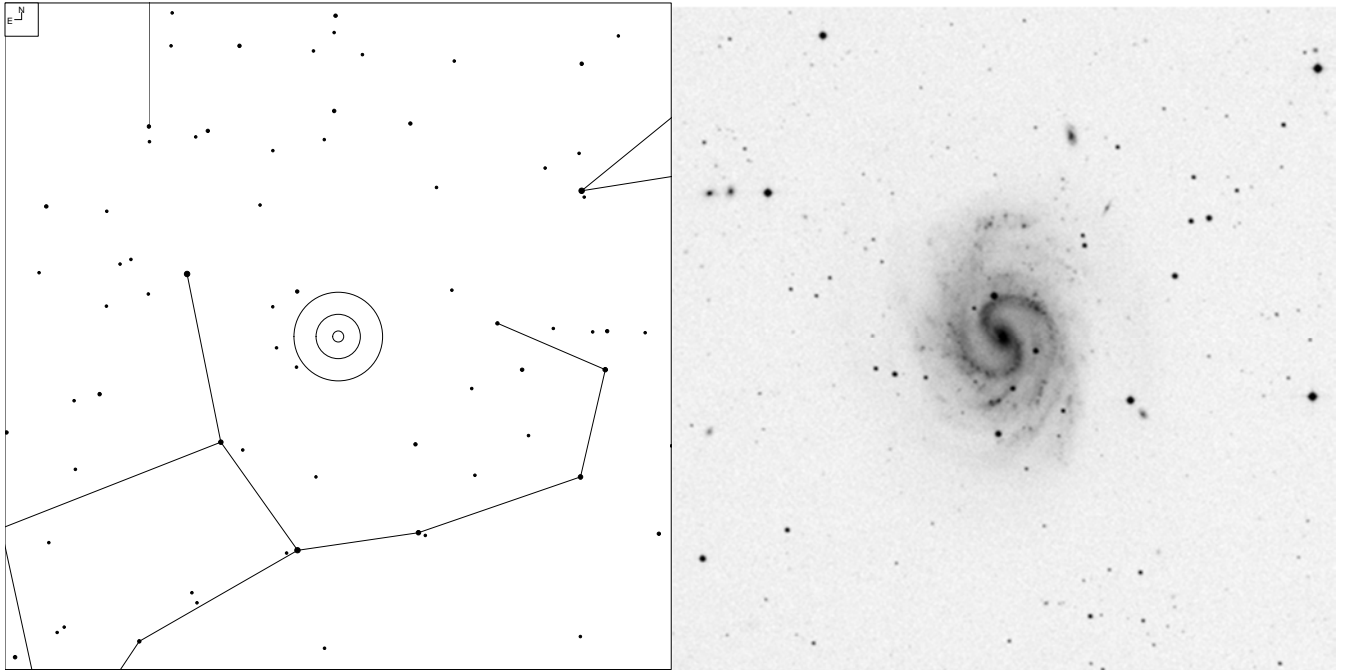
Mark Johnson

Steve: it is interesting that Arp 97 forms a chevron of very similar dimension and orientation to the tree with UGC 7064 you were seeking. That may have been a puzzler! This double-tree seems like it may be a curious thing to seek out with PGC 38307 completing the 'tree' near Arp 97

Uwe Glahn

Last night, I tried the hook and the bridge with my 27". Under good conditions NELM 6m5+ and 419x I could see the hook as a faint glow separated from the core. The bridge to the separated detail and the bridge between both MCG's was not visible.

NGC 4535 – Lost in Virgo



Object	RA	Dec	Mag	Size
NGC 4535	12 34 20	+08 11 53	9.9	7.1x5.0'

NGC 4535, Lost in Virgo

Dragan Nikin

Originally discovered by William Herschel in 1785, NGC 4535 is a gorgeous, albeit low surface brightness barred spiral in Virgo. The moniker "Lost Galaxy" was given it by Leland S. Copeland in his 1955 S&T article [Adventuring in the Virgo Cloud](#). In his article, Copeland refers to the galaxy as he describes his jaunt thru the Virgo Cluster using his 8" Cave reflector. He states, "North of the Diamond is a very dim spiral, here called the Lost Galaxy, NGC 4535." Leland was probably referring to NGC4535's difficulty to locate due to its inherently low surface brightness. Copeland also claims that NGC4535's "delicate structure shows only on long exposure photographs". Probably limited by the equipment he had during his time, today we know this to not be entirely true, especially when it comes to today's monster dobs. But please don't be discouraged by what Copeland saw. Go out and give it a shot. There are reports of observers with scopes as modest as 15" seeing the famous "S" shape.

On an interested side note, published in 1999 and detailed in the paper [The Extra-galactic Distance Scale Key Project. XVIII. The Discovery of Cepheids and a New Distance to NGC 4535 Using the Hubble Space Telescope](#), [L. M. Macri et al](#), a study with the intent to measure the Hubble constant to an accuracy of 10% was conducted. During the summer of 1996 while using the WFPC2 camera of the HST measurements of 18 galaxies was conducted, one of which was NGC 4535. 50 Cepheid Variables were discovered in NGC4535 which were then measured to place the distance to NGC4535 from us at 16.0 +/- 1.9Mpc or 52,186,135.1 light years. This distance places NGC4535 squarely in agreement with other Virgo Cluster members.

NGC4535 can be a relatively difficult object to discern detail out of. Not unlike M101, where the objects magnitude can be misleading, NGC4535 really does need some decent enough sky conditions with moderate aperture to eek out the most possible detail. Below are some of my past, albeit inadequate, notes:

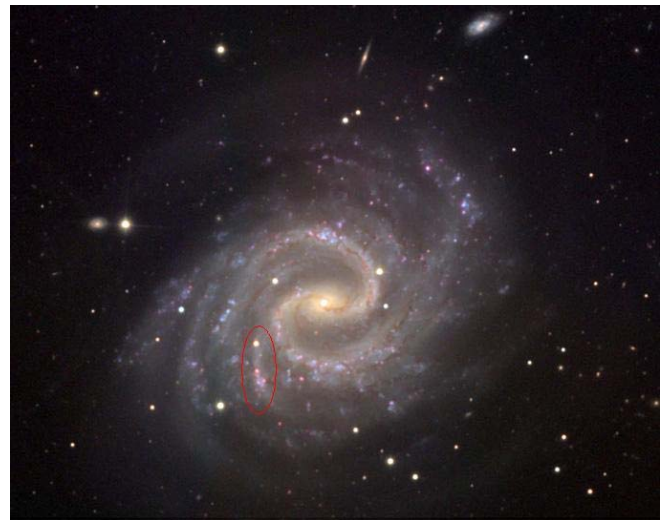
25" f/5

April 30th 2011 S 3/5 T 4/5 At 350x S shape visible direct. pops for me with averted vision. Many foreground stars are visible giving the view a slight 3D effect. Great object! 2 prominent arms visible

I most recently looked at NGC4535 this year at TSP with Jimi and German forum members, Uwe, Marc and Frank.

48" f/4 488x S shape direct vision 100% of the time. Looks fantastic! Can make out a small segment of a 3rd arm that comes off the core. Everybody else confirmed.

I've included an image below with that 3rd 'arm' highlighted. I'll definitely have to revisit this object now to see if it would be visible in my scope. My previous notes don't refer to this 3rd 'arm'.



If you've never before seen NGC4535, it is a fantastic object that should be on your agenda this spring. Don't let the low surface brightness deter you. If you have seen it before, please be sure to revisit it the next time you're out. I know you won't be disappointed.

Jimi Lowrey

This without a doubt is my most favorite Virgo cluster galaxy. I have wondered for years why it is not better known among amateurs.

I recently spent 3 1/2 hours over 2 nights observing and drawing the "Lost Galaxy" with my 48" reflector. It is amazing how much detail you can see when you spend that much time observing a object with your head covered in total darkness. The longer you look the more you see. I have heard this for years and it is so true!

Be sure to add this to your list and if you are like me you will return year after year to revisit NGC 4535 the "Lost Galaxy of the Virgo Cloud".



Uwe Glahn

Thanks for pointing this overlooked galaxy out. Jimi is right when he wondered why the galaxy is not known.

I dig up an old observation and sketch with an 20" at the observatory I often used in the past. Under exceptionally skies the "S" was very prominent. Beside the "third arm" I could pick up a brighter HII region to the north in direction to NGC 4535A.



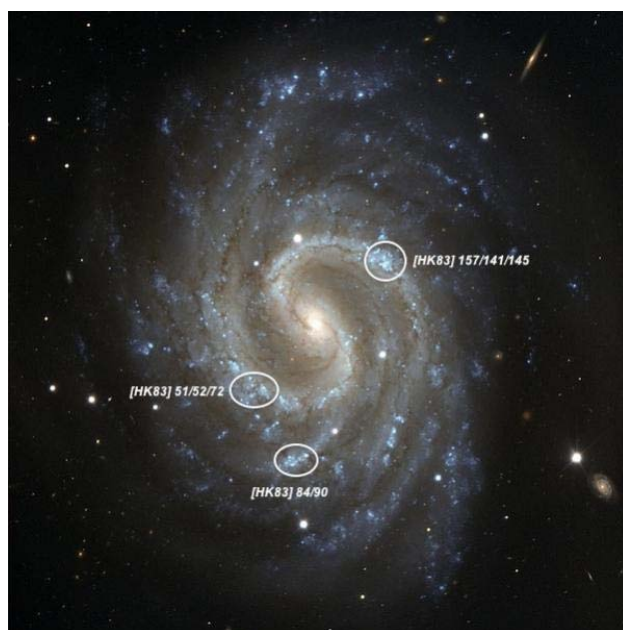
20", 293x, NELM 6m5+

Steve Gottlieb

Excellent sketch, Uwe. It captures much of the detail I saw in early April in Jimi's 48-inch. Here are my notes from a pretty quick look as well as the HII regions I noted in central region.

4/4/13: gorgeous face-on Sc spiral with two, long, very prominent arms extending from a small, very bright central region. The small, very bright core is elongated SSW-NNE and punctuated by an intense, stellar nucleus. The two main arms are clearly attached right at opposite ends of the core. At the NE end, a beautiful thin arm winds clockwise to the west with a mag 13.5 star pinned on the outer north edge. The arm contains #141/145/157 (from Hodge & Kennicutt's "Atlas of HII regions in 125 galaxies"), a small, bright, 15" knot and then dims as it wraps to the south. A mag 14.5 star is situated midway between the nucleus and southern end of this arm [47" SW of the nucleus].

The second main arm is attached at the SW end of the core and curves clockwise to the SE, where the arm brightens in an elongated 30" patch (#51/52/72/78), which is symmetrically positioned opposite #141/145/157. A fainter arm segment, extending WNW to ESE is visible on the south side, containing #84/90, a small, fairly faint 12" patch, located 1.5' SSE of center. This knot forms the vertex of a flat isosceles triangle with a mag 15 star 0.5' NW and a mag 14 star 0.7' S. The arms are etched on the slightly fainter and larger background glow of the disc, which extends 5.5'x4.0' N-S.



Uwe Glahn

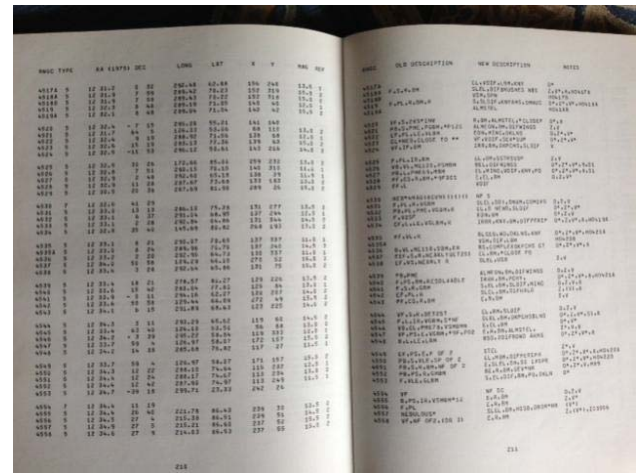
I refer to PGC 1343342 which is 4,8' NNW of NGC 4535. Wolfgang Steinicke has this galaxy in his actual RNGC and NED also displays a "NGC 4535A" at the position of the PGC.

Steve Gottlieb

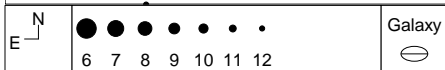
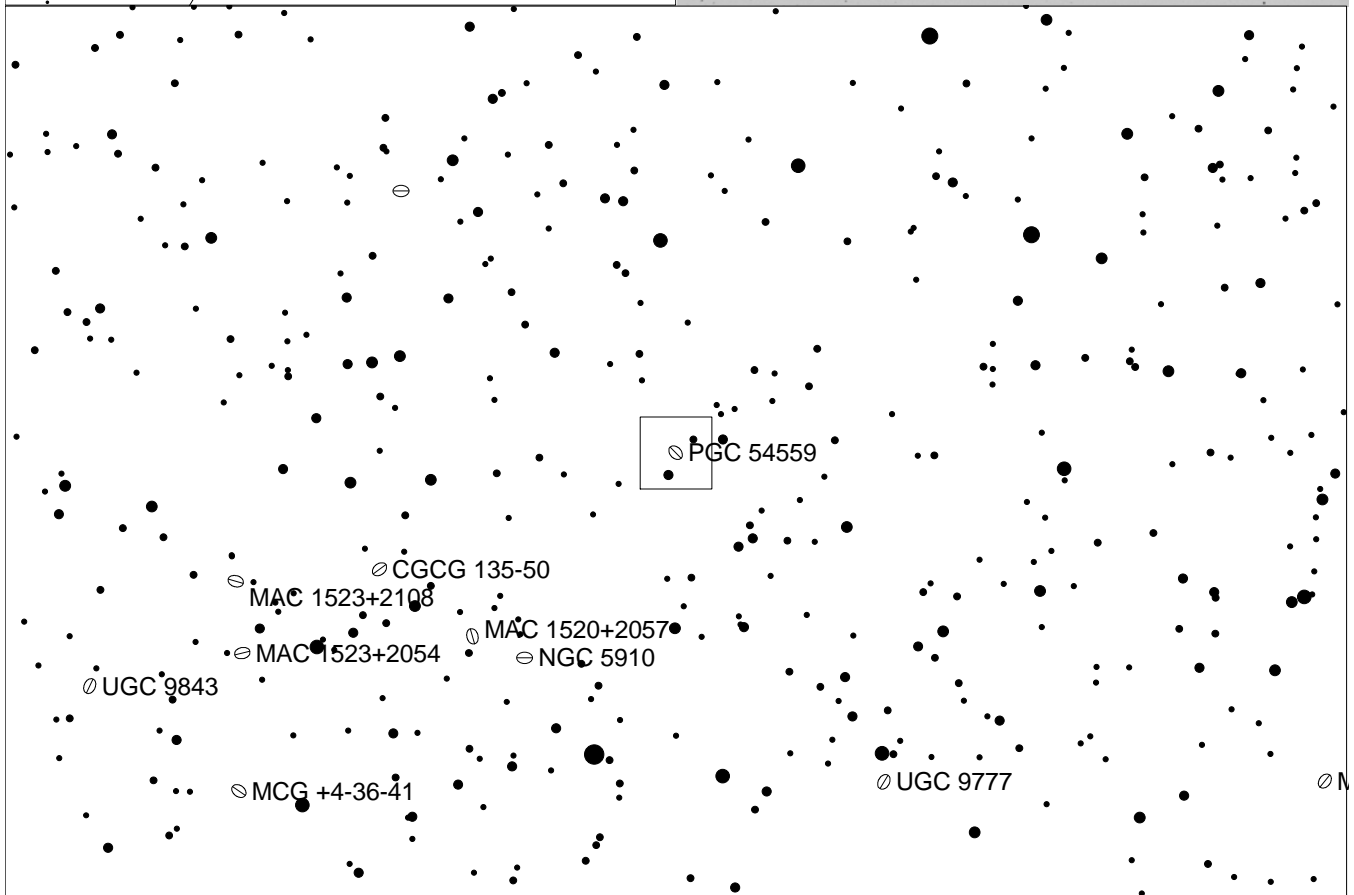
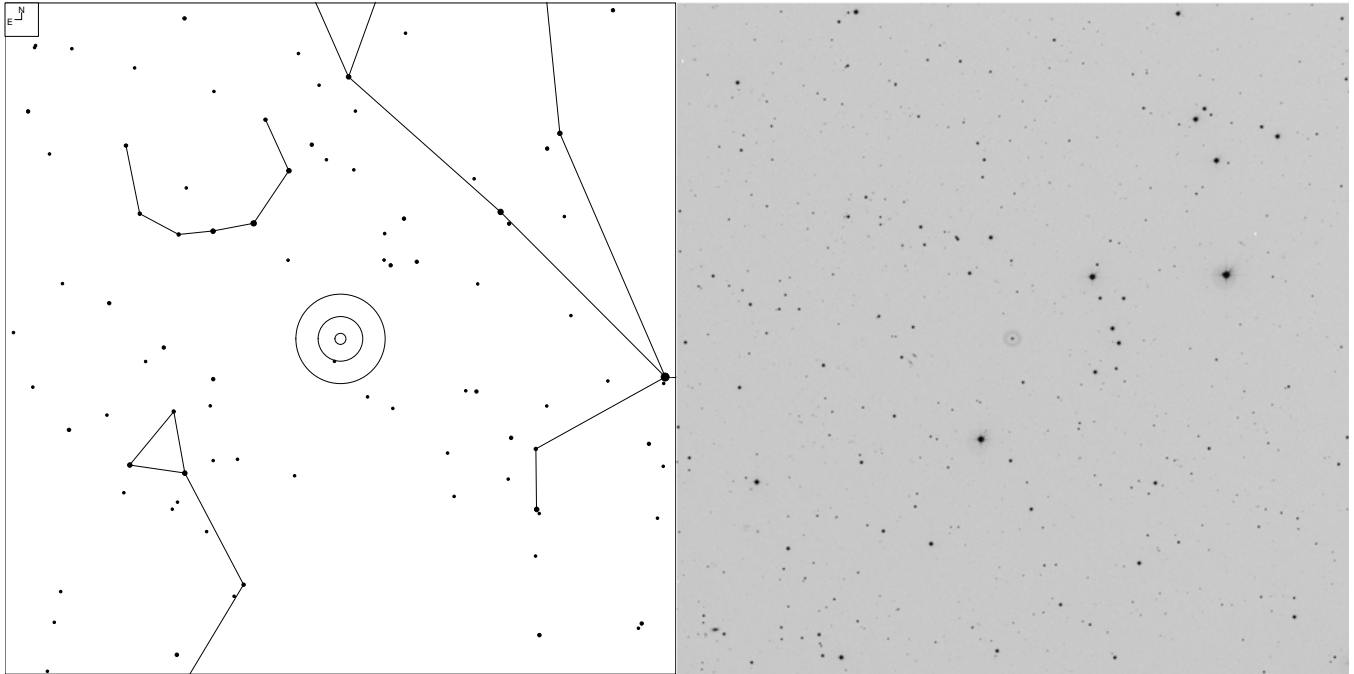
NGC 4535A [here](#) and [here](#). I believe the designation first appeared in RNGC.

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Here's the page from the RNGC that shows NGC 4535A. This galaxy was not discovered visually -- I believe the first reference is Holmberg's 1937 "A Study of Double and Multiple Galaxies"



Hoag's Object – PGC 54559 (Serpens)



Object	RA	Dec	Mag	Size
PGC 54559	15 17 14	+21 35 08	16.4	1.0 x 0.9'

Hoag's Object – PGC 54559 (Serpens)

Jimi Lowrey

I have been fascinated by this galaxy since the first time I saw the image of it taken by the 200" Hale telescope many years ago. This galaxy started my quest to see as many ring type galaxies as I could find and to catalog them.

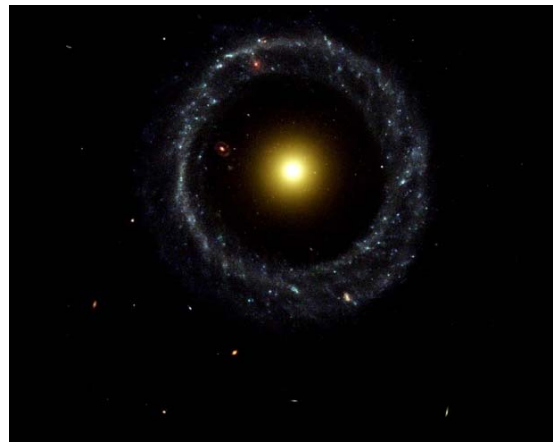
<http://www.faintfuzzies.com/Files/RingGalaxies%20v4.pdf>

So what is this strange type of galaxy? That is a good question and as of this date the pros are not sure either. Art Hoag first publish a paper about this object in 1950 he first thought it to be a planetary nebula but had suspicion that it was a galaxy. The two best guesses is that it is a bared ring and the bar has deemed down and the other is it's a old merger event of a S0 type and a spiral galaxy millions of years ago. Hoag object is 600 million light years away and a little bigger than our milky-way galaxy.

I have observed this strange ring many times over the years and to see the ring is a tough challenge that takes a large telescope and dark steady skies. On most nights with the 48" it just pops in every now and then in moments of good seeing. But to see the core I have seen a report from Sue French that she has seen the core in her 10" as very faint dim glow. There is a fish hook of stars that I us to ID the field when I am looking at Hoag's (see the image below.)



So if you want to see a very unusual type of galaxy be sure to track down Hoag's Object and if you only see the core you still will have seen one unique and strange object.



Uwe Glahn

I tried the ring with 16" and my 27".

With 16" I could saw a glow with a very faint spot in the middle. I explain the observation that I could pick up the core as a stellar brightness and the ring as the faint glow around it. In contrast to other observations with similar aperture the ring should not be visible as a glow. After the observation with 27" I am sure that the observation was for real.

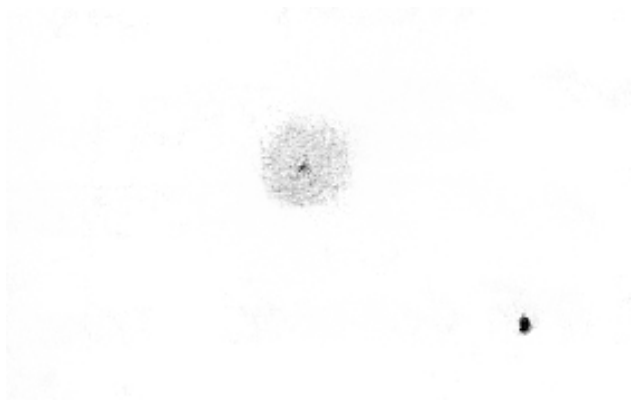


16", 180x-360x, NELM 7m+

With 27" the central core was easily visible with direct vision. The glow around it was also not very difficult. Two other observers and I could see a faint glow which we could hold with averted vision. There was no dark space between the glow and the core although the contrast could pretend this. All in all the ring as a ring itself was not visible for me.

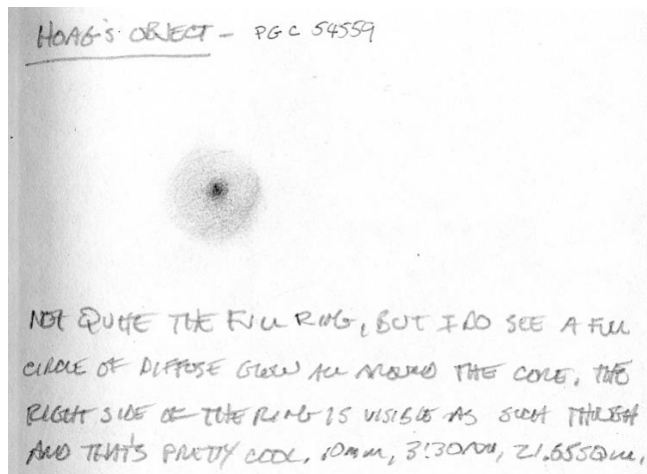
Howard Banich

I've had a good look at Hoag's Object with my 28 and Jimi's 48 and also have not seen the outer ring as a distinct ring. In my 28 the galaxy looks like a planetary nebula and the "ring" is seen as a round, diffuse glow around the core, but only with averted vision.



This sketch was drawn under nearly ideal conditions at 408x but with Hoag's Object poorly placed in the western sky.

The next sketch was drawn using Jimi's 48" this past April:



The magnification was 488x and the conditions also very good but with Hoag's Object much better placed - but still a full ring was not seen, just a diffuse glow with a bit of ring segment on one side. Perhaps if we had tried different magnifications and spent an hour or so observing it the full ring may have become apparent, but the lesson here is that although a round glow is fairly easy to see, the ring is not.

Lou Behrman

I observed Hoag's Object from High Knob Overlook in North Central PA this past Saturday night. Seeing and transparency a decent 4/5, SQM of 21.29 at the time of observation.

I was unable to resolve the ring or detect the general glow noted on this thread but I was able to detect and hold the bright core with averted vision. This at 351x with a 6mm Delos. Am thinking I'm going to need truly remarkable conditions to resolve more than I'm already seeing with Ursa. Either that or a mirror stretcher... 😊

Have marked this to be reobserved during my next session. Don't think it's going to be this month. Hopefully July...

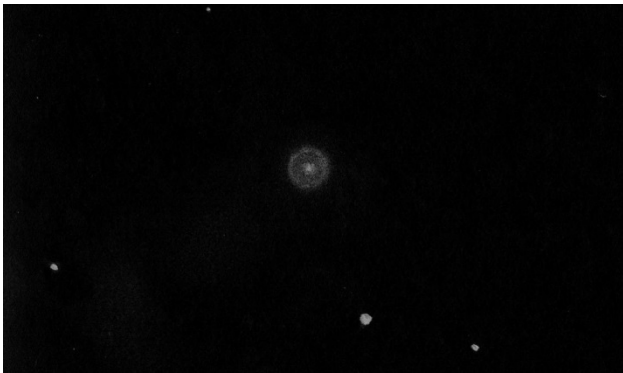
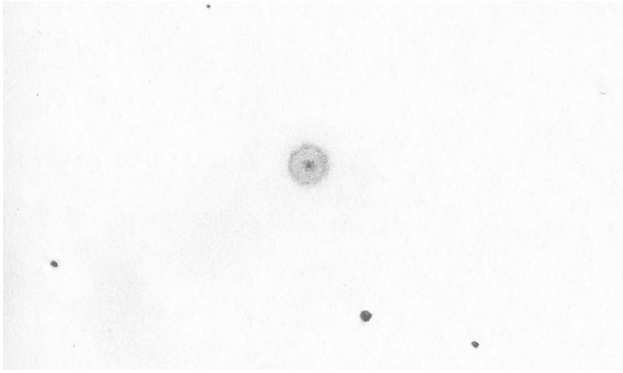
As an aside... I did try using my 6mm UO Ortho. This as an ongoing comparison between my Delos and Ortho EPs (in response to [another thread](#)). I honestly didn't see enough of a difference between the two to make me want to start using Orthos instead of the more comfortable Delos. I think the bright core was (perhaps) a tick steadier with AV. When I was doing comparisons between Naglers and Orthos, the difference seemed apparent and repeatable. Am not seeing that with the Delos/Ortho comparison.

Howard Banich

Update - I was able to see the ring of Hoag's Object at the GSSP a couple weeks ago with my 28". Jimi saw it as well and we were pretty darn excited. The ring came and went with the seeing and even when it did pop into view it was a relatively subtle brightening of the perimeter of the round glow around the core of the galaxy. The core and round glow were always visible though. Here's my notes and sketch:

"WOW! I could barely discern the ring a few times with extreme averted vision with both the straight 8mm Ethos and Jimi's 6mm Zeiss (no Paracorr) and the ring "popped" in both eyepieces a couple of times - how about that! the rest of the time I saw a circular glow around a star-like core, but the perimeter of the glow quite distinct. Jimi also saw the ring pop with his 6mm Zeiss a few times too. This is a very cool observation! 21.63 SQM. (PS, just tried Jimi's 7mm Takahashi - very nice eyepiece with excellent contrast - but no pop. But then I put the

Paracorr back in with my 8mm Ethos - 408x - and the ring popped again!)

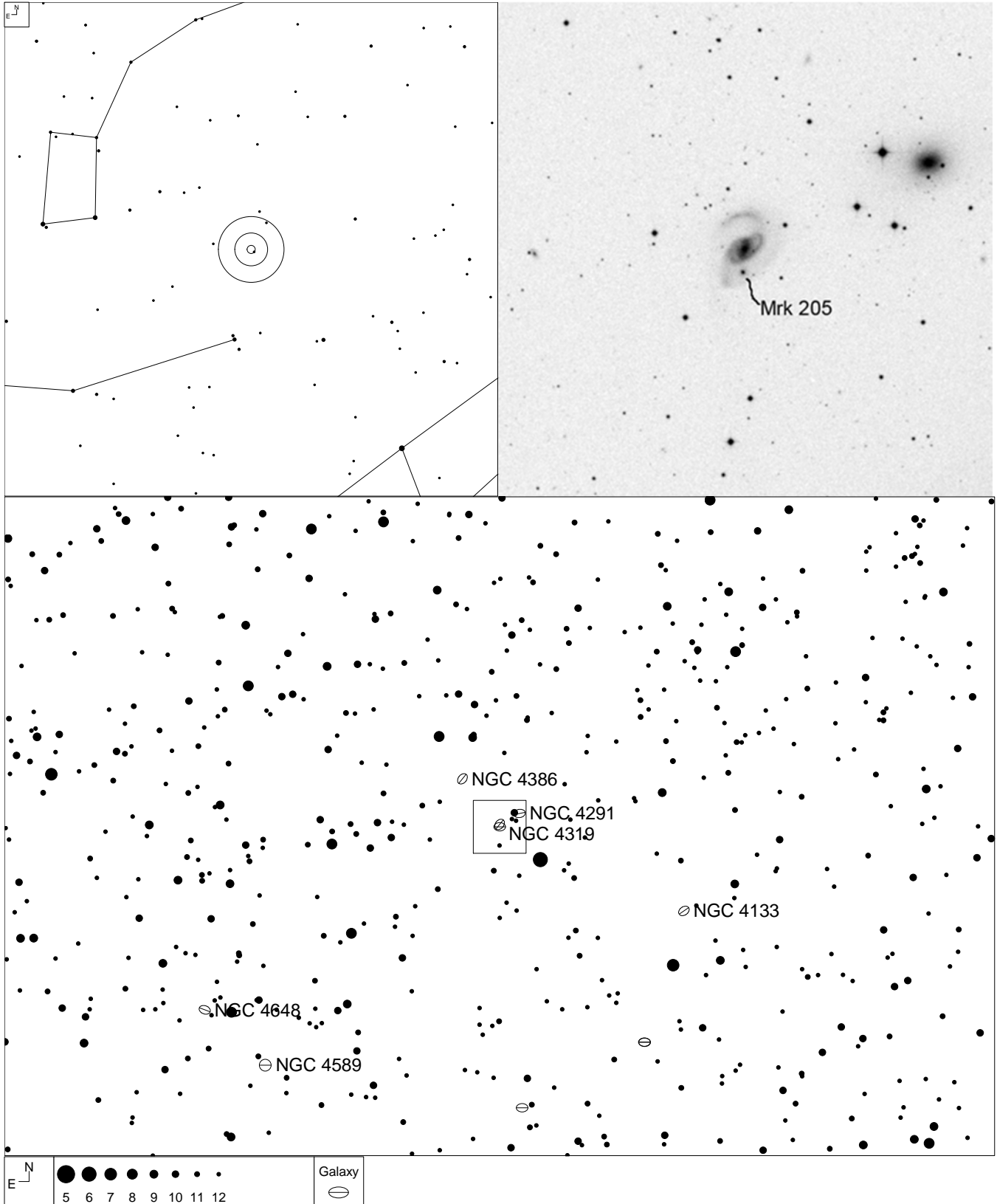


Now that I've seen the ring I think it would stand out fairly well in really steady seeing, given a dark and transparent sky, but it will always be a subtle brightening of the perimeter.

Jimi Lowrey

I was totally surprised to see the whole ring structure in Howard's 28" at GSSP. Howard and I were viewing Hoag's object and could only see the core so I ask if we could try my 6MM ZAO Howard put it in and I settled in to the view and "BAM" the whole ring popped into view. This happened several times and Howard tried it and had the same experience. We were both very excited. This was one of the highlights at GSSP for me.

Markarian 205 and the red shift controversy (Draco)



Object	RA	Dec	Mag	Size
Mrk 205	12 21 44	+75 18 38	15.2v	0.3 x 0.3'
NGC 4319	12 21 44	+75 18 38	12.8p	2.9 x 2.3'

Markarian 205 and the red shift controversy (Draco)

Reiner Vogel

Type: well, that is the question ... ;-)

This OOTW is going deep into the history books of cosmology. It is about a nice (at least on DSS) spiral galaxy, NGC 4319, and a quasi-stellar spot, Mrk 205, next to it. It is probably very special to astronomy, that tiny little specks such as Mrk 205 may cause large turmoil ...

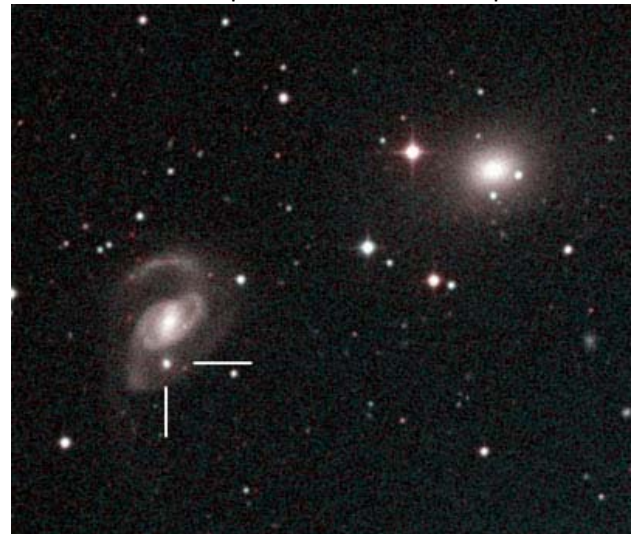
Back to the year 1971. Edwin Hubble's theory of the expanding universe, reflected in a red shift correlating with distance appeared to be generally accepted. Well, not by everybody. Halton Arp took a deep photograph of NGC 4319 and Mrk 205 with the 200" Hale telescope, in which he suspected a "bridge" between the nearby spiral and the quasar, despite they had extremely different red shifts. His case was that they are close in space to each other and not a chance alignment along our line of sight. Arp was considering the hypothesis that the considerable red shift of the then new quasi-stellar objects or short quasars was not due to their distance from us. Instead, he suggested that they are objects being expelled from the nuclei of their "host galaxies" and that the red shift of their light had other reasons (such as, for instance, gravity). This was, of course, in strong disagreement to the general view of the scientific community, in particular Allan Sandage, leading to lasting controversies between the supporters of the two groups (with Arp's being certainly a minority).

If you are interested in this story and others, read the very interesting article about Arp's peculiar universe in Jeff Kanipe's and Dennis Webb's book about "The Arp Atlas of Peculiar Galaxies".

Here is an image of the galaxy group around NGC 4319 with on the DSS



And here a close up NGC 4319 with the quasar



The funny thing is: There is really something between NGC4319 and Mrk 205. Not distinct, but it is there. This HST Heritage image shows that the immediate environment of NGC 4319 is filled with matter, being outer parts of the spiral arms or perhaps as well some tidals due to interaction with other galaxies.



What can we see visually? Well, Mrk 205 is a quasar and there's not much to see except for a tiny stellar thing. During my first observation many years ago with my then 14" Dob, Mrk 205 was not easy and could be seen only with averted vision somewhat offset from NGC 4319 (more offset as suggested by the DSS image). With my 22" it is visible all the time, even with direct vision, if I recall it correctly. No, I did not see a bridge.

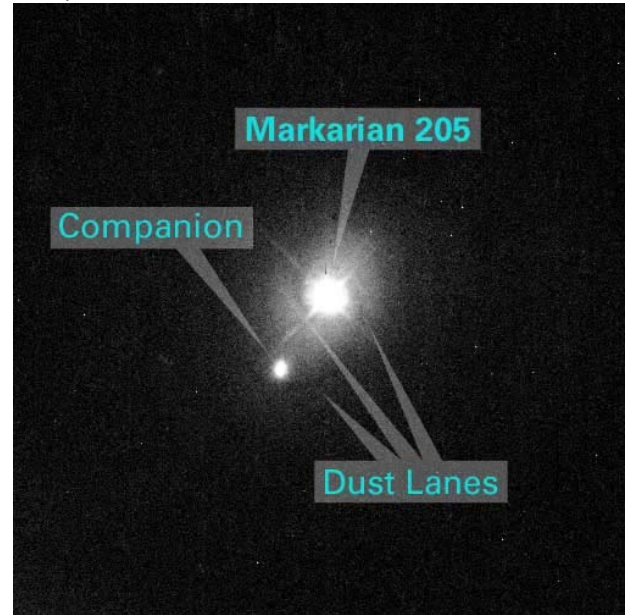
Last week, I revisited this group (almost at zenith during early evening) and also looked at the other galaxies. Neighboring NGC 4319 (no pun intended :-)) is a small galaxy with a faint halo and not much structure at first sight. After some time, I suspected the northern spiral arm as an extremely faint arc offset from the main galaxy. Conditions were not overwhelming, so this should be easier under proper conditions. Unstructured NGC 4291 is situated WNW of 4319 and situated as one of the cornerstones of a quasi-rectangular asterism. There is another galaxy, NGC 4386, offset to the NE of the two other NGC galaxies.

Ivan Maly

Nice choice. Hubble himself, as far as I heard, did not want to have anything to do with any overarching theories, and to the consternation of expansion enthusiasts who considered themselves his followers, till his dying days was saying "apparent velocity", in regard to redshifts.

Jimi Lowrey

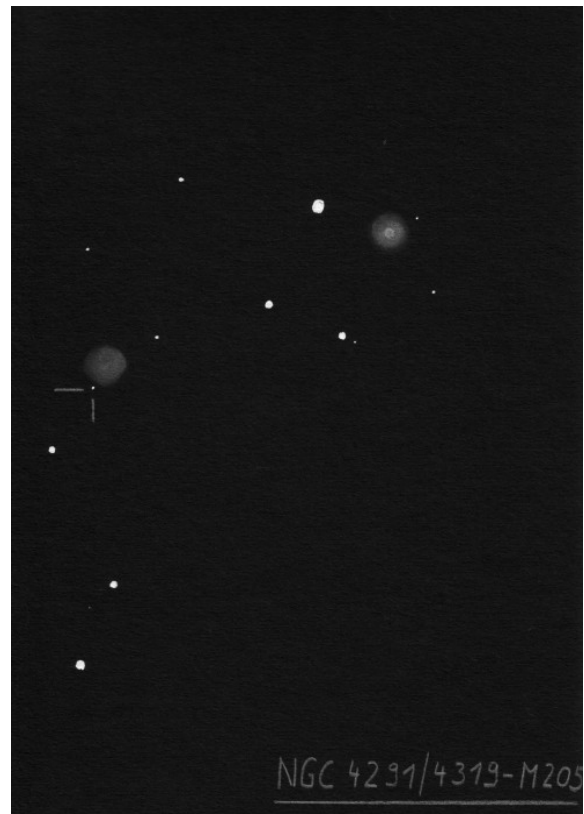
One thing that is on my to do list is to try for is the companion of Mrk 205.



I had forgotten about it till you did this OOTW. " I will give it a go and let you know"

Uwe Glahn

I visited years ago, I have to try it once more, perhaps with the companion, thanks Jimi.



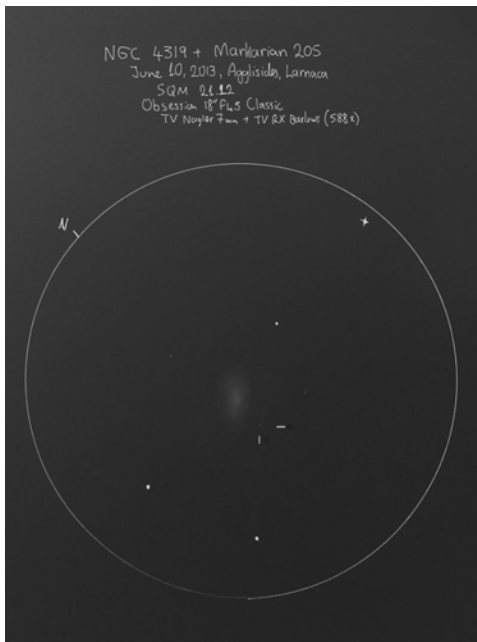
16", 129x, NELM 6m2

Reiner Vogel

I still remember well that night, when I observed Mrk205 for the first time with my 14". It was my second quasar then besides 3C 273. And I was veeery proud of being able to see this tiny little thing. And now you come up with observing its companion ... unbelievable ;-)

Rolandos Constantinides

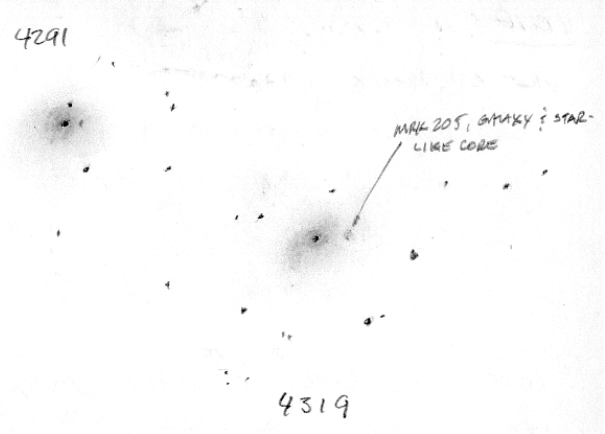
I did observe Markarian 205 on both June 9th and 10th. I had to, as it was an object proposed by Reiner who directed me to this great forum. Well, I must admit that Markarian 205 was relatively easy in my 18" on both evenings, and especially last night which was better and darker. The ideal view was at a rather high 488X obtained with a 7mm Nagler and 2X Barlows. I could keep it in view with direct vision at both 294X and 488X but it was easier with the higher magnification. NGC 4319 appeared as a soft glow with a slightly brighter core. No sight of a bridge or a ... companion (I will probably need another 30 inches for that!). Markarian 205 is the first quasar I have logged, thanks to Reiner for a great target!



Howard Banich

My latest observation of Markarian 205 is from the 2008 Oregon Star Party, so it's about time for another look this summer. My memory of this now rather old observation is that patience was rewarded, as was observing the same object in several scopes with a small group of fellow observers.

Here's my eyepiece sketch:



My notes say:

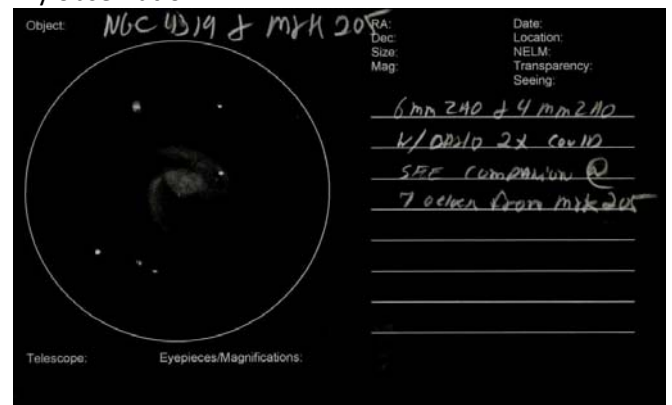
"This was fun! Lot's of nifty galaxies here, and one of the "stars" near 4319 is Markarian 205. 4291 and 4386 are both brighter than 4319 but together they make a sweet trio...257x to 467x. PS - Markarian 205 was pointed out by Candace (Pratt) as the faint star to the immediate right of 4319 in my sketch. Chuck (Dethloff) then noted a faint glow just above the quasar - cool!"

Jimi Lowrey

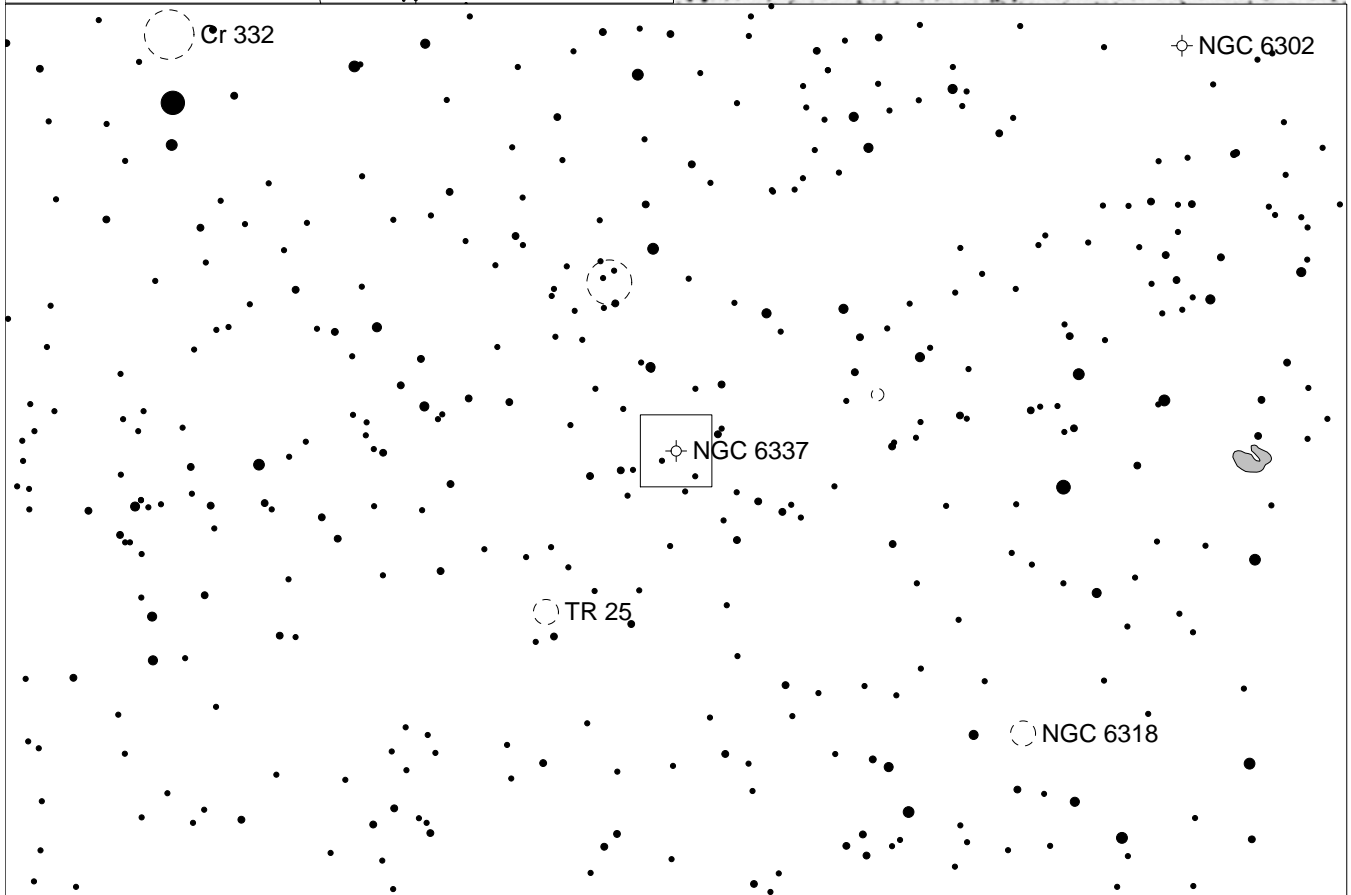
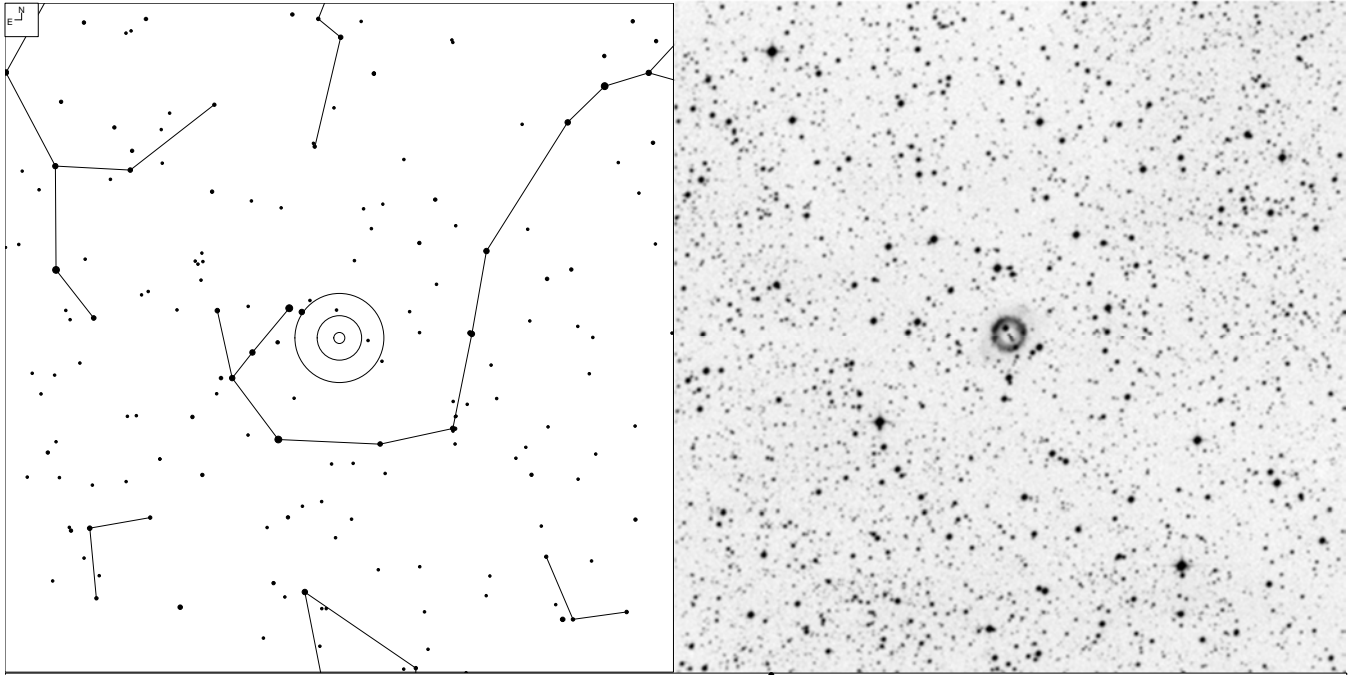
A few nights ago I had a successful observation of the companion of Mrk 205. The seeing was rock steady and I was able to use super high power to see this small galaxy. The best view was with a 6mm ZAO-II with a 2X barlow @1464 X I also used A 4mm with barlow @ 2440 X.

Most of the time Mrk 205 had a tear drop look to it and in moments of good seeing the core of the companion would pop into view. I saw it as a separate galaxy about 8 or 9 times. The companion of Mrk 205 looked small and stellar when it would pop in to view. I was surprised that I was able to see it on my first attempt.

This is my raw sketch of the field that I did to verify my observation



NGC 6337 (Scorpius)



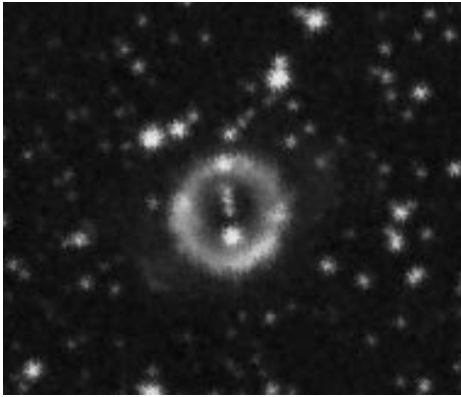
E ↙ N ↑	●●●●●●●●	Galaxy	Open Cl	Planetary	Brt Neb
	3 4 5 6 7 8 9 10	☾	○	⊙	□

Object	RA	Dec	Mag	Size
NGC 6337	17 22 15.65	-38 29 01.4	12.3, 14.9*	49x45"

NGC 6337 (Scorpius)

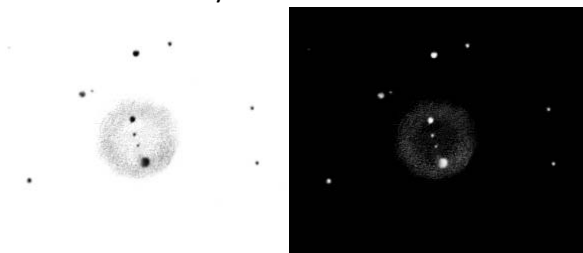
Howard Banich

NGC 6337, the Cheerio Nebula is our focus this week. A lovely annular planetary nebula very much like M57, it's located in southern Scorpius a few degrees west and south of the Stinger stars. At magnitude 12.3 and 49" x 45" arc seconds in size it's reasonably bright and large and will take magnification well. Its central star's magnitude is 14.9.



6337 is special because of all its central stars – check out the DSS image and you'll see a straight line of five stars bisecting the very round ring of NGC 6337, and they're the visual challenge here. Of course only one is the physical central star of 6337 – it's the one closest to the bright star that's just inside the southern edge of the ring.

I've found the non-filtered view to be the most satisfying mostly because it's the only way to see the three faint central stars. The two brighter stars on the end of the five star line are seen fairly easily, but the three in the middle are about as difficult to see as the single central star in M57 during poor seeing. The nebula stands out with higher contrast using either UHC (good) or OIII (better) filters but they do dim the stars and erase any hope of seeing the faint triple. My sketch is a composite – the nebula was drawn using an OIII filter and the stars added without a filter, all using 408x. You'll note that I've seen only two of the three faint central stars so far. Has anyone seen all three?



I've observed 6337 from the Golden State Star Party at about +40 degrees latitude with my 28 inch scope, and had similar views through my 13 inch from the Big Island of Hawaii at around +19 degrees latitude, so elevation above the horizon really matters. My best view was with the 28 inch – see the sketches above - but it was only slightly better than with the 13 inch.

In the paper "The Outflows and Three-Dimensional Structure of NGC 6337: A Planetary Nebula with a Close Binary Nucleus", Ma. T. García-Díaz, D. M. Clark, J. A. López, W. Steffen and M. G. Richer (<http://iopscience.iop.org/0004-637X/...1633.text.html>) discuss the three dimensional structure of 6337 as being greatly influenced by the true central star being a tight double star. The other four stars just happen to lay in our line of sight.

The discussion of how the authors constructed a 3D map of 6337 is worth the effort to read their paper. Having some idea of 6337's internal dynamics brings it to life, making knowledge of its physical nature as powerful an observing tool as a nebula filter or averted vision.

Steve Gottlieb

Excellent target, Howard. It's surprising how good this planetary looks, even to mid-northerners. The only other perfectly annular planetary that far south that resolves as well (from +38 north) is IC 5148, though I may be forgetting one or two others.

John Herschel, who discovered it on 28 Jun 1834, made three observations as well as a sketch and was clearly impressed by this object. He caught the two outer stars but missed the difficult tight trio.

"A beautiful delicate ring, of a faint ghost-like appearance, about 40" diameter; in a field of about 150 stars, 11 and 12 mag and under. *In* it is one star 12 mag very conspicuous, and one 15 mag much less so. Near it are two stars 14 and 15 mag, and south of it at a distance 60" is another."

Uwe Glahn

Howard, you open the PN season with one of my favorites.

When I first saw a picture of that PN with its CS line I becomes one of the "most wanted" object in the sky. I first tried it with my 16" from 47° latitude N. The PN could be seen as a faint round ring, no detail, no CS line...only 5° above the horizon.

When I first traveled to Namibia (23°S) I first tried it with 12", 375x: "bright ring even without filter, ~40" diameter, 13mag star N within the ring, very faint 15mag star S, always something within the ring but no star itself can be resolved, perhaps a faint line N-S elongated, the ring itself is better defined at its NW and NE edge"

A few nights later I tried it with 24" and 400x and the results amazed me deeply: "bright, absolutely round, distinct ring structure with some details (knots) in it, stellar spot at the W edge, the NE quadrant also brighter and better defined, within the ring shifted from the middle to SW faint line composed of 3 faint stars, line easy to see but difficult to separate, middle star a little bit brighter"



24", 400x, NELM 7m+
(cropped from original image)

Howard Banich

That's the finest sketch of 6337 I've seen Uwe, and you saw all three of the central stars! Fantastic, and yet another reason to go to the southern hemisphere one day. I imagine that if 6337 traded places with M57 it would be one of the most famous deep sky objects and immensely popular. Like real estate, location makes a huge difference.

Uwe Glahn

You definitely have to go to the south. It is incredible when the central milky way walks over your head and the the Magellanic Clouds chase each other.

I don't know what hip NGC 6337 has for the southern observers. Aren't some Australian Observers here in the forum. What I think - the south is the hemisphere of PN. There are lots of other fantastic PN like NGC 2899, 3210, 5189, 5844, or 6302 which steal NGC 6337 the show.

Mark Johnson

I have but one observation of this in a view from a 33" that often is not fully optimized for mirror alignment. This was from very dark skies but as it was a shared view it was rushed so I was unable to use my own eyepieces to tweek and squeeze what was possible. I'll have to try this in my 18" with my own selection of eyepieces and filters but I doubt I will see the line of dim stars or the center one. Wonderful selection Howard.

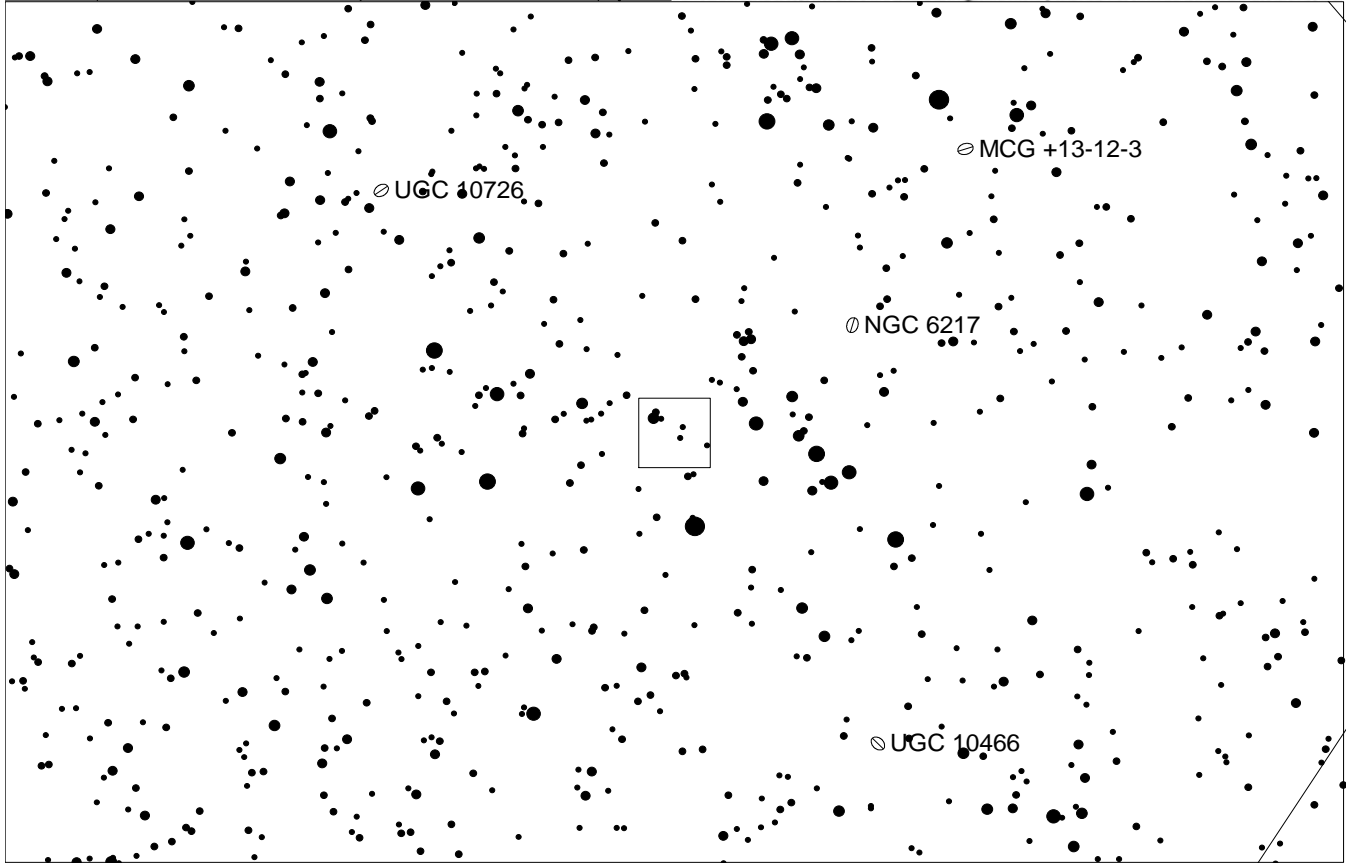
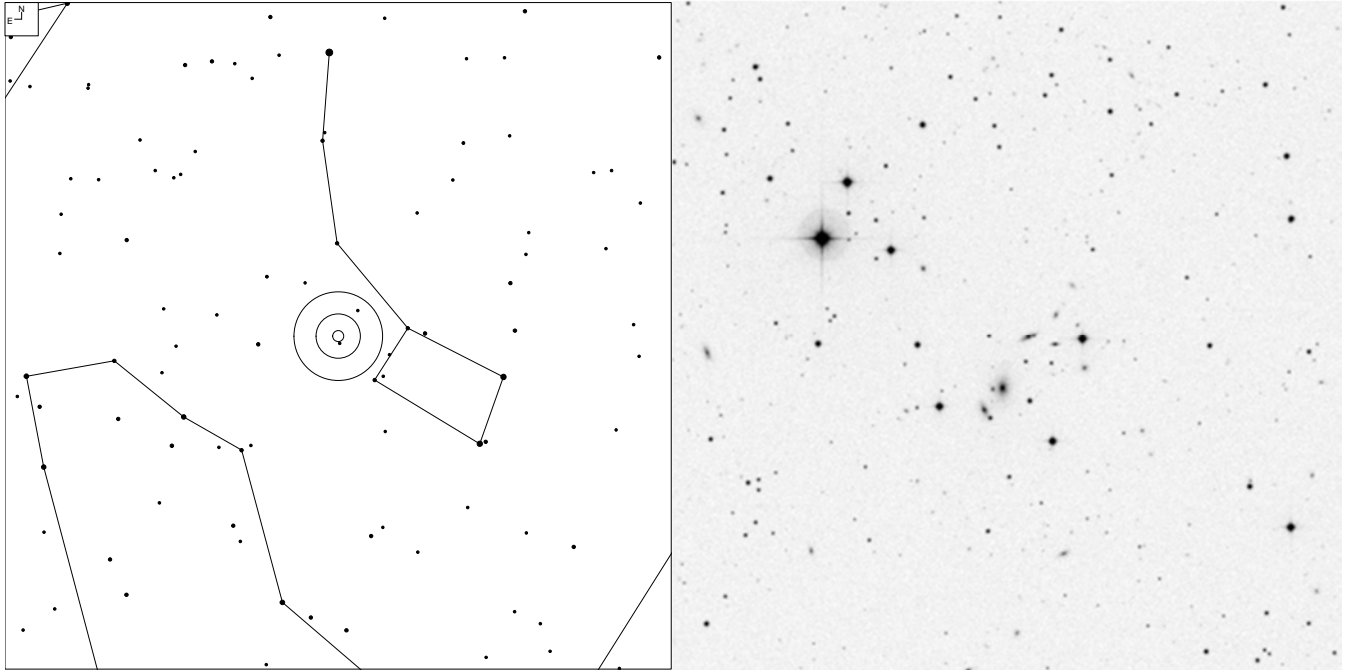
NGC 6337 Type: Plan Position: 17 22 15.6 -38 29 02
Con: Sco

ate: 06/12/10 Time: 23:49 Site: WSprDSR Scope: 33ObF5.0 Eyepiece: 18mm Power: 220 NELM: 6.7 SQM: 21.70 Seeing: 4 Transparency: 4 Description: ' 1/20fov Unfiltered show donut shape. 1/4 ratio of ring thickness to dia. Dim FS in middle of ring on W edge and brighter FS on inside edge of ring on NE side where ring may be fatter on NE side. No Central star'

Ron Abbott

Although with a much smaller aperture, here is my log entry from 8/7/04: Using Celestron 11" SCT with 20mm Nagler Type II (140X): Located SW of Gamma Scorpii and SE of the Bug Nebula. Using an O-III filter, it appears round, and about 40" diameter. With averted vision, an approximately 13th mag. star is seen superimposed upon the E edge, which is slightly brighter than the rest of the annulus. The nebula is very slightly darker toward the middle. At the NW edge of the field is a double star with an 8.8 mag primary and a 13th mag. companion at PA 340. A 12th mag. star lies 1/2 way to the SSE edge of the field.

Hickson 84 (Ursa Minor)



Object	RA	Dec	Mag	Size
84A – CGCG 355-20A			15.4b	0.7' x 0.4'
84B – PGC 58873			16.5	0.6' x 0.2'
84C – PGC 58884	16 44 23.0	+77 51 31	16.2	0.4' x 0.2'
84D – PGC 58861			17.2	0.3' x 0.2'
84E – PGC 58881			17.2	0.2' x 0.1'
84F – PGC 58856			17.2	0.2'

Hickson 84 (Ursa Minor)

Rolandos Constantinides

HCG 84 is a (surprise!) compact galaxy group in Ursa Minor, well located for easy field finding and well placed for at least some part of every single night, especially for northern latitudes. July evenings are the best times to observe this group as it reaches its highest point late in the evening.

HCG 84, the third HCG to feature in the OOTW series, consists of six components, ranging in magnitude from 15.4 to 17.2. Like all Hickson compact groups, the components are quite small. Thus, they benefit from high magnification and steady seeing conditions. The location of HCG 84, at declination of almost 78 degrees north, makes this group ideal for those who lack an equatorial platform as its movement in the eyepiece is quite slow. The six components are:

HCG 84A = CGCG 355-20A, mag 15.4, size 0.7'x0.4'

HCG 84B = PGC 58873, mag 16.5, size 0.6'x0.2'

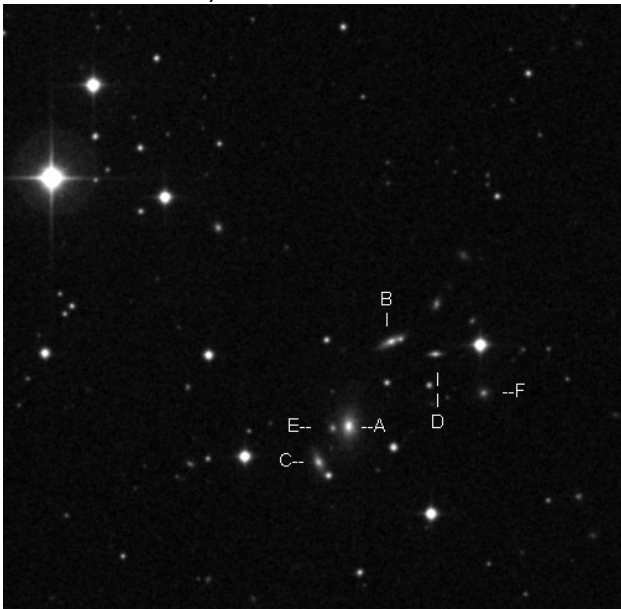
HCG 84C = PGC 58884, mag 16.2, size 0.4'x0.2'

HCG 84D = PGC 58861, mag 17.2, size 0.3'x0.2'

HCG 84E = PGC 58881, mag 17.2, size 0.2'x0.1'

HCG 84F = PGC 58856, mag 17.2, size 0.2'x0.2'

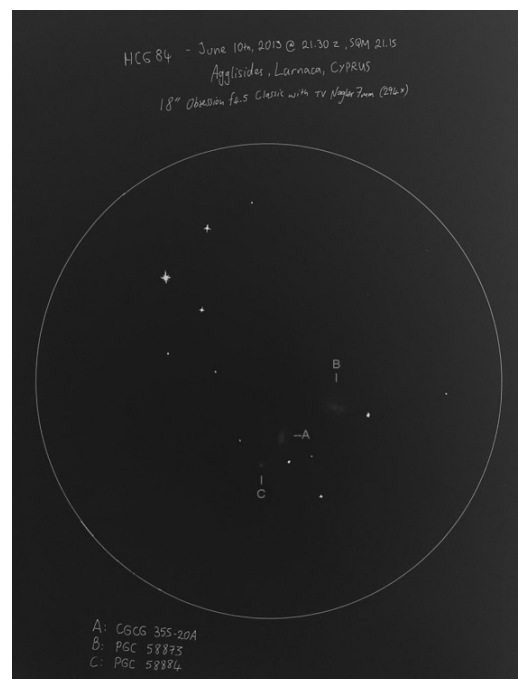
(All data taken from Alvin Huey's Hickson Group Observer's Guide).



I observed HCG 84 on two consecutive evenings, June 9th and June 10th 2013. As per my usual practice, whenever I observe a particular target for the first time, I avoid to read anything about its appearance beforehand, so as not to bias my observation.

On June 9th, transparency was so and so (SQM-L 20.95). I located the field quite easily, but I was unable to see anything beyond field stars in my 18" f4.5 dob.

On June 10th, from the same exact location, transparency improved considerably (SQM-L 21.15). Using my hooded vest, at 294X I initially could detect "something" with averted vision. Over time, two distinct fuzzy patches materialized, that I could hold steady all the time with averted vision, and could occasionally see them with direct vision. The southernmost one seemed more distinct and slightly elliptical, while the northernmost one seemed fainter and somewhat more elongated. The two faint patches appeared to be oriented nearly perpendicular to each other. Also, the northernmost fuzzy patch seemed to have a slight division in the middle. I could hold this "rift" feature steady only at times. After some more time observing, the "rift" in the northern fuzziness seemed to become steadily visible, giving this a "double galaxy" appearance. In addition, further to the south of the brighter patch, I could detect a very faint star that however much I tried I could not focus crisply enough. I tried to push my magnification to 588X, but the seeing was not steady enough and I could detect with certainty only the central fuzziness, the northernmost galaxy "pair" seemingly disappearing.



After returning home and checking my drawing with DSS images and Huey's labeled picture in the book, as well as with Megastar, I could identify the brightest patch as component "A", CGCG 355-20A. The northernmost patch corresponded with component "B", PGC 58873, and what's furthermore, both photos show the presence of a superimposed star on the west edge of this galaxy – possibly the reason for the "double galaxy" image I perceived. To my surprise, Alvin does not indicate the "double galaxy" appearance in the drawing in his guide, nor is it mentioned in Reiner Vogel's Hickson guide. Finally, the faint star that I could not focus crisply corresponds nicely with component "C", PGC 58884. My only concern is that there is a faint star very near to the galaxy, so I suspect what I saw was the combined light from both PGC 58884 and the star. I did not detect anything that I placed on my sketch that could correspond with the other members.

So, HCG 84 can give us a nice set of challenges: What is the smallest telescope through which this group can be detected? It was hard in my 18" on a very good night, but I think that it might be detected with a 15" mirror or even less. What are the prerequisites for observing the "rift" created by the superimposed star in PGC 58873? Magnification, steadiness of seeing, or transparency? Finally, what is the minimum aperture and magnification needed for observing all six members of the group?

Reiner Vogel

It's been some time since I observed this group the last time, it was at least three or four years back with my 22".

I don't remember that night, but my notes say, that at 500x, c was quite obvious with averted vision and that I could separate c from the nearby star. Both a and b were difficult, but could be seen with certainty with indirect vision. I haven't taken notes about the superimposed star next to b, and I don't remember, whether I split galaxy and star (probably not).

This is certainly one of the more challenging Hickson groups.

Steve Gottlieb

Great example, Rolandos Constantinides, of what makes the Hickson groups so appealing -- second looks with perhaps better conditions/darker skies, or using a larger aperture will often catch additional members.

Here are some of my notes with different scopes, including Jimi's 48", Paul Alsing's 25" Obsession and my 18" Starmaster! This group is also another example which has a discordant redshift member. HCG 84F is twice the distance of the other 5 members (at 1.4 billion light years), though interestingly, it was more prominent than HCG 84E in the 48". Also, in my 18", HCG 84C was less obvious than the attached 15th magnitude star and in fact I missed 84C in an earlier observation (1996).

HCG 84A

48" (10/22/11): at 488x appeared moderately bright, fairly small, oval 3:2 N-S, ~30"x20", brighter core. HCG 84A (brightest member of 5 members) forms a very close pair with HCG 84E (faintest member), which is barely off the east side [13" between centers]. A mag 14.4 star lies 38" WSW. The entire sextet fits in a 2.4' circle!

18" (7/4/08): at 280x, the brightest member of HCG 84 appeared faint, small, elongated 5:3 N-S, ~25"x15", very weak concentration. Located 1.6' NE of a mag 11.7 star and 2.1' SW of a mag 11.4 star. Also nearby is a mag 14.5 star 40" WSW and a mag 15 star 40" SSE (HCG 84C is attached to this star).

HCG 84B

48" (10/22/11): fairly faint, fairly small, elongated 2:1 WNW-ESE, ~25"x12", brighter core. Located 1.3' NNW of HCG 84A and 1.2' E of a mag 11.4 star. HCG 84D lies 0.6' WSW and 84F is 1.4' SW. Second brightest in very compact group of 6 galaxies.

18" (7/4/08): at 280x appeared very faint, very small, elongated at least 2:1 WNW-ESE, ~27"x12", low even surface brightness. Located 1.3' NNW of brighter HCG 84A = CGCG 355-020. This is the second brightest of 3 viewed in HCG 84.

HCG 84C

48" (10/22/11): faint, small, irregularly round, 15"x12". A mag 15 star is at the SW edge. Located 38" SE of HCG 84A. HCG 84E lies 30" NNW (just east of 84A). A mag 12.3 star lies 1.0' due east. Third brightest of six in the group.

25" (7/4/08): at 360x appeared very faint, very small, round, 10" diameter. Attached to mag 15 star (just 15" between centers).

18" (7/4/08): the third brightest member of HCG 84 was a marginal glow at 280x, highly suspected attached to the NE of a mag 15 star. Situated just 0.6' SE of HCG 84A.

HCG 84D

48" (10/22/11): at 488x appeared faint, small, slightly elongated E-W, 9"x6". Located just 0.6' ESE of a mag 11.4 star and a similar distance WSW of HCG 84B.

25" (7/4/08): at 360x appeared extremely faint and small, round, 4" diameter. Squeezed between HCG 84B 34" E and a mag 11.4 star 38" E. Required some concentration.

HCG 84E

48" (10/22/11): very faint, extremely small, round, 6" diameter. Forms a very close double with HCG 84A, just 13" E of center! HCG 84C is just 30" SSE. Although listed with the same magnitude (B = 17.2) as 84F, this galaxy was slightly the faintest in the sextet.

HCG 84F

48" (10/22/11): HCG 84F was easily visible though very faint to faint, very small, round, 10" diameter. Situated just 39" S of a mag 11.4 star and 1.9' WNW of HCG 84A. Although assigned the lowest group letter, this galaxy was slightly easier than 84E (both are B = 17.2). The redshift of this galaxy is nearly twice the other 5 members, with the group at a distance of ~740 million ly and HCG 84F at a distance of 1.4 billion light years!

Mark Johnson

Talk about throwing down the gauntlet! I'll now have to try this with my 18" and be quite pleased if I can come out with 3 like Steve did in 18". Given excellent transparency and seeing it could happen. Last new moon (a real seeing skunk experience) I was going to go for AGC2256 and Shakhbazian 166 which are right in that area so what the heck, maybe at GSSP this area will be quite the project.

Bill Weir

I had to look in my Hickson observing log then cross reference with my old written notes to come up with my observation of this group. It was in the early morning hours of Aug 10, 2008. I was at the Mt Kobau star party at 6000ft. Very dry clear air with SQM 21.54 and excellent seeing. I was using my 12.5". My notes say that at 365X I was able to detect galaxies A, B and C. Looking at images now I wonder if I was seeing the star next to C. Regardless, I am confident of my observation of A and B.

I haven't been to Mt Kobau in a few years and am looking forward to getting back there later this summer and observe with old friends.

I've been quite surprised at how many of the Hicksons have been observable with my 12.5". I've logged 52 so far with it and a total of 64 between the 12.5 and my 20".

Mark Johnson

As has been mentioned before, the hicksons make for a great set of objects to use to gauge the current sky conditions. In the late summer I often use the 'fleas' of 7331 for this sort of test but hicksons are all over the sky so picking 6-8 with a wide range of magnitudes offers us a sort of sky condition 'scale' for a given instrument to better judge transparency. Seeing is easier to put a number on than transparency from my experience but perhaps I lack the 'tricks' of the deep sky experts in putting a number on transparency alone.

Rolandos Constantinides

I am really excited about all the comments I received about HCG 84. I am really surprised that no-one has mentioned definitely "splitting" galaxy B. To be honest I expected to read that it was a definite split using some of the larger scopes used by this group (especially Jimi's 48").

I plan to return to HCG 84 next Saturday, as we have planned already a trip to our high altitude (~1300m) site, with its steadier, darker sites. If conditions allow observing the group, my main effort will be to confirm "C", then to confirm again my observation of "B" as a double glow, and finally, if seeing allows, I will try to detect the other three members with my 18". I'll keep you posted!

Victor van Wulfen

"Splitting" 84B as in two separate galaxies? To the best of my knowledge the feature on the WNW side of B is a faint star. Is there other data?

<http://skyservice.pha.jhu.edu/DR8/Im...12&opt=&q uery=>

Rolandos Constantinides

Well, I guess I did not phrase it right! As I said in the original post, I got the impression that galaxy "B" had two bright (relative term of course!) patches within it. It gave me the impression of a "double galaxy" - but of course in reality it is the faint star and the galaxy nucleus. What I want is to try to "replicate" my original observation, though of course now I am a bit biased - I know there is a faint star there! When I did my first observation of HCG 84 I was not aware of the star superimposed on B.

Howard Banich

I have one observation of Hickson 84 from October 2001 with my old 20 inch. Although this was before I had a SQM my notes indicate it was a very dark and transparent night on Steens Mountain, so the SQM was probably somewhere in the 21.8 to 21.9 range. Here are my notes and eyepiece sketch from that observation:

"Faint and tough to see, the E and F galaxies are invisible, perhaps because the soft seeing blurs out their magnitude 16.9 images...413x"



I'm going to re-observe this group in a few nights at the GSSP with my 28" scope.

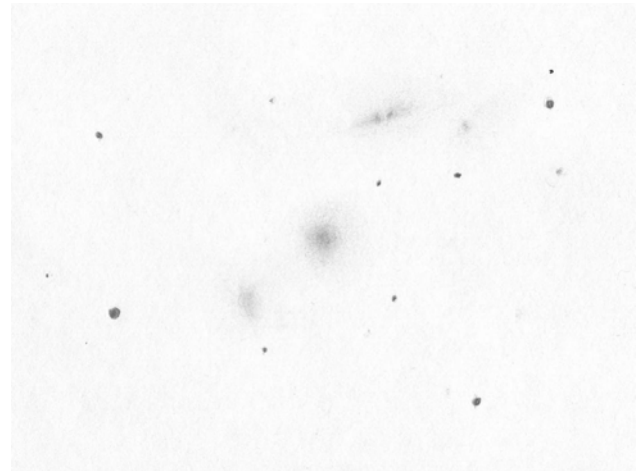
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I had a couple of good looks at Hickson 84 at the GSSP a couple weeks ago, here are my notes and sketch:

"Tough object but lots of fun to observe. This is a tight galaxy group that took 695x to blow up large enough to see well, plus a good amount of observing time to see everything I can. The dark background at 695 and fov framed the group perfectly. 21.60 SQM."

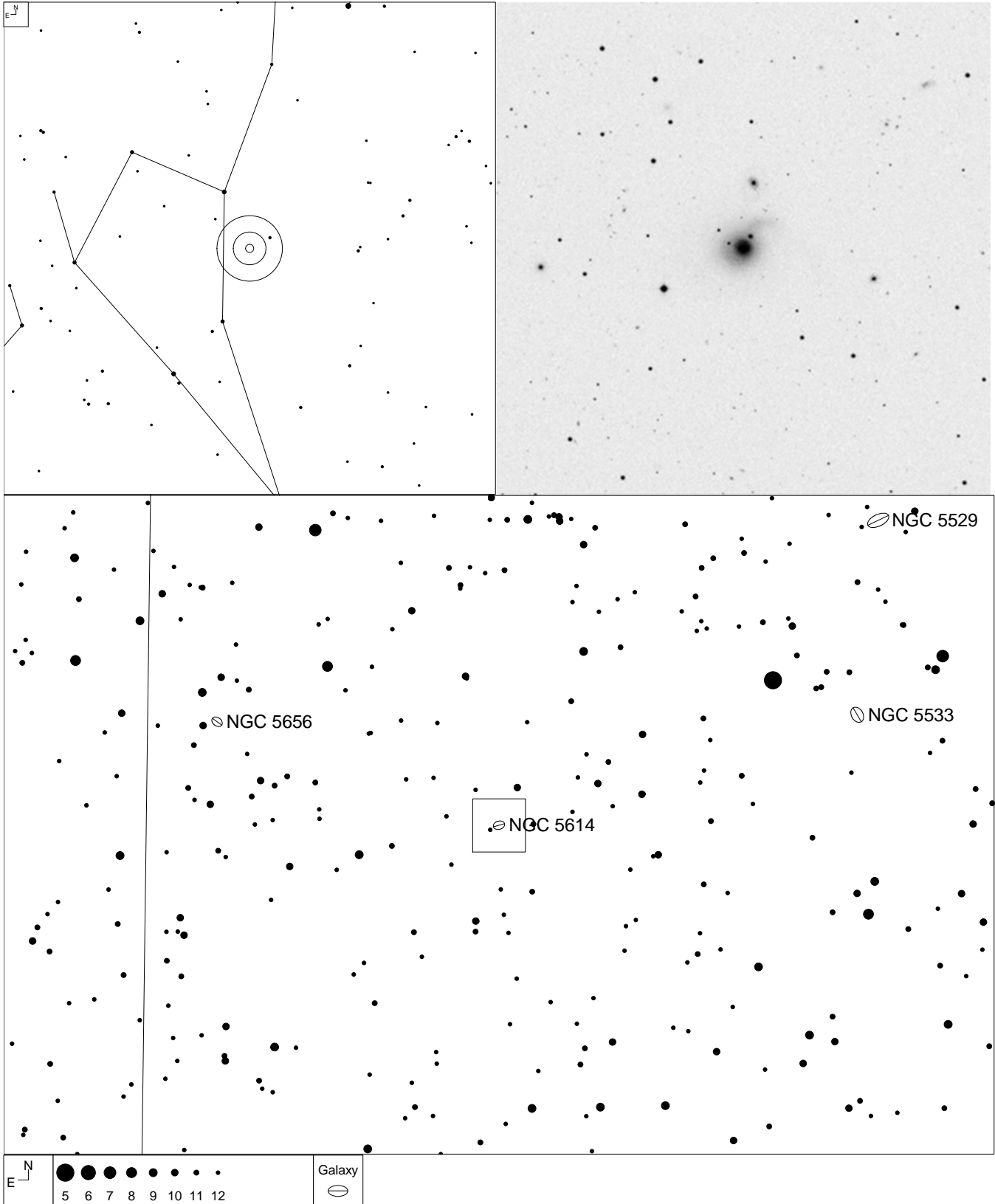
"Continuing my observations from last night, I was able to definitely see two of the three 17th magnitude galaxies I missed last night. The third

one is a "maybe" because I had a couple of hints of a faint spot in the right location but not enough to be sure. 408x, 695x, 21.60 SQM."



The biggest challenge for me was placing as many of the bright foreground stars out of the fov as possible, and I couldn't get them all out because the cluster is surrounded by them. Seeing was fairly soft during both observations and I couldn't see the E galaxy, but this will be another good one to observe again, hopefully in steadier seeing, at the OSP next month.

NGC 5614 (Bootes)



Object	RA	Dec	Mag	Size
NGC 5614	14 24 07	+34 51 33	11.7v	2.4x2.0'

NGC 5614 (Bootes)

Uwe Glahn

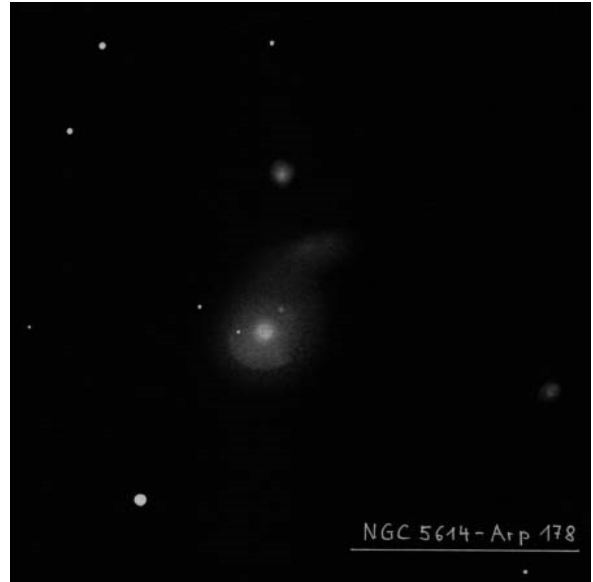
First look at NGC 5614 seems to be very boring. Discovered by F.W. Herschel 1785 most telescopes showed nothing than a 12mag bright roundish Elliptical like galaxy.

Second look showed three brighter to faint companions. All were discovered 66 years later by William Parsons (Lord Rosse) with his 72". Most interesting companion is NGC 5615 which is found only 25" NW of the core of NGC 5614. It is listed with 14,7vmag but it shined through the Halo of NGC 5614 which makes the observation much more difficult. In my 27" it looks like a faint maybe somewhat fuzzy star and could be hold with direct vision. The other two companions NGC 5613 (2'N) and NGC 5609 (4'W) should be much easier than the "fuzzy" companion near NGC 5614.

Third look at the DSS or deep pictures showed a faint tail, starting from the Halo of NGC 5614 ~1,3' long to the NW. To my surprise the tail was easy visible with 27" and 293x (2,4mm AP).

Fourth look at high resolution pictures (e.g. HST) showed ring structures around the core of NGC 5614. The main ring has a diameter of approx 1'. Studies showed that NGC 5614 was pierced vertical through the main plane. The collision partner is the fuzzy NGC 5615. I don't magnify high enough to resolve the ring itself but I noticed and sketched in my rough sketch a better defined edge to the S – the brightest ring segment.

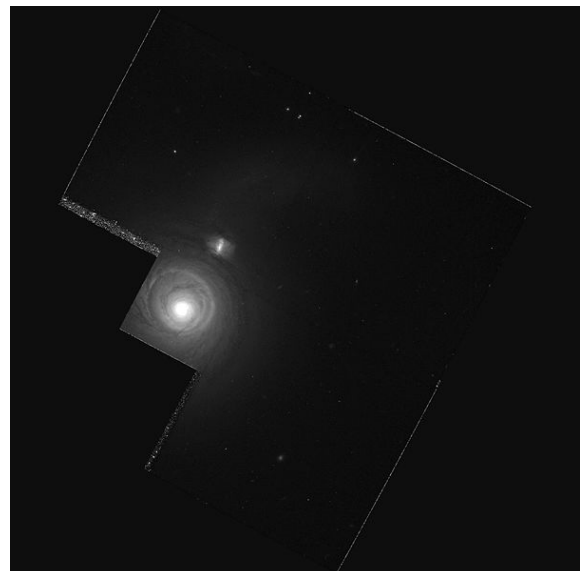
Fifth look showed a faint galaxy group 4' E like a galaxy chain with N-S elongation. Brightest member PGC 2055993 is around 18,7bmag. A target for the real big scopes – I heard about some here 🤔



Sketch 27", 293x, seeing III, NELM 6m5+
(cropped from original sketch)



Adam Block/Mount Lemmon SkyCenter/University
of Arizona



HST (NASA/ESA/STScI/ST-ECF/CADC/NRC/CSA)

Steve Gottlieb

Another great object for larger scopes with NGC 5615 a challenging target. For those who use Megastar, the tail that Uwe mentions heading to the northwest is misidentified as NGC 5615! NGC 5615 itself received no designation in Megastar (not even a MAC), probably due to its virtually stellar appearance on the DSS.

I didn't see any additional detail in Jimi's 48-inch a few years back, but here are my notes...

48" (4/15/10): very bright, large, round, ~1.5' diameter, bright core increases to center. At 330x two "stars" are superimposed, one on the northwest side of the halo with a fainter star superimposed on the east side of the halo. A third faint star lies ~50" NE of center. At 430x, the "star" on the NNW edge was noticed to be a compact "knot" (NGC 5615), ~4" diameter. A tidal tail appears as a very low surface brightness hazy extension off the NW side with NGC 5615 at the position where this glow attaches to the galaxy. Arp classified this extension (Arp 178) as a "narrow counter-tail", apparently formed from a previous interaction with a neighbor (perhaps NGC 5613 or NGC 5609).

Victor van Wulfen

Faint details elude my modest aperture, but here's a 12" SCT observation from 2011:

NGC5614 is clearly visible, a round faint patch, brighter in a round central part with a bright nucleus that is just visible without AV. To the NNW (almost due north) is a small, round patch (NGC5613), NGC5615 is not visible.

Back in 2008 in an 8" SCT only 5614 was visible as a NW-SE elongated patch with a faint nucleus.

Lou Behrman

I observed this from a fair dark site 4th of July Night.

From my log:

7/4/2013 23:27 EDT :: Blue Mountain Vista :: Ursa w/ Paracorr

Seeing 3/5, Transparency 4/5

TeleVue Delos 4.5mm, 467x SQM 20.97 -- *Hazy patch with stellar core. Extends substantially with AV. Stellar core quite bright w av but dims with DV. 5613 also visible with AV.*

As Victor stated, the fainter details referenced above escaped me that night. And knowing what

happened later that night with several significant clouding events I'd probably call that 4/5 transparency number a bit optimistic. Probably more on the 3/5 range.

So am marking this one for reobserving from a darker site on a more transparent night. I suspect those details are going to require a more optimal set of conditions for me to have a shot at 17.5".

Might have a fair shot during the September window.

Steve Gottlieb

While looking at the data in NED, I noticed that the redshift for NGC 5613 ($z = .028$, SDSS) is over twice that of NGC 5614 ($z = .012$, RC3) and 5615 ($z = .013$, SDSS), so NGC 5613 is apparently a background object. To add to Lou's observation, here are my notes with my 24-inch f/3.7 from a week ago at the Golden State Star Party in northern California.

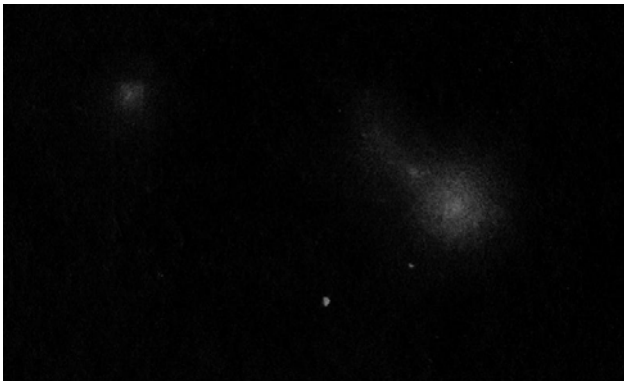
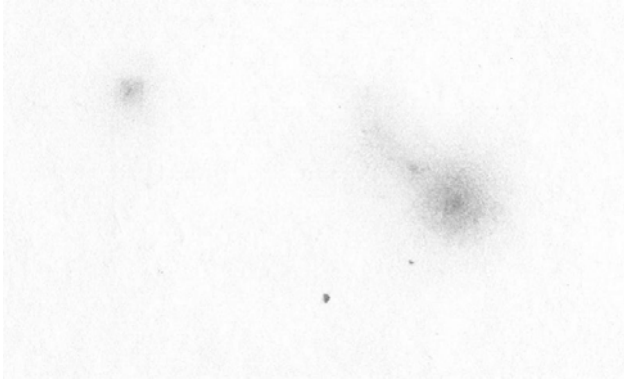
NGC 5614: at 322x appeared very bright, large, round, sharply concentrated with a blazing core that gradually brightens towards the center. Contains a large, irregular halo that increases in size with averted to 1.4'. NGC 5615 was seen as a very small, very faint "knot" at the NW edge. The tail was not seen confidently.

NGC 5613, just 2' NNW of NGC 5614, appeared fairly faint, round, 10" diameter, stellar nucleus. With averted vision the halo elongates the size increases to 15"x10". NGC 5609, 4' WSW of NGC 5614, was logged as fairly faint, round, low even surface brightness, 18" diameter. Visible continuously with averted.

Howard Banich

I also observed 5614 at the GSSP and here are my notes and sketch:

" This is more like it - 5614 is big and bright and 5613 is smaller, fainter but seen with direct vision. 5615 is smaller and fainter yet and was seen only with within 5614's plume - which is pretty cool. 408x and 695x, 21.61 SQM."

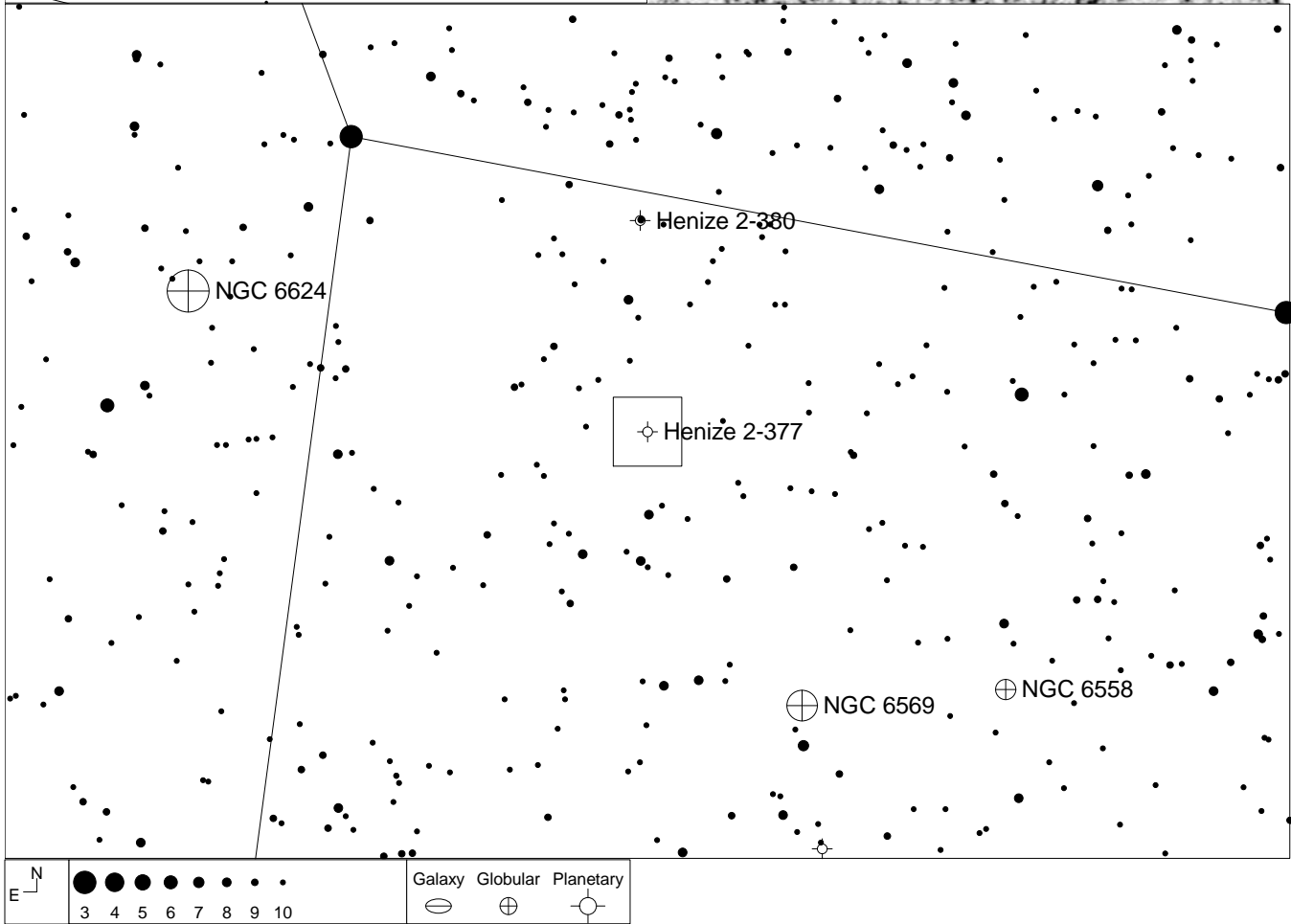
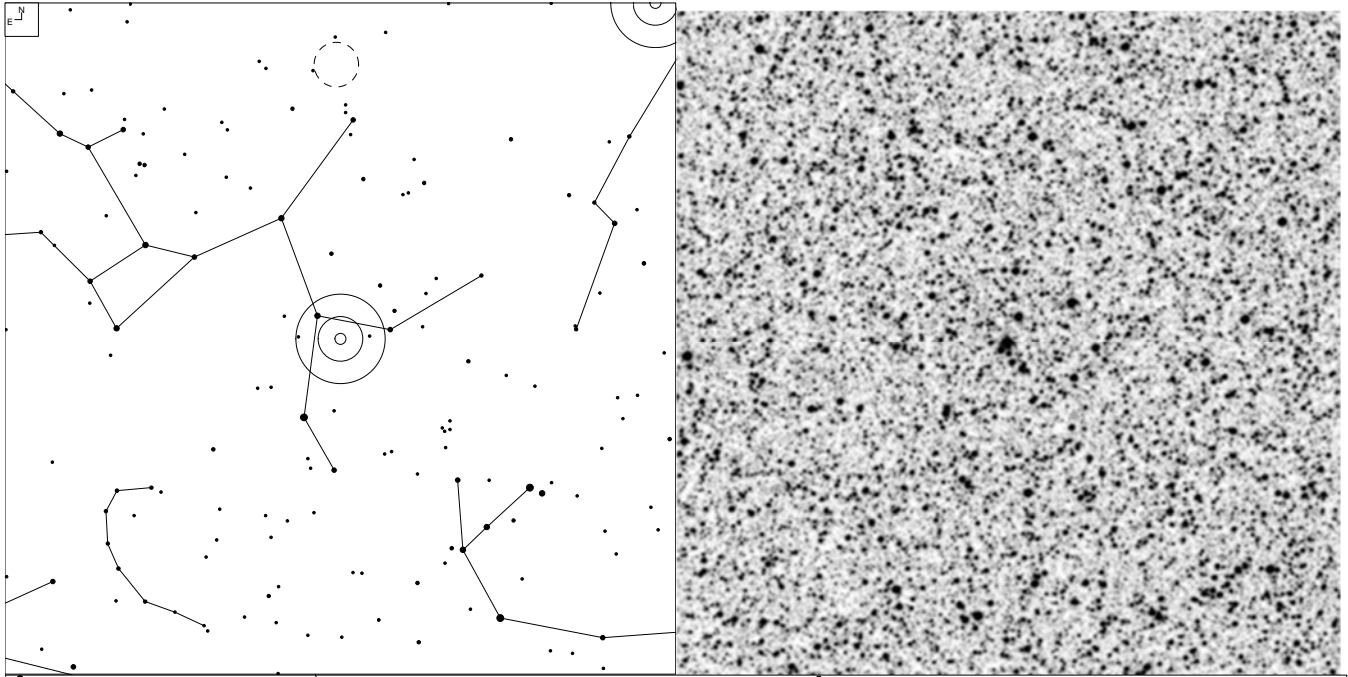


The plume was fairly easy to see and really popped out with averted vision - I really enjoy seeing plumes, tidal tails and other effects of gravitational interactions. I didn't think to look for 5609, but then that's a good reason to go back for another look in a couple weeks at the OSP.

Ron Abbott

Although my observation is with the smallest scope on the page, here is my log entry on this object from 6/29/98: *Using Celestron 11 SCT with 20mm Nagler Type II (140X): Located approximately 1 field E of an approx. 8.5 mag. star. Easily seen with direct vision. Round, approximately 2 arcminutes in diameter, with a faint outer halo which brightens suddenly to a much brighter compact nucleus.*

Swings-Struve 1 - An unusual planetary in Sagittarius



Object	RA	Dec	Mag	Size
Swings-Struve 1	18 16 12.2	-30 52 08	11.9*	

Swings-Struve 1 - An unusual planetary in Sagittarius

Steve Gottlieb

The "discovery" name of this nearly stellar planetary is from the 1940 paper by Pol Swings and Otto Struve: "HD 167363, An object similar to Campbell's Hydrogen Envelope Star" available at <http://www.pnas.org/content/26/7/454.full.pdf>

This young, very compact planetary contains a hydrogen-deficient central star displaying a carbon-rich emission-line spectra (WC) very similar to young, massive Wolf-Rayet stars. The central star is surrounded by a small dusty halo showing red [N II] lines. Campbell's Hydrogen Star, with a similar spectra, displays a striking red ring (in larger scopes).

Both Campbell's star and Swings-Struve 1 were actually discovered by Williamina Fleming at Harvard (ApJ, 2, 354) back in 1895! (she found Campbell's Star in 1890). As it was assumed this was a star and not a planetary, Dreyer did not assign it an IC number to either object.

Sw-St 1 was later rediscovered by Merrill at Mount Wilson in 1925, then by Pol Swings and Otto Struve at McDonald Observatory around 1940 and picked up once again at Mount Wilson in 1950 by Karl Henize. What a history! For more information see the 2001 paper "SwSt 1: an O-rich planetary nebula around a C-rich central star" at <http://m.mnras.oxfordjournals.org/doi/abs/10.1093/mnras/328/2/527>.

Jimi Lowrey mentioned this object to me a couple of nights ago at the Golden State Star Party in northeastern California as he happened to run across the 1940 Swings-Struve paper and wondered if it might display a reddish halo like Campbell's Hydrogen Star. We couldn't confirm a color, though the central star is certainly off-white (Paul Alsing thought it had a reddish tinge) and appears slightly "soft" at high power in my 24" f/3.7. Although situated in a rich Milky Way field, I was able to quickly identify it (without a finder chart) by "blinking" the field with an NPB filter.

The next day I checked my notes database and found I had first observed Sw-St 1 27 years ago (August 1986) with my 13" and commented "blinks very well with an H-Beta filter which dramatically dims all stars. Responds to an OIII filter but to a lesser extent."

Jimi and I, along with several others at the star party, reobserved Sw-St 1 again last night (SQM-reading of 21.6) and found the H-beta response startling -- stars were dimmed nearly 3 magnitudes, but Sw-St 1 shone steadily and dominated the rich field. Campbell's Hydrogen Star will also display this unusual response to an H-beta filter though not as dramatically.

Perhaps more southerly observers can confirm if this planetary displays a red halo, though as the halo is barely non-stellar, so this will probably be a very tough observation. Nevertheless, if you're looking to find another target to use your H-beta filter on besides the Horsehead and the California nebula, check out Swings-Struve 1!

Jimi Lowrey

We had a break in the monsoon last night after two weeks of much needed off and on rain showers. I have been wanting to try Swings-Struve 1 with my scope every since Steve, Paul and I viewed it at GSSP.

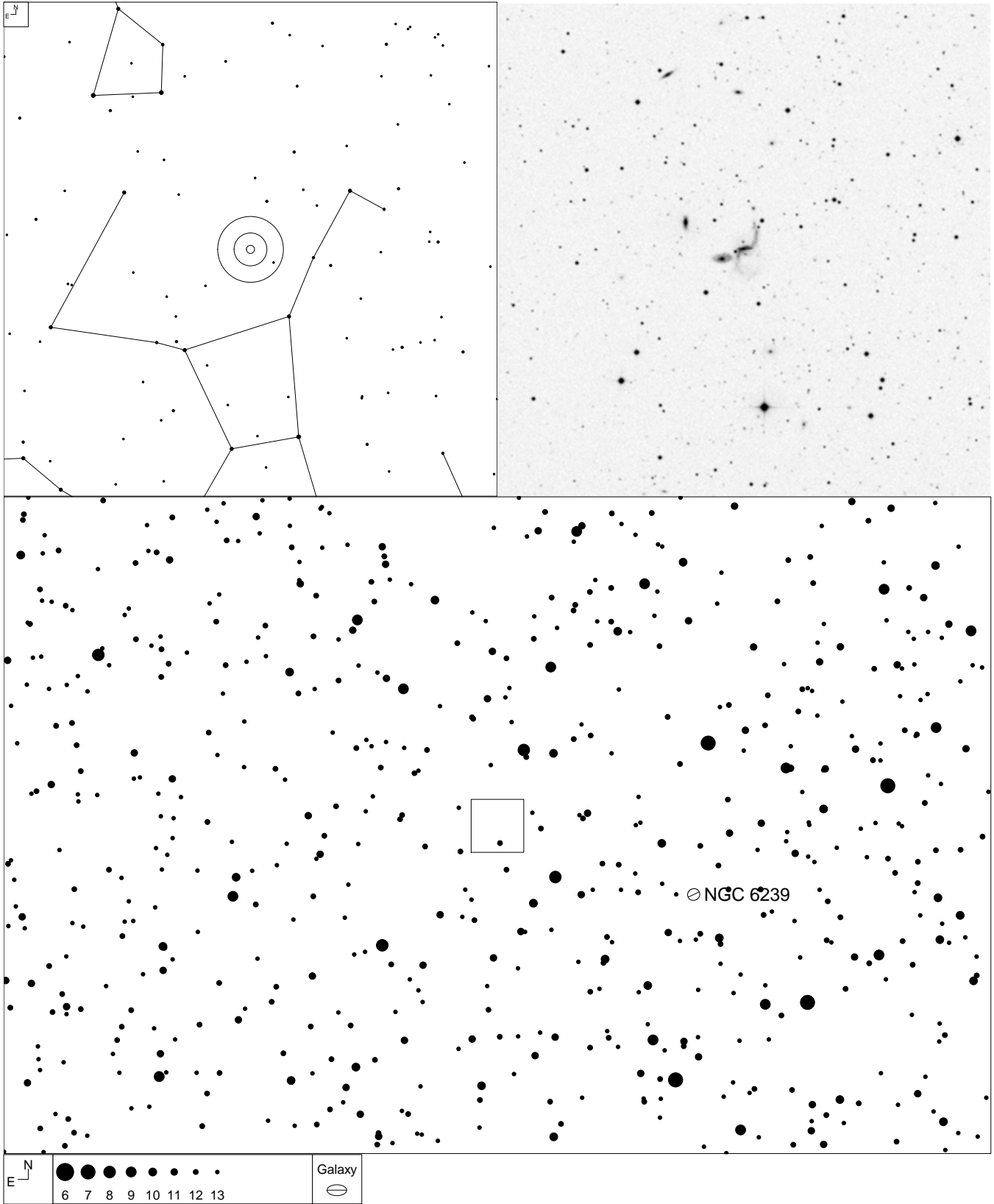
I found the field easily at 375X the object looked like a carbon star at this power and had a small faint halo. I tried a 7MM @ 697X next and it made a big difference in how it looked there was a very small reddish ring around the star (Paul you were right) and a faint halo beyond the ring. The reddish color ring or shell was very very small like someone had drawn with a sharp red pencil a circle on the edge of the star and beyond the reddish ring was a faint small nebulous shell. Very cool and unusual object I highly recommend you try it and be sure to bump up the power to all the seeing will allow.

Steve Gottlieb

Another reddish planetary! Great observation, Jimi. Besides the big jump in aperture, I'm guessing viewing it 11° higher in the sky than GSSP also helped.

Should be a great target for southern hemisphere observers -- Swings-Struve 1 would be practically overhead!

VV 289 (Hercules)



Object	RA	Dec	Mag	Size
VV 289 - UGC 10610				
VV 289a - MCG+7-35-4	16 55 00.5	+43 03 30	15.4g	0.7 x 0.4'
VV 289b - MCG+7-35-5			15.5	0.6 x 0.4'

VV 289 (Hercules)

Alvin Huey

First off, many apologies that I totally forgot it was my week and I was out of town till now. Anyhow, VV 289 is one of the many examples from the VV Catalogue, Part I. I observed it at GSSP 2013 under NELM 6.7 skies.

The following is a brief discussion from the observing guide available on my website, just to give some background on this catalogue.

Dr. Boris Vorontsov-Velyaminov (1904-1994) of Sternberg Astronomical Institute, Moscow University, created a series of lists of interacting galaxies starting in 1959. A majority of the systems were found on the POSS plates from the Palomar 48-inch Schmidt astrograph. The original list, Part I, contained 355 systems. It should be noted that the more famous list, Arp Peculiar Galaxies, was done AFTER Boris's list. Approximately half of Boris's Part I list was listed as an Arp as Boris's paper was the inspiration for Arp's list. Dr. Halton Arp has access to the 200-inch reflector, which in turn gives Arp the ability to dig deeper and get a clearer image of the structure within these galaxies. As Steve Gottlieb pointed out, a number of Vorontsov-Velyaminov "nests" and chains turned out to be late-type single dwarf irregulars (eg VV124 and VV104) with active star formations regions mimicking the appearance of multiple galaxies. Then in 1977, Vorontsov-Velyaminov (V-V) published Part II of his list, containing an additional 497 interacting systems, labeled as VV356 through VV852. Lastly, in 2001, an additional 1162 objects were added from the Morphological Catalogue of Galaxies by Vorontsov-Velyaminov et al. These objects have numbers ranging from VV853 to VV2014.

V-V has classified each interacting galaxies within several categories, and for most objects, he classified some unique details. Categories include M-51 types, Nested galaxies, Pairs of galaxies, Chain of galaxies, Ring galaxies and Enigmatic galaxies. Some details he listed include tails, bridges and disruptions to list a few. A full table listing the categories and details is on page 28.

V-V was interested in M-51 type systems, interacting of multiple systems (nests and chains), tidal theory of bridges and tails. I believe that his

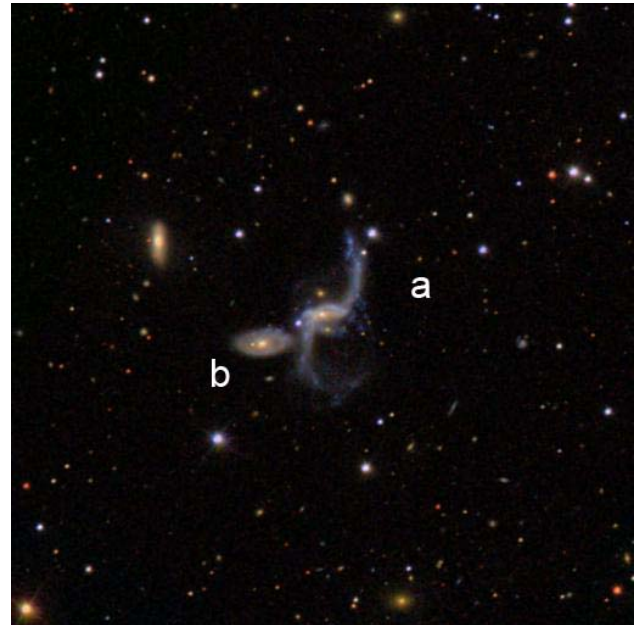
work has profound impact on near future work on these classes of objects.

I just picked one of many VV objects I observed, I've observed better ones and others are much tougher. Someone asked me what was my highlight of last night. So I answered this object. I spent a bit more time than usual as I was trying to see if I could see traces of the long arms of the barred spiral galaxy.

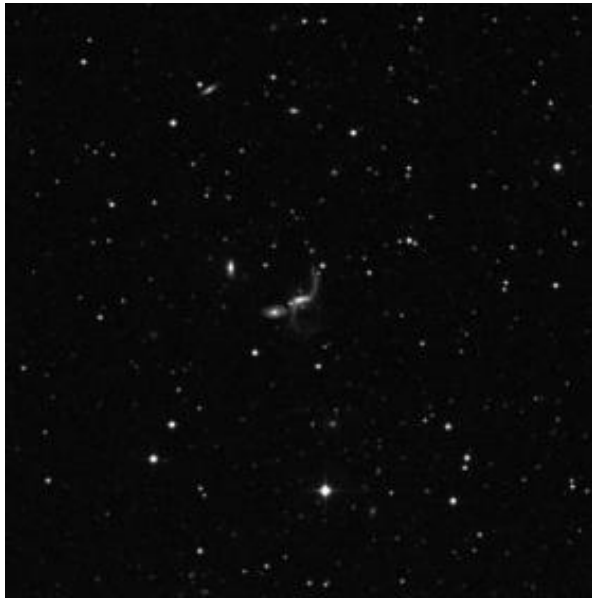
One of the very many cool VV objects.

22" (255, 305, 377 and 458x) (NELM 6.7)
VV 289a – Considerably faint 3:1 elongated glow with defined edges. Very slightly brighter center. PA = 100 and 30" long. After sitting at the eyepiece, the north arm popped in and out. Visible about 25% of the time. Arm is about 30" long. A faint 17th magnitude star is just off the east end.

VV 289b – considerably faint 2:1 elongated even surface brightness glow. Defined edges. 20" across and PA = 90. Lies 0.7' SE from VV 289a. Very slightly fainter than VV 289a.



SDSS image



DSS image

Steve Gottlieb

This one wasn't on my observing list for GSSP, so I'm glad you picked it as an OOTW, and great you were able to glimpse the tidally distorted northern arm!

Did you note the MAC that is close NE? (2MASX J16550840+4304270 = LEDA 2212393)

Uwe Glahn

Again thanks that you mentioned the VV list, a rich source for every galaxy fan.

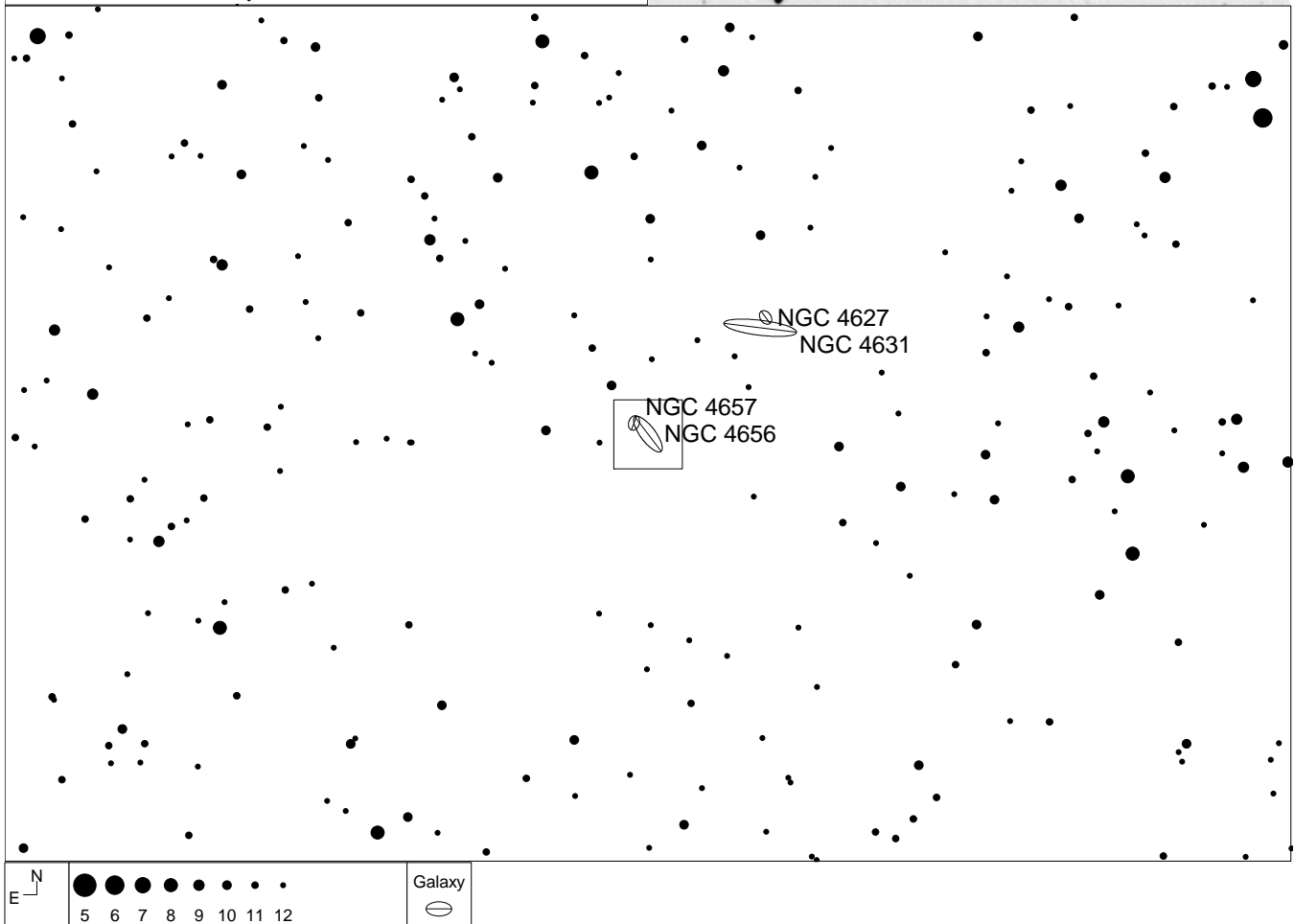
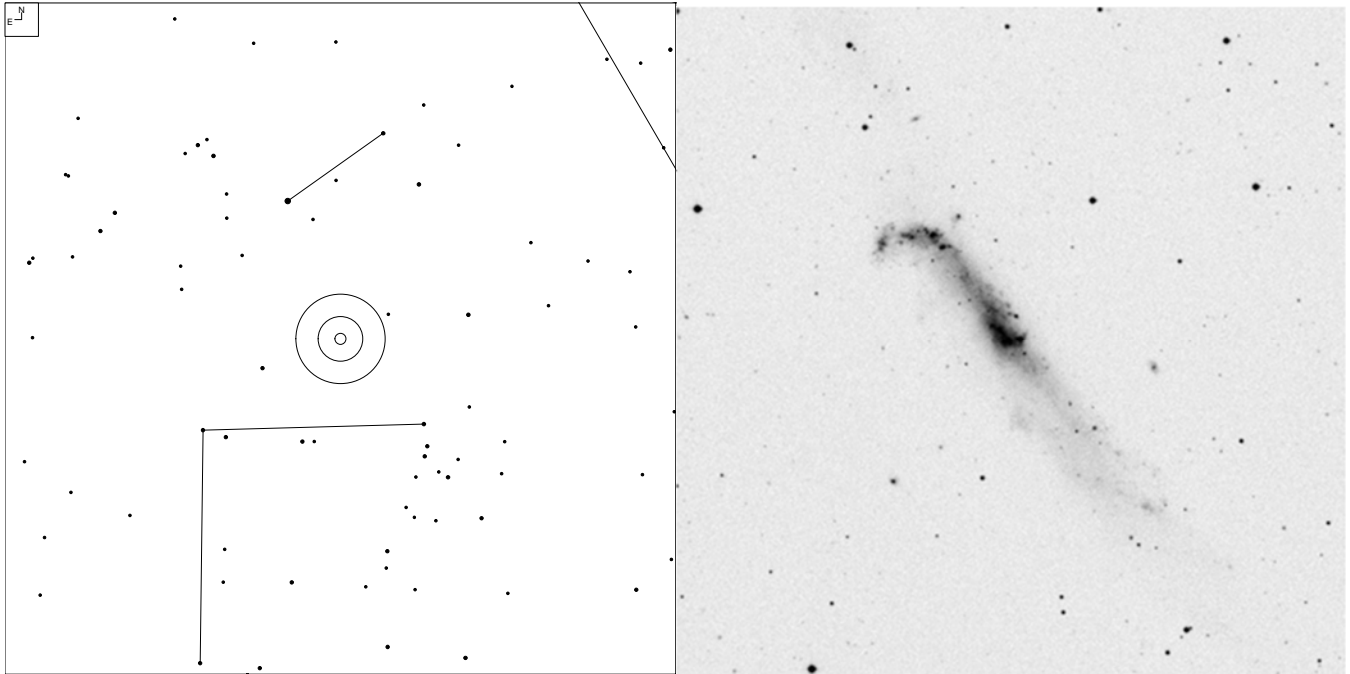
Funny that you choose VV 289, because I had this in my eyepiece only a few days ago.

With 27" all three galaxies were easily visible, I could hold the N tidal arm with averted vision. But I could not pick up the S arm just as the very faint galaxy on the tip of the N arm (18,2mag NED)



27", 419x, NELM 6m5+

NGC 4656 – The Hockey Stick (Canes Venatici)



Object	RA	Dec	Mag	Size
NGC 4656	12 43 57.7	32 10 05	11.0b	9.1 x 1.7'
NGC 4657			10.5	1.3 x 0.6'

NGC 4656 – The Hockey Stick (Canes Venatici)

Dragan Nikin

So keeping with the spirit of my beloved Chicago Blackhawks winning the 2013 Stanley Cup last month, I thought it would be fitting to choose this object as an OOTW. Not only is it a great object, but it actually does tend to resemble its moniker.

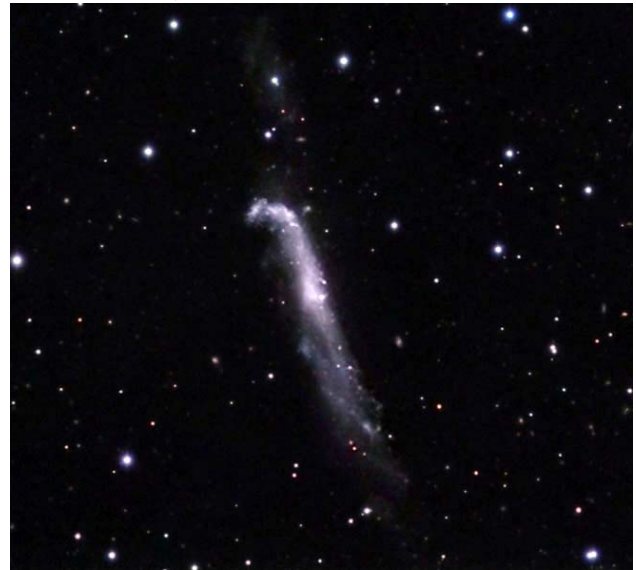
I've been observing NGC 4656 regularly for quite a few years now and each time I return, I would take for granted what my Megastar & Uranometria would depict. And that was NGC4656 and 4657 were two separate galaxies. The assumption is that 4657 is interacting with 4656 causing the gravitational distortion that was creating the "blade" of the hockey stick. But once I started my research for this OOTW, I stumbled onto something. (This BTW, is one of the reasons why working on an OOTW is so great. You learn so much!) I found that this may not be the case.

What I stumbled upon was a few internet sources that made the claim that the nearby Whale Galaxy NGC 4631(worthy of its own OOTW if you ask me) was the one distorting NGC 4656 and not 4657. Redshift measurements of the two galaxies do clearly show that the two are part of the same galaxy group. But in those same papers and sources, I found no reference to 4657 being an interacting object. I did find various websites making the assumption that 4656 and 4657 were interacting, but I found no credible evidence to prove it. So it got me to digging. Was NGC4657 a real galaxy or was it a misidentification? Even Hyperleda comes back with 4656 when you do a search for 4657.

A quick search with the folks at Harvard revealed a [paper](#) from 1983. One of the intentions as stated in the abstract was to determine whether or not 4656 and 4657 were part of the same galaxy. Apparently even back then there was doubt. Unfortunately though, they were not able to come up with conclusive evidence. They do suggest at the end of the paper that their "results favor a single galaxy model of a tidally distorted variant of a Magellanic type system." I'm sure some more research savvy DSF members than myself can come up with some newer evidence to prove one way or another.

Visually, the galaxy is fantastic in all size scopes. There are reports online of 4656 pairing nicely with 4631 in 100mm telescopes. In my 25" the shape of the hockey stick stands out nicely with a very apparent widening at the handle. Along the core of the galaxy mottling is very clearly seen as well as what appears to be HII regions.

One thing I did notice looking at many images while researching this OOTW is a faint band of stars extending away from the blade. I've looked at the hockey stick plenty of times with the 48" but I've never made note of it. Then again, I never knew to look. Has anyone seen this extension? Is it even visible? You can make it out in the images below. Next time out, I'll be sure to look for it.



Mark Johnson

You have reminded me of this one which is a real favorite especially with the whale next door. My observation of 4646 in 18" does not mention the extension.

A semi-deep image of this pair that I enjoy so much is on my image site at

<http://astrospotter.zenfolio.com/p31...6f361#h806f361> although I have seen better images ... this one was 'mine' and is a special visual area to me.

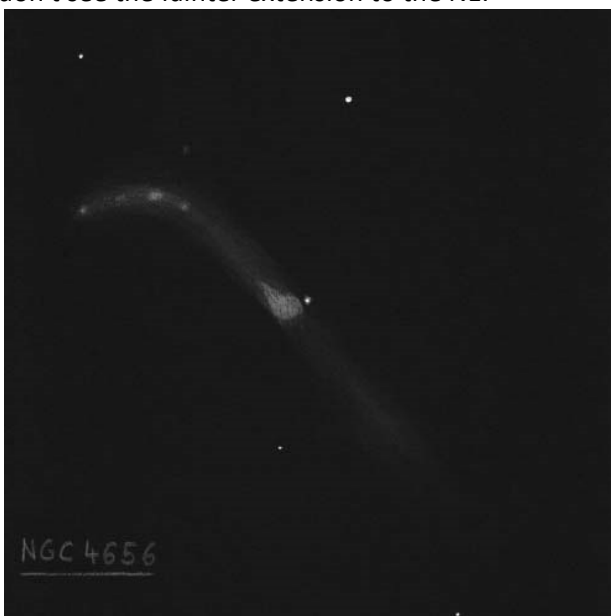
The Whale indeed deserves its own fame and together these too offer details each of their own for a great set of nearby observations. I too revisit this pair each year but will likely wait till next year to squeeze more details out of them when they return to higher ground.

Great info on the hockey stick. Thanks Dragan!

Uwe Glahn

I don't made a research but what I see on colored pictures is, that NGC 4657 is a part of NGC 4656 and most probable a result of the interaction with NGC 4631. The colors showed pink and blue tones which suggest star burst/formation.

For me it was always fun and challenge together to separate NGC 4657 into individual knots. With 16" I could pick up 4 knots within the hook and one more fainter knot 1' NW of NGC 4657. I don't try this with my 27" but I believe when the Seeing is steady enough NGC 4657 is extremely detailed. And no, I don't see the fainter extension to the NE.



16", 180x-257x, Seeing IV, NELM 6m5+
(cropped from original image)

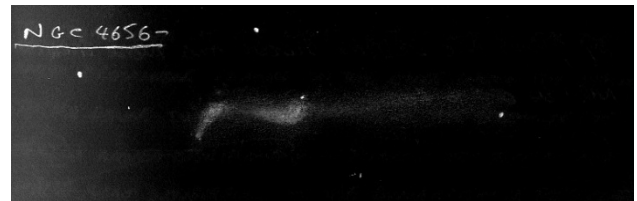
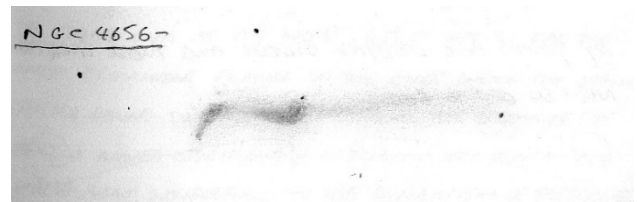
Dragan Nikin

In hi-res images, I always thought to myself that the hook was part of 4656. I never doubted that. But looking at different sources revealed that sometimes 4657 is depicted as a different galaxy, which I don't believe to be true.

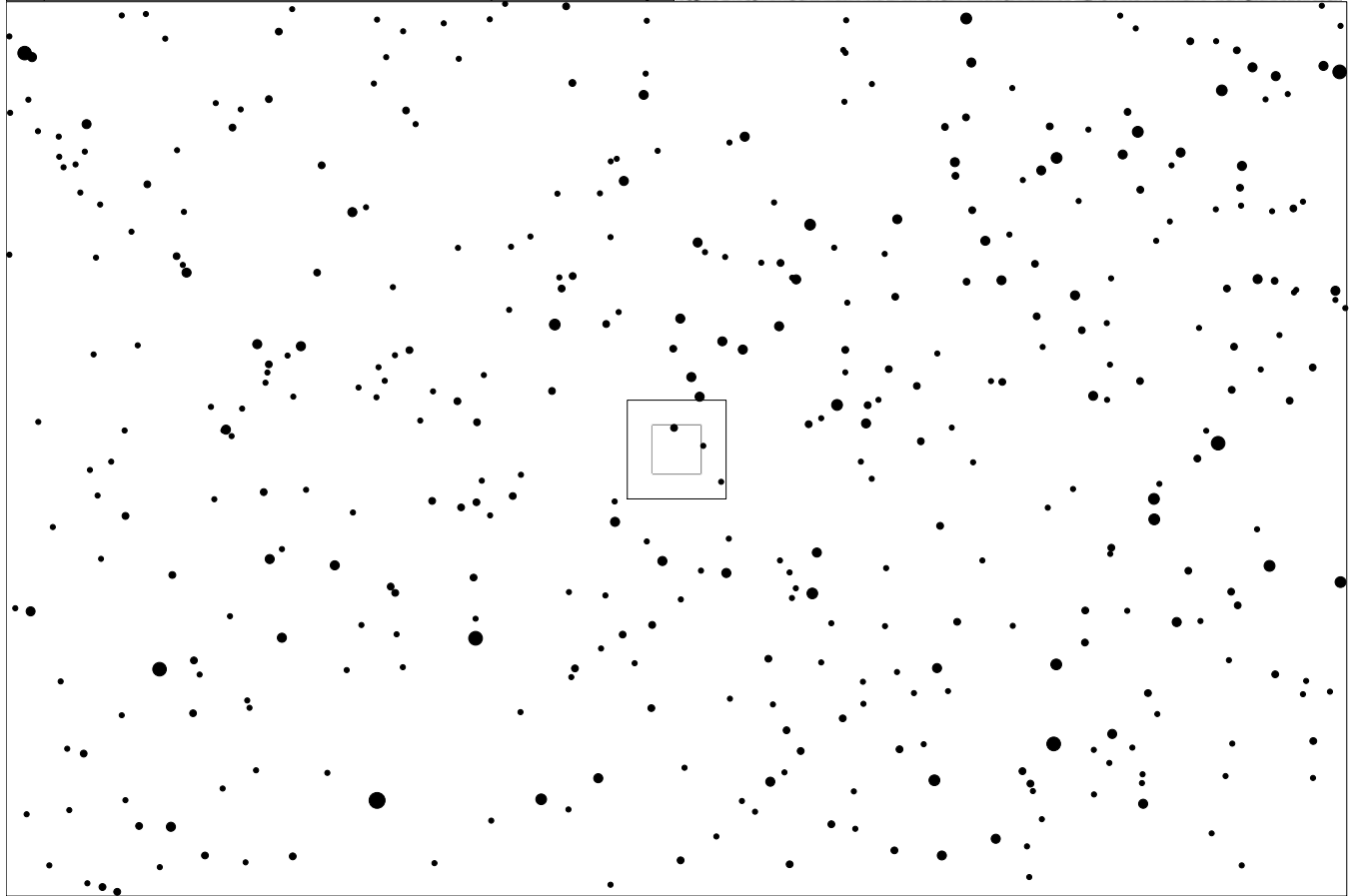
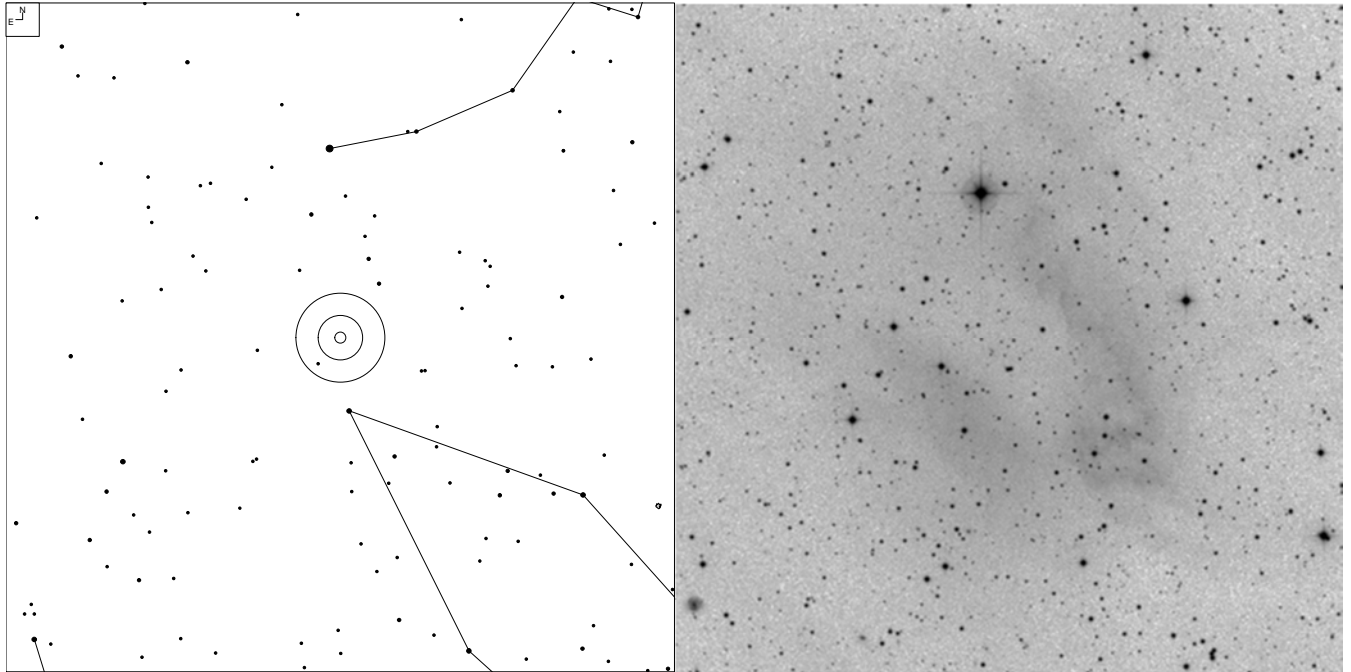
Howard Banich

My most recent observation of 4656 is from May 2009 with my 28 inch:

"A terrific view of the Hockey Stick galaxy - a long, faint extension balances the bright areas nicely and is dramatically longer too. Some mottling in the core and "blade" area on the bright end is easily visible at 408x and detectable at 253x. 21.31 SQM"



Sharpless 2-174 - a moving planetary? (Cepheus)



6 7 8 9 10 11

Galaxy
 Brt Neb

Object	RA	Dec	Mag	Size
Sh 2-174	23 46 49	+80 56 20		10x15'

Sharpless 2-174 - a moving planetary? (Cepheus)

Reiner Vogel

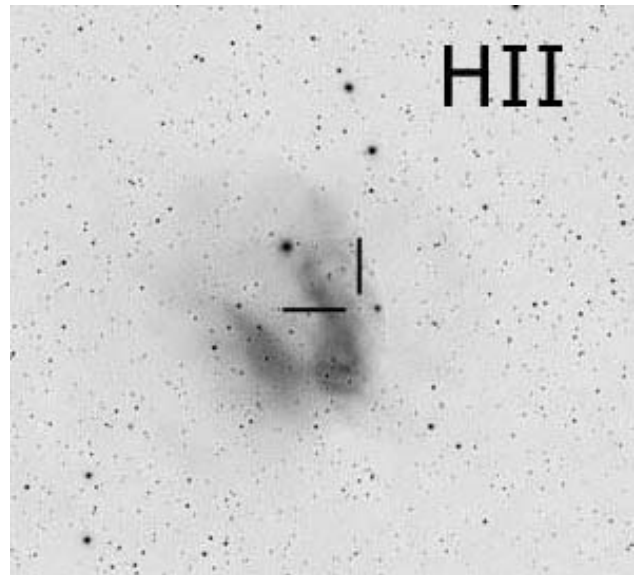
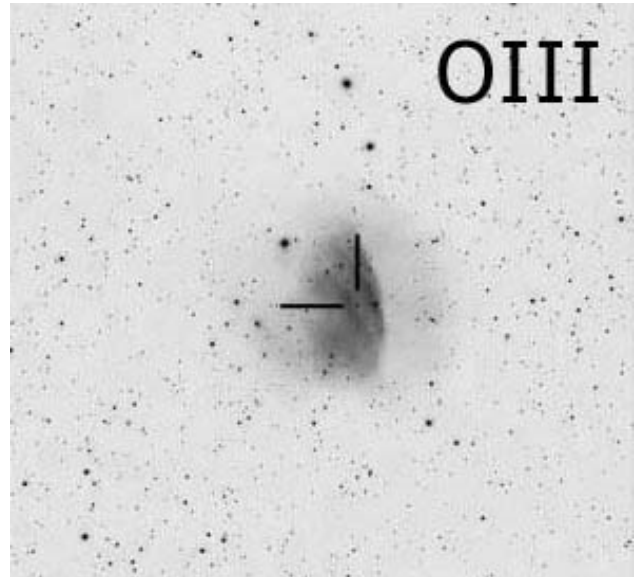
Sharpless 2-174 has a size of about 10'x15' and belongs hence to the very large planetary nebula. Its central star has a relatively large proper motion. During its movement through the interstellar matter, the PN loses part of its shell which is left behind as a trail visible in HII light. The central star is therefore no longer in the center of the HII-emitting part of the PN.



Image by Stephane Zoll in HII and OIII

Due to the apparent lack of a central star (there was no suitable star in the HII part of the nebula), Sh2-174 was first classified as an HII region. The part of the nebula, that shines in OIII light is, however, concentric around a White Dwarf, which gave evidence for Sharpless 174 being a PN. The parts of this object that are visible in HII and OIII light appear therefore slightly displaced (see animation below).

[RW Tweedy, R Napiwotzki, The planetary nebula abandoned by its central star](#)



OIII and HII frames of Sh2-174

My observations of this object

This displacement is visible at the eyepiece. The PN is quite faint, but still bright enough to allow for a detection of the slight displacement when switching from H beta to OIII filter. The disk of the PN appears diffuse without clear edges. OIII emission is displaced to the NW, while H beta and hence HII emission is more extended and displaced towards SE, in agreement with the narrow band images. Using an UHC filter, both components appear simultaneously, yielding a round appearance of the PN.

New interpretation of the nature of Sharpless 174

Entering David Frew, Dep. of Physics at Macquarie University in Sydney. During his PhD time, he made a survey of the nearby PN and PN candidates, gathering new data and re-examining existing data. One of his aims was to set up a new distance scale for PN and to prepare a sample of all known *bona fide* PN nearer than 1000 pc. Such a sample would allow examination of PN also with statistical tools and, of course, be to the delight of us amateur astronomers, providing us a new observing project :-).

[Thesis of David Frew](#)

While there were not that many new PN to add to the sample of true PN, there were several, formerly acknowledged PN to be rejected from the sample. One of them was Sharpless 174. So, what's the point of rejecting Sharpless 174 from being a true PN after the reason for its peculiar appearance and for the apparent lack of a CS seemed to be solved?

The first point is the White Dwarf star. It is cooler than other WD of evolved PN of similar age and did not fit into the typical post-AGB scenario of a PN central star. The WD is simply by a factor of 100x too old for being a PN central star.

The nebula itself shows several features that are not in line with it being a PN.

- a) The line shifts of the nebula indicate no co-movement of the gas with the White Dwarf
- b) There is no obvious limb brightening of the nebula which would be expected for a shell ejected in the PN formation phase (as compared with a solid sphere of gas)
- c) There is no bowshock of the nebula in direction of the movement of the White Dwarf (going along with a). Also a low ionization NII rim preceding the nebula is missing. Such a bow shock would be expected if the highly diluted material of the evolved PN would interact with the interstellar medium (as it does for other evolved PN of similar age).

David Frew ends up with the notion: Sharpless 174 is not a PN shell (i.e. material ejected by the CS at the end of its AGB phase) but a Strömgen sphere,

i.e. unrelated interstellar medium excited by the moving White Dwarf. The "shift" of the OIII and HII zones and the lag of the HII zone results from the higher recombination time of HII as compared with OIII (explaining also the tail in the similar nebula Sharpless 68).

This makes entirely sense and even if this were not the last word on Sharpless 174, it does not diminish the fun of hunting this obscure object. The statement "I have observed the shifted Strömgen spheres of a White Dwarf" is at least as cool as "I have observed an old PN", isn't it?

There are a few more "famous" PN that could be mere Strömgen spheres, such as Sharpless 68, DeHt 5, TK 2 or even Abell 35.

Lg Haju

Interesting Object!! Cool Observation!! Do you see a chance for 16" und UHC (Astronomic)? I hope for good Conditions in August on the top of the EWS!!

Reiner Vogel

I have observed Sharpless 174 only with my 22", but I guess it should not be a problem with a 16", in particular under good conditions. Don't forget to try the different filters to see the "movement" of the emission!

Jimi Lowrey

Very cool object.
Do you get much of a response to the H beta filter?

Steve Gottlieb

Reiner, it seems to me that the RA is roughly 2 min too large. I realize at this declination that doesn't translate into a huge angular difference, but perhaps you can check the coordinates?

Reiner Vogel

yes, there is a good response with the H beta filter. It is about the same as for the OIII filter, maybe slightly less.

And yes, the coordinates were off. I corrected that with the data from Messier45. The Simbad data point to the WD, which is not the center of the emission.

Uwe Glahn

I observed this PN with 27" + [OIII] one year ago from excellent conditions in the Austrian Alps and got very good response from the [OIII] with the typical morphology you showed in the [OIII] frame.



27", 113x, [OIII], NELM 7m+, Seeing V

One month later I tried the same PN with H β and got only a bad reaction with the filter, no PN switch or noticeable moving. "Brightest" part was found around a fainter star group 8' SSW from GSC 4614878 with a fainter arm to the GSC. Another very faint plob was around the brighter star group 6' SSE of the GSC. It fits good into the H β frame but was visible much fainter than the [OIII]. Perhaps the conditions were not as good as the observation one month before. I have to revisit the PN especially with H β .

Reiner Vogel

the visibility of the displacement of the HII and OIII zones certainly depends on the conditions. The displacement was very obvious on a very transparent night with Matthias in the Southern Black Forest (his estimate was 7m0). The W limit of the emission was about the same with OIII and H beta filters. With OIII, the brightest part was actually the western rim (as in your sketch). With H beta, the object extended substantially more towards E and, if I recall it correctly, the W rim became much less obvious.

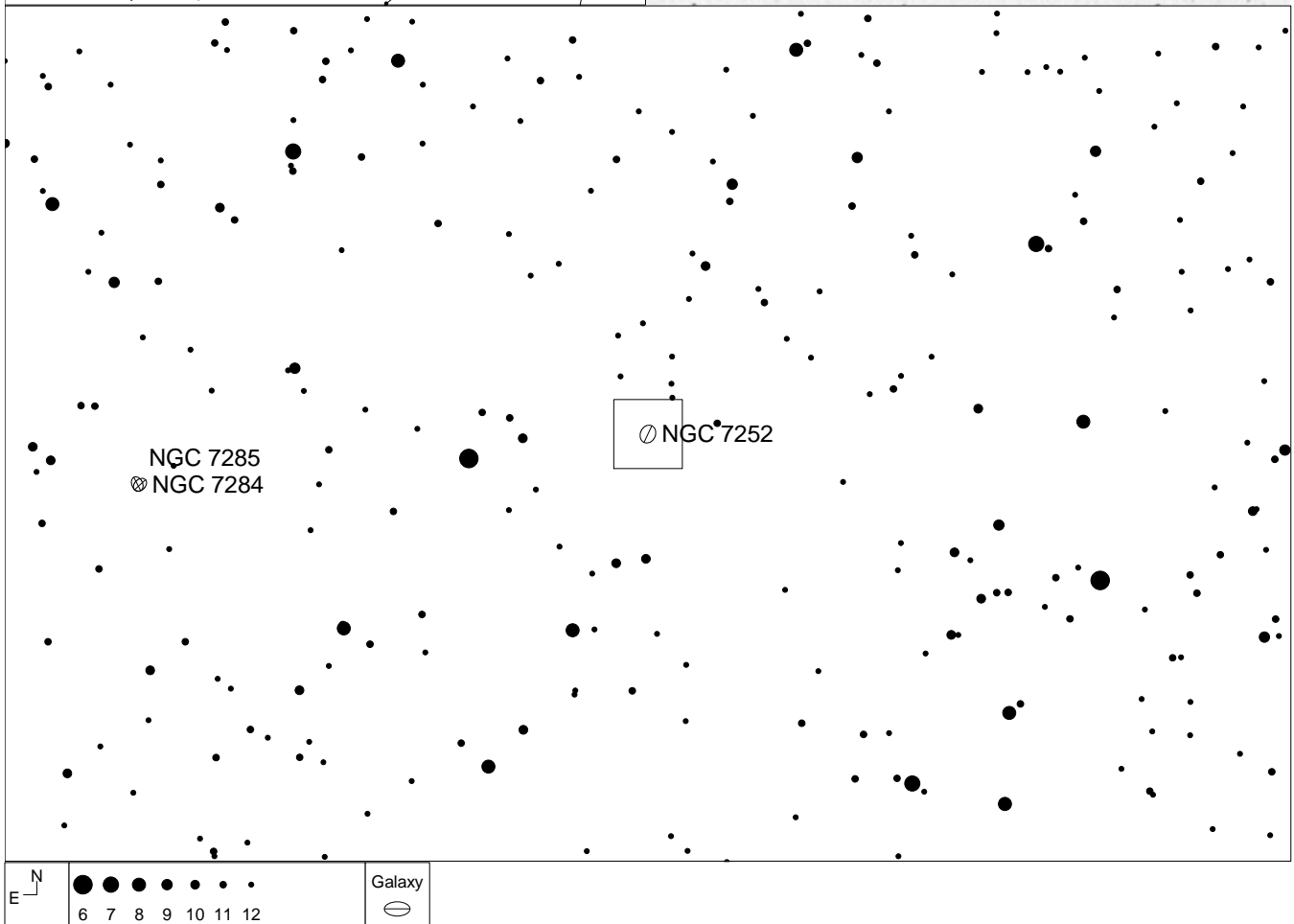
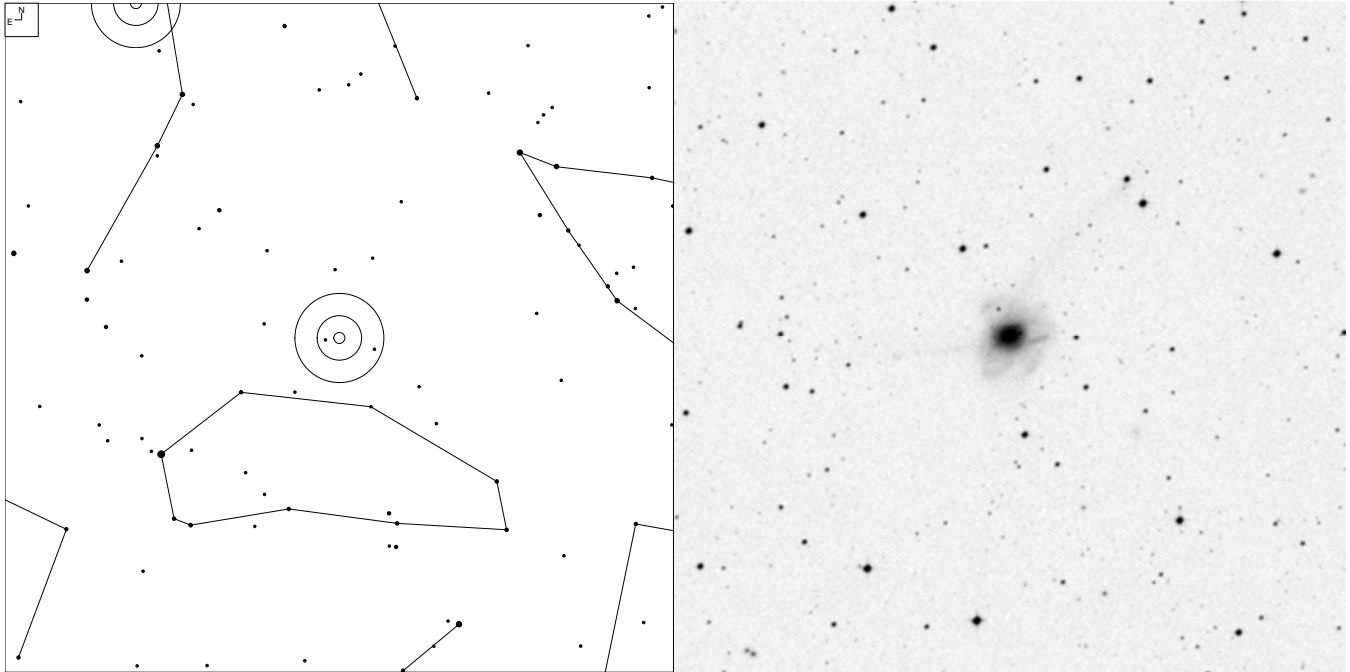
Johannes Brachtendorf

last night I had a chance to visit Sh 2-174. I could see some nebulosity at 90x and 150x even without filter. The narrow band filters worked precisely as you described. The OIII filter enhanced the northwestern rim (the blue part) while everything else disappeared from view. The H beta filter revealed the large hooklike structure across the center and towards the southeast (the red part), while suppressing the northwestern rim. The UHC filter showed all parts of the object making it appear like as large disk. Very interesting object!

Uwe Glahn

Again very little to no response with the H β filter. I tried the PN last Thursday under very good transparency (parallel to you at the Silvretta) with my 27", 113x (6,1mm AP). The nebula was visible even without filter; strong reaction with [OIII] and NPB filter, especially NW rim, bright and easy direct vision object; with H β I suspected only a very faint glow around the star chain 8' S of the 9mag GSC. But it was not clear if it was the filter blurred star chain or the nebula itself. The filament to the GSC was again not visible. perhaps I have to check my H β ?

NGC 7252 and the littlest Voorwerpje (Aquarius)



Object	RA	Dec	Mag	Size
NGC 7252	22 20 44	-24 40 42	12.1v	3.8 x 2.4'

NGC 7252 and the littlest Voorwerpje (Aquarius)

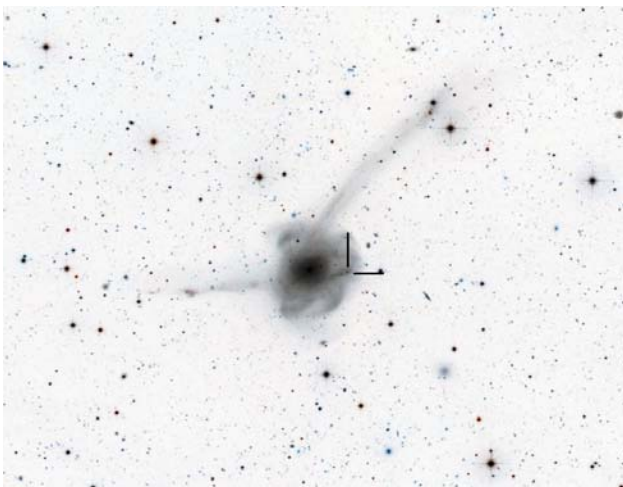
Jimi Lowrey

This is a famous galaxy in the late stages of recovery from a merger - NGC 7252, also known as the "Atoms for Peace" galaxy after a resemblance to a 1960s-era logo. It is also in the Arps catalog of peculiar galaxies as #226 "Amorphous spiral arms". It has listed in NED 247 references so this is one well studied galaxy. I have viewed this galaxy many times over the years and must say that the long tidal tails that show up well in images are hard to see visually.



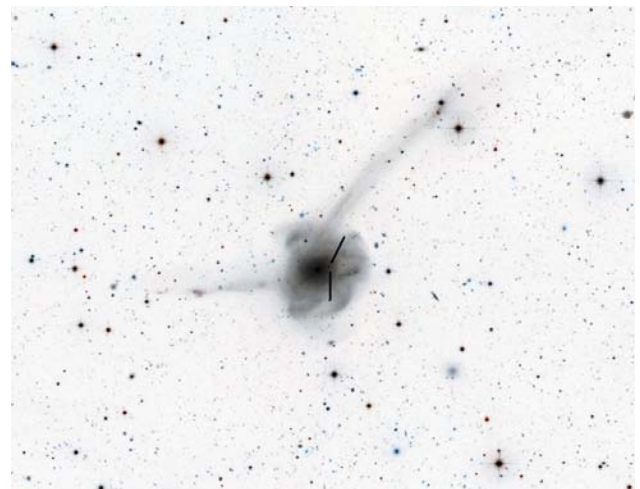
Francois Schweizer of the Carnegie Observatories and Pat Seitzer of the University of Michigan have studied NGC 7252 off and on for 20 years. In a new paper, they and additional colleagues Danial Kelson, Edward Villanueva, and Gregory Walth report a new facet of this system - it hosts the Littlest Voorwerpje (so far). Link to paper

<http://arxiv.org/abs/1307.2233>



This new O III object looked fairly bright on the DSS so I thought I would give it a go this week. I viewed it twice this week @ 697 X the O III cloud was easy to see at this power but the knot near the end (little Hanny) was tough to see. I tried a O III but it darked the field to much. I then tried a Sloan G filter which works well on "Hanny's Vooverp" and had no response to this filter. Not deterred I then tried a DGM galaxy contrast filter which works well on some H II knots in other galaxies. This filter worked great on "little Hanny's" it really lit it up! It looked like a dim star blinking in and out with the seeing. As with other objects once I saw "little Hanny" I could see its faint glow unfiltered in moments of steady seeing. This is a object that has just been released so if you want to be one of the first to see it visually" Give it a Go"

There is another object that is a real challenge associated with NGC 7252 that is the star clusters W-3 it is a cluster that I have read is 100 times larger than our globular clusters which some think it is a UCD or the striped out core of a dwarf galaxy that has merged with NGC 7252. I know of no visual observations of this object so you could be the first if you can catch it!



So here are some real challenging object for you deep sky hound.

Hajü Merk

Thank you for the interesting presentation of this object!!

IT`s a new object for me and i hope for a good observation next weekend.

The HII region "Little Hanny" is really a big challenge!!

I try the galaxy with my 16" telescope and look what goes.

Your observation with the Sloane G Filter is very interesting!!

I did not know this filter!!

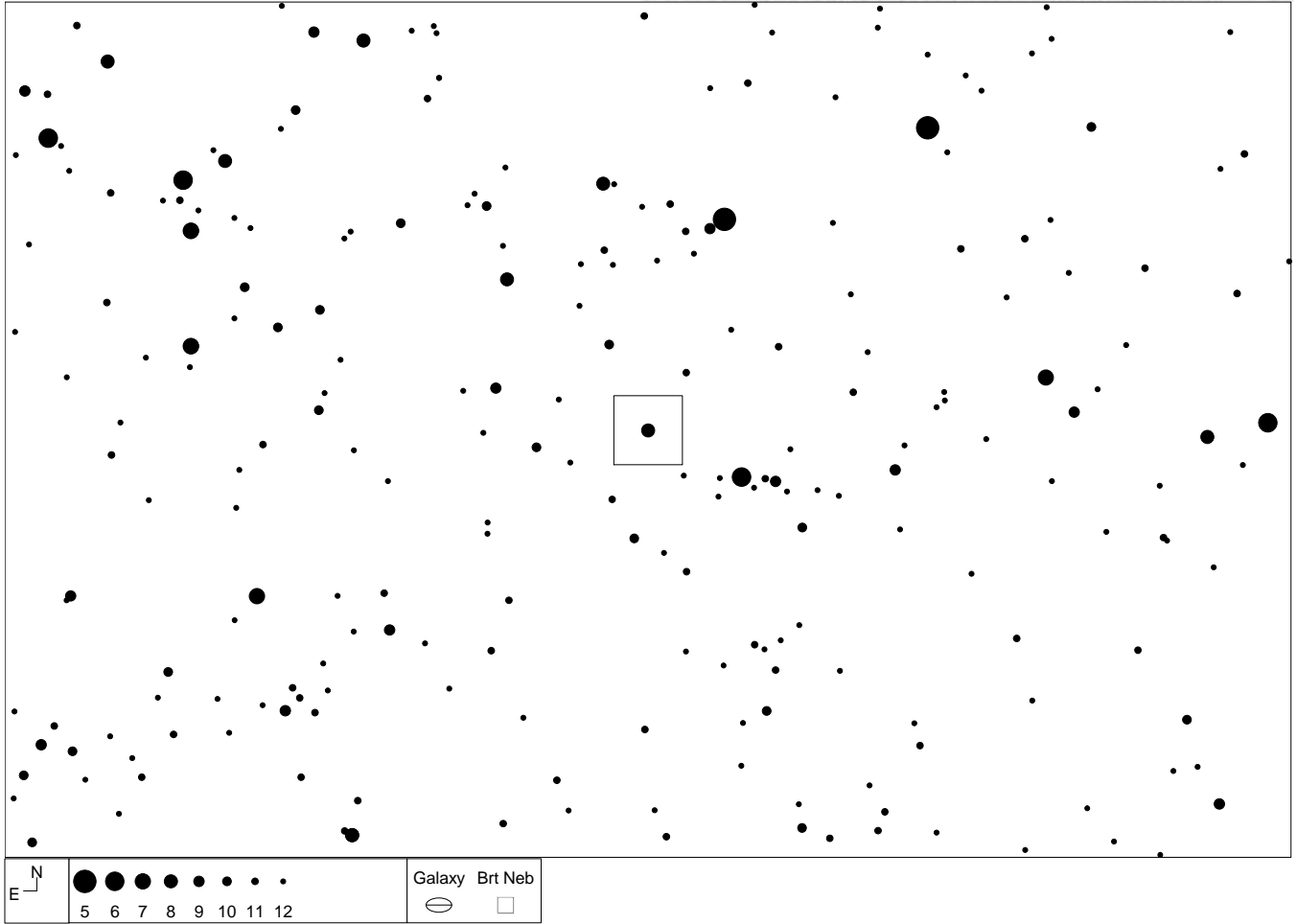
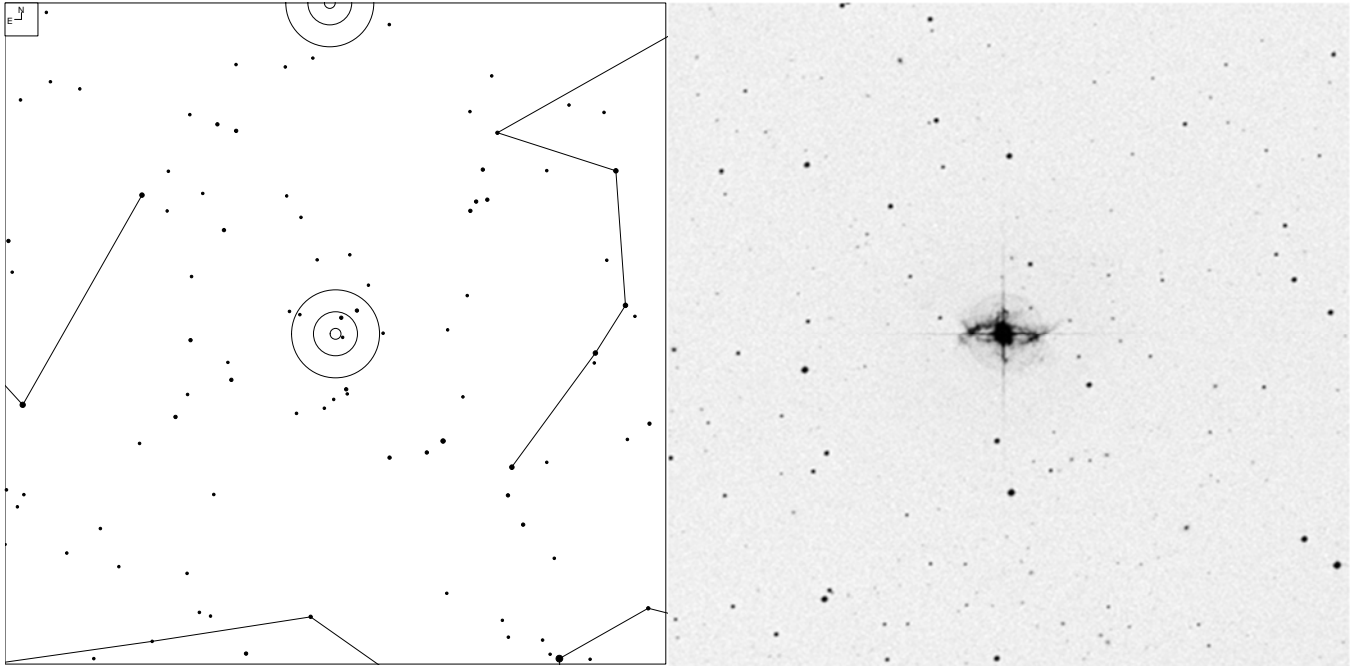
Jimi Lowrey

The Sloan filters are photometric filters that were used on the Sloan telescope for the Sloan survey.

This is a link that shows the band pass of the filter [http://www.astrodon.com/products/fil...trics - _sloan/](http://www.astrodon.com/products/fil...trics_-_sloan/)

Dr William Keel who is the lead astronomer on Hanny's Voorwerp suggested to me to try the Sloan G on Hanny's, he thought from the spectrometry on the object that the slow G would enhance the visual view of this unusual object. He was right this filter lights up this small and unusual object. Like I posted above the Sloan G filter had little to no response on the Little Hanny's object in NGC 7252.

CED 211, R Aquarii (Aquarius)



Object	RA	Dec	Mag	Size
CED 211	23 43 49	-15 17 04	7.5 var	2.0 x 1.0'

CED 211, R Aquarii (Aquarius)

Howard Banich

Type: Symbiotic Star

CED 211 is one of the objects on my “save for steady seeing” list. Last week at the Oregon Star Party featured excellent seeing and I finally got a decent look at this intriguing object. I should note that the delay in getting this posted is because I returned from the OSP the evening of August 12 and discovered it was my turn to post the OOTW – sorry for the delay but the observing was awesome!

Here are my notes for CED 211 as it was nearing the meridian on the night of August 5th:

“Wow, this is really interesting! The star (R Aquarii) has a dirty, ruddy color to it at 155x but at 408x and 695x the color is washed out. The ‘star’ of the show is the narrow streak of nebulosity that runs northeast to southwest, with a small knot on the northeast end. How cool is that!

The knot is best seen at 695x but is barely seen at 408x once I knew where to look. The northeast spike is brighter than the southwest counterpart, and the broadband filter (DGM’s galaxy filter) provides slightly more contrast. 2:21am, 21.76 SQM”

Wikipedia has this to say:

“R Aquarii is a symbiotic star believed to contain a white dwarf and a Mira-type variable in a binary system. The orbital period is approximately 44 years.[4] The main Mira-type star is a red giant, and varies in brightness by a factor of several hundred and with a period of slightly more than a year; this variability was discovered by Karl Ludwig Harding in 1810. It has a distance of about 200 parsec, and is one of the nearest symbiotic stars and a well known jet source.[5]

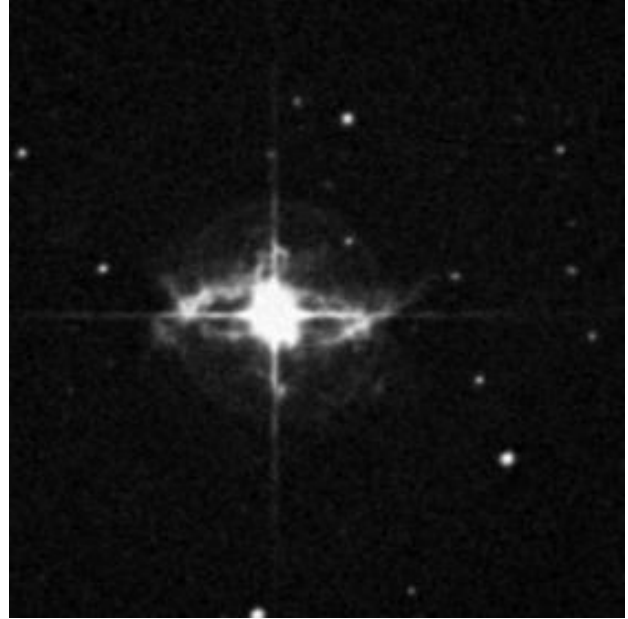
By its gravitational pull, the white dwarf draws in material from the red giant and occasionally ejects some of the surplus in weird loops to form the nebula seen in the linked image.[6] The whole system appears reddened because it is situated in a very dusty region of space, and its blue light is absorbed before reaching us.

The nebula around R Aquarii is also known as Cederblad 211. According to Tom Polakis,[7] as of 1998 no one had succeeded to observe this

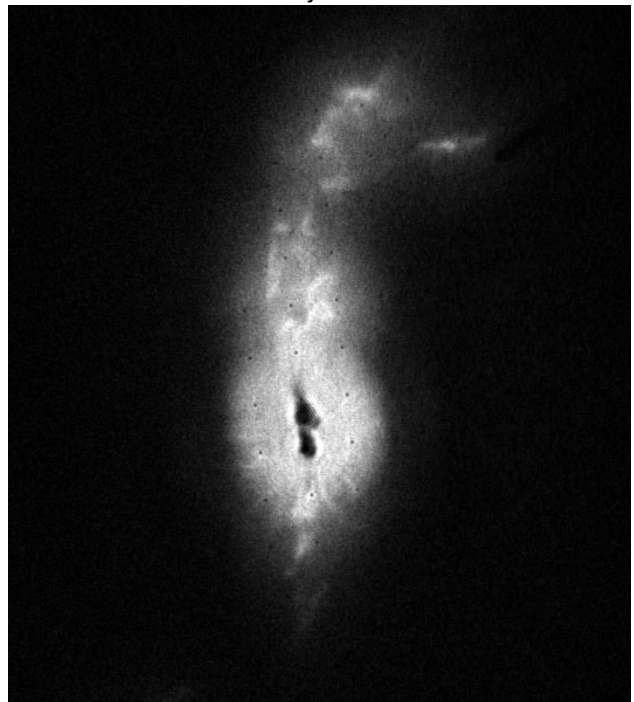
challenging object visually. It is possible that the nebula is the remnant of a nova-like outburst, which may have been observed by Japanese astronomers, in the year 930 AD.”

I’m sure CED 211 has been observed visually many times since 1998, but it’s interesting that a comment like that would be noted in Wikipedia. Has anyone seen the fainter filaments that are perpendicular to the brighter spikes I saw?

A DSS image looks like this:



The HST image – it barely looks like the same object!



My sketch from last week:



I also came across a wonderfully detailed amateur image of CED 211 here:

http://www.baskies.com.ar/PHOTOS/R_AQUIARII.htm

Johannes Brachtendorf

I observed R Aqr yesterday from a good (but not excellent) site with good transparency and seeing. This is an intriguing object indeed. At 150x the reddish hue was obvious as well as the nebulosity that extends roughly east-west. At magnifications of 500x, 720x and 1000x I made a puzzling experience. At first the object looked very much like in the DSS photo: symmetrical, both arms equally long, and each with a slightly brighter condensation at their ends. Also I suspected a filament to the south. However, the image changed after a while of observing. Now the object lost its symmetry as the western arm appeared longer, about twice as long as the eastern one, and the western condensation seemed to vanish. While my first impression

corresponded to the DSS image, the later view was closer to your drawing and to the Hubble photo. I wonder whether the difference between my two views is the same as the discrepancy between the DSS and the Hubble photo. Do you have any idea, why the DSS and the Hubble are so different?

Howard Banich

My guess is that the HST and DSS photos look different because of exposure time and different filters used. My first impression of the nebulosity was a fairly symmetrical glow around R Aquarii and I saw only the brighter spike. After a moment using averted vision the fainter, opposite spike appeared as did the small knot off the end of the brighter spike. It's possible that sky conditions changed just enough to alter your view, but I've have found that sometimes my first impression changes fairly dramatically with continued observing.

Johannes Brachtendorf

I have looked into some online resources, and it seems that the Hubble photo covers only the central pair of stars (the black dots) plus the innermost portion of the northern and southern jets, while the DSS photo shows the entire object including the eastern and western arms. Also, if you look at the blue POSS II plates, the western arm has a fainter extension to it that goes beyond the bright condensation. This might account for the ambiguity in my observation. As soon as the extension came into my view the western arm was doubled in length.

Uwe Glahn

visited the star three years ago with my 27" under nearly perfect conditions (seeing and transparency).

Both condensations were bright and had equal length with small plobs at the ends. The starting points of both condensations were a little bit shifted. The NE arm was much brighter. I could not detect the fainter SE-NW arms.



27", 586x, NELM 7m+, Seeing 1

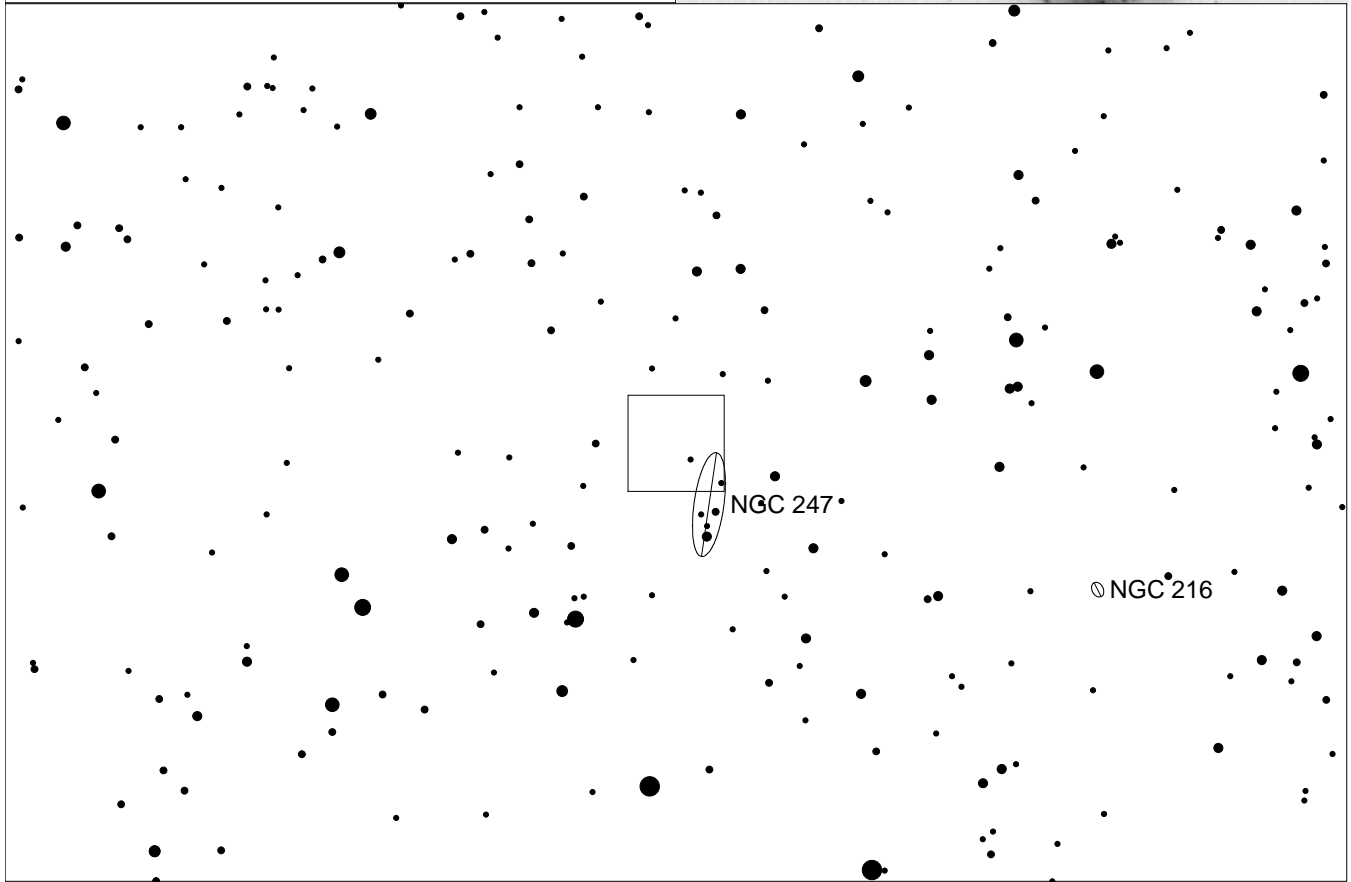
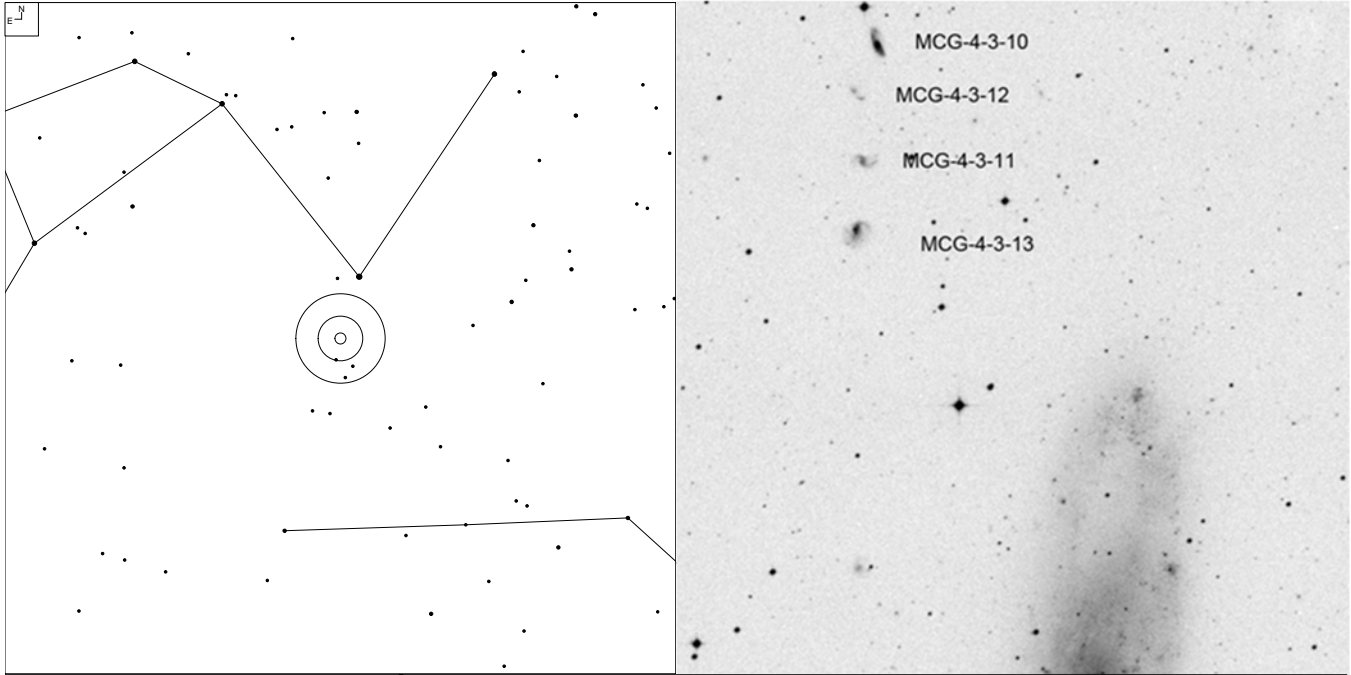
Reiner Vogel

this is an extraordinary object in many respects, excellent choice! It is amazing, that we can observe visually the details of this symbiotic system. This is one of my favorite objects in fall, given that transparency and seeing are good enough. I live at 48° N latitude, so R Aqr is never high above the horizon.

My observations are very similar to those of the others. At high magnification with my 22", the NE arm is curved with a bright knot at the end. The SW arm is much fainter and appears therefore less well defined. I get a somewhat better contrast with the OIII filter.

I have never succeeded to see the more extended but fainter outer E-W segments of Ced 211 (neither with H beta filter).

NGC 247 & Burbidge's Chain (Cetus)



Object	RA	Dec	Mag	Size
NGC 247			9.7b	20.0x5.0'
MCG-4-3-10			14.4p	1.0 x 0.5'
MCG-4-3-11	00 47 08.6	-20 45 38	15.7	0.9 x 0.5'
MCG-4-3-12			17.0	0.6 x 0.2'
MCG-4-3-13			14.6p	1.0 x 0.9'

NGC 247 & Burbidge's Chain (Cetus)

Paul Alsing

Type: Dwarf Spiral Galaxy

NGC 247 is a member of the Sculptor Group, along with NGC 55, NGC 300, NGC 253, and NGC 7793, along with 10 or 12 others. This is the closest galaxy group to our Local Group at about 11 or 12 million LY's away.

In my 25" it is easy enough to see, but its 9.7 magnitude is misleading because it is large, and therefore has a low surface brightness. There is a 9.5 magnitude foreground star at the brighter, skinnier southern end, and the slightly wider northern end is dimmer, and it is not easy to detect the actual edge of the galaxy, it just gradually fades away. I only just read that this guy is sometimes called The Needle's Eye galaxy because of a large dark area centered near the northern end, and sure enough, in deep photos there indeed seems to be a dark patch, making the whole thing reminiscent of a rather plump needle. I don't know if this feature is visible or not, I never knew to look for it and it certainly didn't jump out at me... let us know if you've seen it!

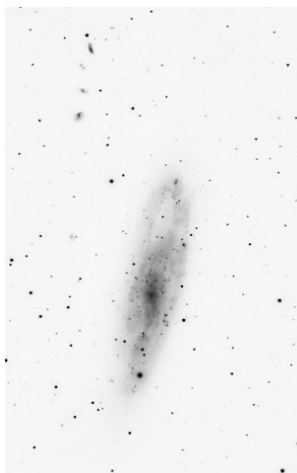
I observed NGC 247 in the first place because it is the jumping-off point for locating the tiny string of faint galaxies otherwise known as Burbidge's Chain, located a scant 16 arcminutes north-northeast of the center of NGC 247. The (4) components of Burbidge's Chain are:

a = MCG-4-3-10, mag 14.6(B)

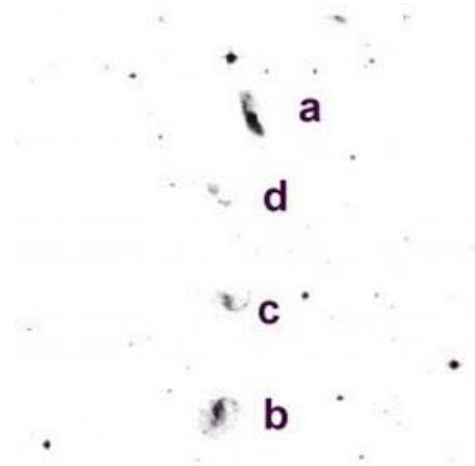
b = MCG-4-3-13, mag 14.8(B)

c = MCG-4-3-11, mag 16.0(B)

d = MCG-4-3-12, mag 17.5(B)



NGC 247



I've observed this little string of tiny galaxies several times over the years, most recently at CalStar a few of years ago, and in 25" there is no trouble seeing 3 of the 4 galaxies, with the "d" component being a certified stinker. I was observing with Greg LaFlamme, an experienced observer with much younger eyes, and Greg said it was just an occasional flicker in the eyepiece for a small percentage of the time. After trying for many minutes, I thought that perhaps I saw it, too... but someone once told me I was gullible, and I believed him... so maybe I did, maybe I didn't. The night was good but not great. I think I'll try it at CalStar again, in October.

Ivan Maly

Coincidentally I was planning to reobserve this group (or "group") in detail just last night. But the forecast changed. Now we will have to wait till the Moon is out of the morning sky. So far I believe I've only seen the main NGC galaxy with my 4" f/5.5 Televue. And since I am not O'Meara, I did not record any details in it 😊 It is actually remarkable that in his Caldwell book he sketched a couple of the galaxy's brightest compact HII regions - as if they were superimposed stars.

Howard Banich

I've observed NGC 247 and Burbidge's Chain just once but it was during a fabulous night at Steens Mountain in September 2008. Here are my notes and sketch:

"Great Field! NGC 247 is huge, bright and detailed and worth a sketch on its own, but with Burbidge's Chain in the same fov this is irresistible. The faintest galaxy in the chain is mag 16.7 and has a SB of 14.2

so it took extreme AV to barely detect. An added bonus is ESO 540-19, a nice mag 14.1 galaxy on the other side of 247. Sweet! 253x and 408x, 21.95 SQM."

This was a very dark and transparent night at 7400 feet so this is likely as good a view I'll ever have of this group, and even then galaxy C was tough to see with a 28 inch scope. Hopefully I'll be able to have another good look at it in the next few months.



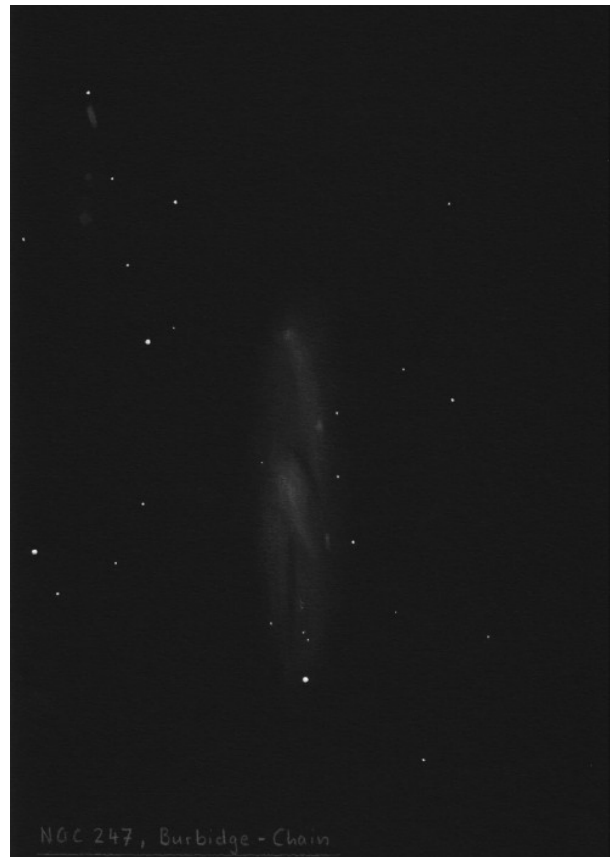
Ivan Maly

Howard, I took the liberty to indicate on your sketch what I think is the brightest HII region in this galaxy.



Uwe Glahn

I could also only detect the three brightest members with my old 16". I did not try it with my 27" but 17,5mag seems to be possible.



16", 100x-257x, NELM 7m+, Seeing III

Paul Alsing

Uwe, I agree that mag 17.5 is possible with my 25", but apparently not on the nights I have viewed Burbidge's Chain. I will keep trying, and expect to succeed one of these days.

Mark Johnson

Have seen 3 but not the d member in a 33" dob that in general is not often in a very clean or aligned state. As a shared view I was not armed with the eyepieces I would have tended to try to use for best exit pupil and my observing techniques were not as well developed as these days. My 18 would not get the 'd' ever but I suspect with care and an ideal night it just may be available in a 24" in great shape. Being that this great challenge objects is coming around nowadays it is a timely post Paul. Thanks for remembering.

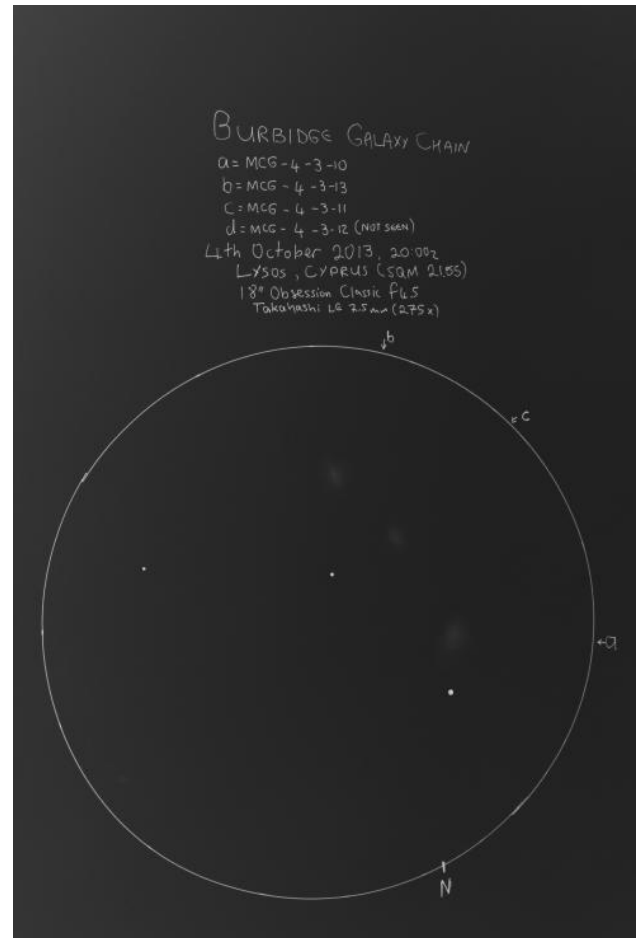
Alvin Huey

Quick post - Shneur and I saw component D at Shot Rock with my 6mm ZAO-II in his 22".

Rolandos Constantinides

This was a great challenge for my 18"! I had attempted this group twice since Paul introduced the group to me, both from Xyliatos, a prime location on the mountains of Cyprus, but only "A" was visible with certainty, as from that location this sky area is brighter than the rest of the sky.

On Friday evening though, I found myself at Lysos, a far more desolate area on the western part of the island, situated at the edge of extensive mountain forests at 2,000ft. With a rock steady SQM 21.55 sky, I was able to identify three of the four members of the chain. "A" was a piece of cake, a round patch with a steady light profile. Component B was much harder but once I spotted it I could hold it with direct vision as a featureless little blob. Component "C" was weird in that I spotted it easily before "B", but then I had more trouble holding "C" steady, it was more of an averted vision object. Component "D" was just not visible to me however hard I tried. But still, getting three out of the four members was very rewarding. In my accompanying sketch, both "B" and "C" seem approximately similar, but there was no way I could prepare a sketch showing the faintness of "C" - it would be lost in the processing...

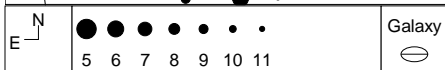
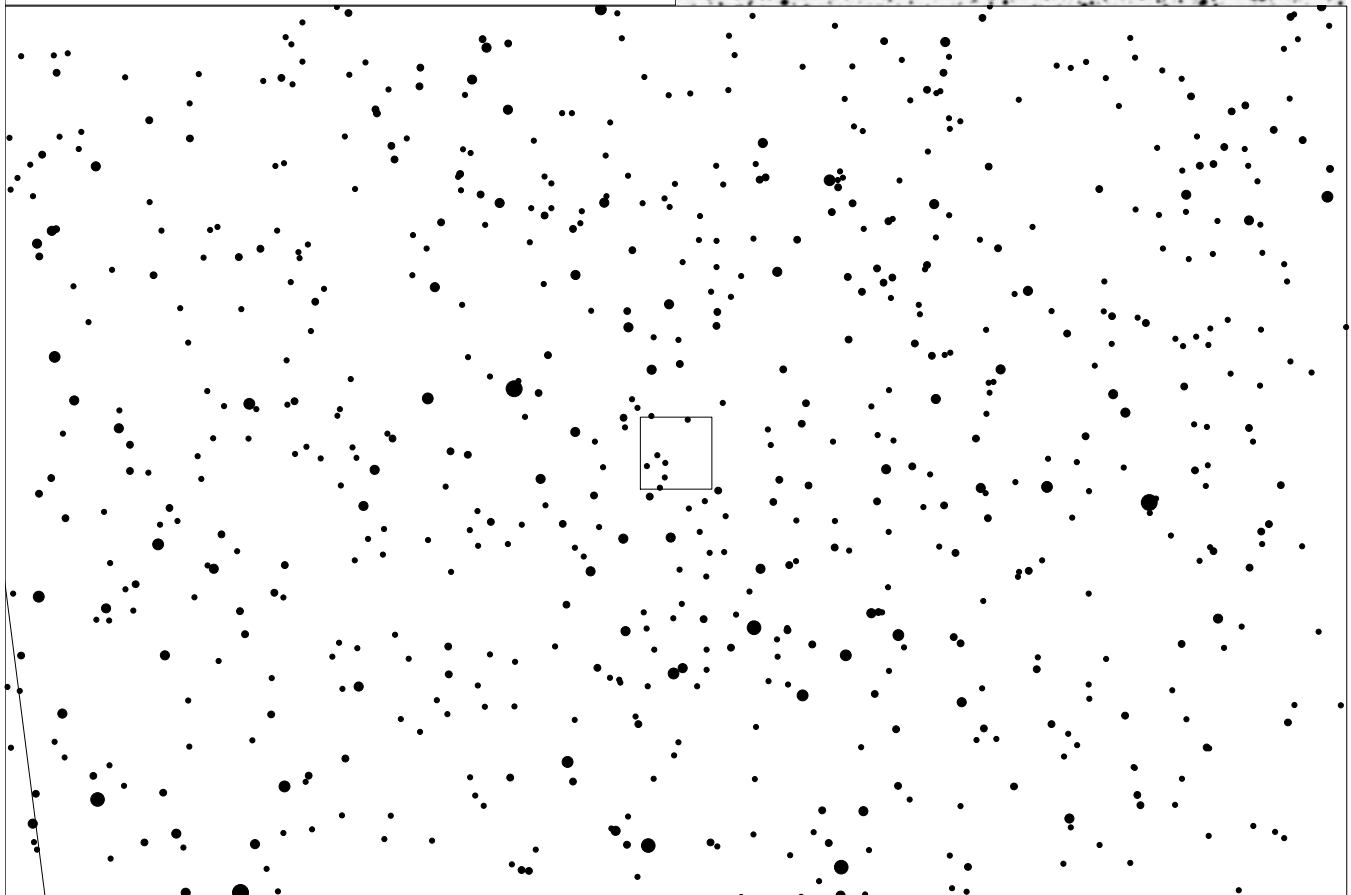
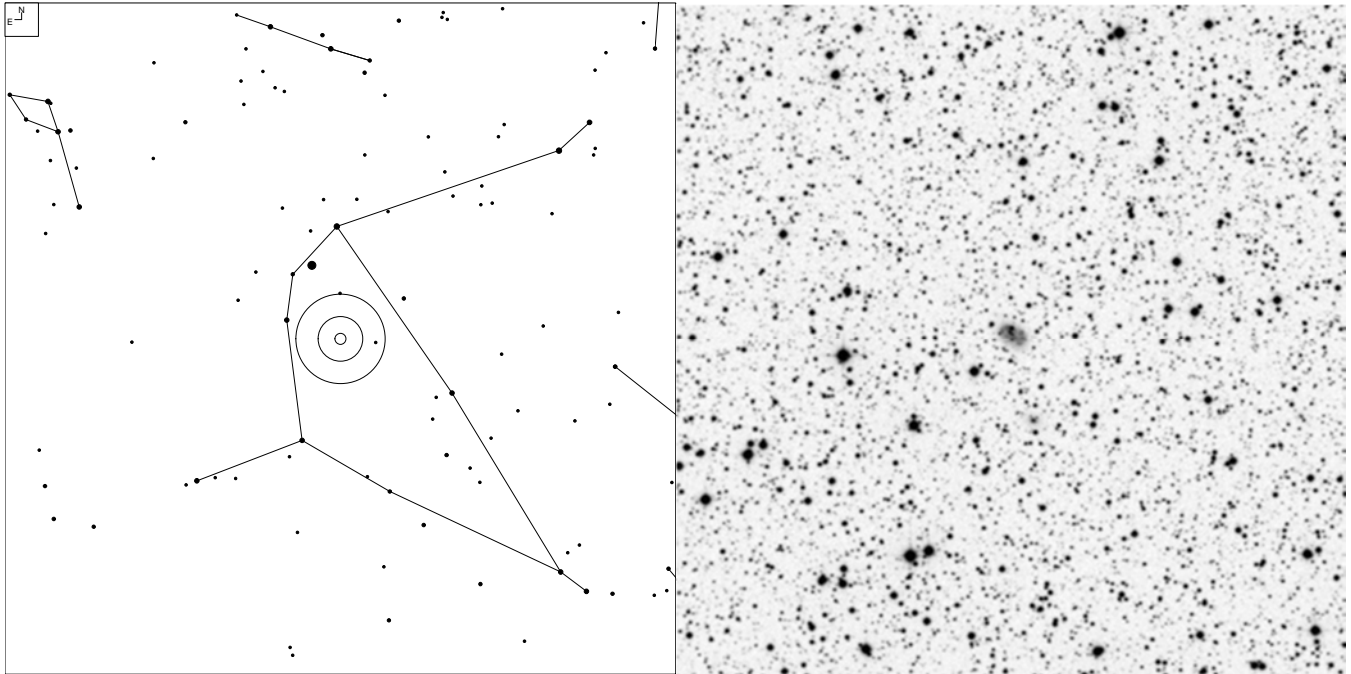


Ivan Maly

This galaxy is tough! As I mentioned I'd seen it without difficulty in a 4", but details are another matter entirely. In September a few days after the absolutely spectacular conditions that enabled my deep view of IC 1613 posted here earlier I was driving again to our club site (not my usual remote one) full of hope. The transparency turned out to be only ordinary however. I measured 21.20 mag/sq arcsec near the culminating Beta Cet; it was 21.30 overhead. 45 minutes on NGC 247 with the 16" showed that a) the galaxy is most intriguing and b) better conditions are needed to go after real details in it. The brevity of my journal record conveys the disappointment:

NGC 247 at 45x elongated 7-8x1 NS. S end punctuated by a star. Core appears closer to this end, and the N end extends asymmetrically farther, at least to the W of another comparable star. At 225x (Ethos 8) only the core is clearly visible. 02:45.

Abell 64, the "planetary - galaxy" (Aquila)



Object	RA	Dec	Mag	Size
Abell 64	19 45 35	+05 33 52	15.3 NED	0.8 x 0.5'

Abell 64, the “planetary - galaxy” (Aquila)

Uwe Glahn

The first reference of our OOTW was given by Zwicky in 1965, when he and his colleagues catalogued thousands of galaxies in the CGCG (Catalogue of Galaxies and of Clusters of Galaxies) catalogue. The raw data did not give any velocity/redshift and so no idea of the distance and the “real type” of the object.

Second, but the most famous reference of our “PN Glx” was given by Mr. George Abell himself in the year 1966. He numbered the nebula as 64 in his list of 86 new identified objects from the plates of the Palomar Sky Survey. He classed all objects as “planetary nebula” and concludes a distance of 1700pc for this new object.

Later, the nebula found entry in the Perek-Kohoutek (PK) Catalogue of Galactic Planetary Nebula, later in the following Strasbourg-ESO Catalogue of Galactic Planetary Nebulae (PNG).

1996 Marzke, Huchra, Geller presented redshifts for 2020 galaxies selected from the CGCG and listed a redshift of 0.010194 (39Mpc) which indicate this object as a normal galaxy.

Indeed, the classification of Abell was a misclassification and Abell 64 aka CGCG 397-5 now counts as a galaxy. The typical misclassification is visible perfectly even in smaller telescopes because of a negative reaction of any nebula filter and a missing of a central star.

The galaxy is visible from the 8”-10” telescope class as a very faint spot of light which disappear when using a filter. From 16” the brightest knot “false central star” is visible and with 24”+ the galaxy showed many spots within the square body. This is the real challenge, to pick up the spots within the galaxy.



Wikisky (DSS)



27”, 488x, NELM 7m+, Seeing III

Jim Chandler

Quite by chance and without having researched it, I looked at Abell 64 two weeks ago, on August 13, with the 30". Here are my log notes:

"Patch of nebulosity seen at all powers. Cataloged as Abell 64 as well as PGC 63630.

UHC and O-III killed it completely. Without filters, the nebulosity is slightly brighter in the center and attenuates towards the edge. It looks and acts like a galaxy, not a pn."

I'll have to view it again and look for the knots.

Uwe Glahn

these knots were also not on my list but my observing buddy Friedl came with the idea to look after it and it works. An absolutely funny object.

With your 30" Jim you should give another try to see the knots. I think your observation "*slightly brighter in the center and attenuates towards the edge*" were the first knots.

The brightest knot should be visible with 16" Hajü. We tried it with Friedl's 16". A few years back when I first look for Abell 64 with 14" and 16" I also noticed the eccentric CS without the knowledge of the knots.

Steve Gottlieb

Actually, the 1992 Strausberg-ESO Catalogue of Galactic Planetary Nebulae downgraded the status to "Possible Planetary Nebulae" so its not listed in the main catalog and images of "True and Probable Planetary Nebulae".

I didn't log any knots with my 18", so that's something new to try for with my 24".

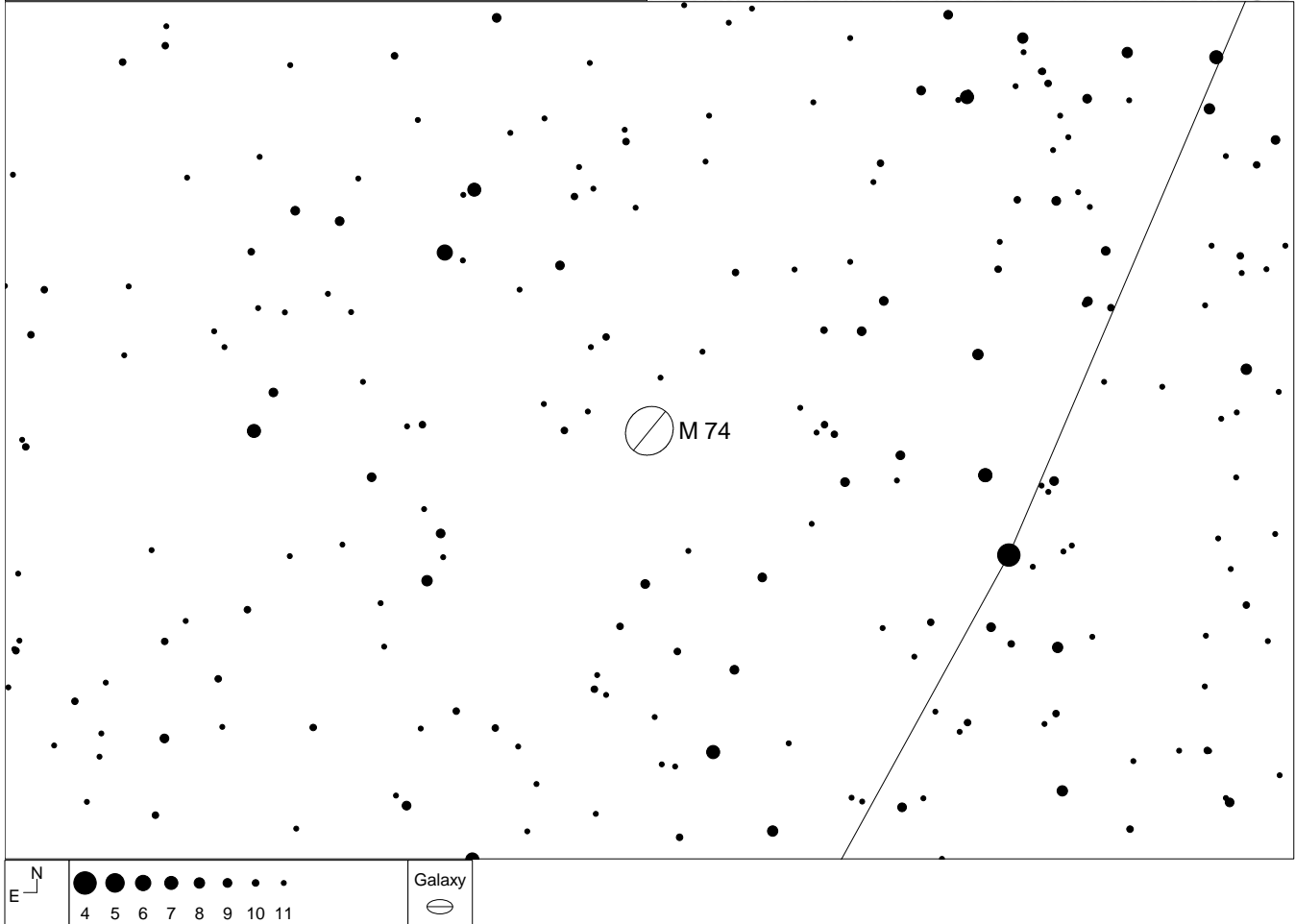
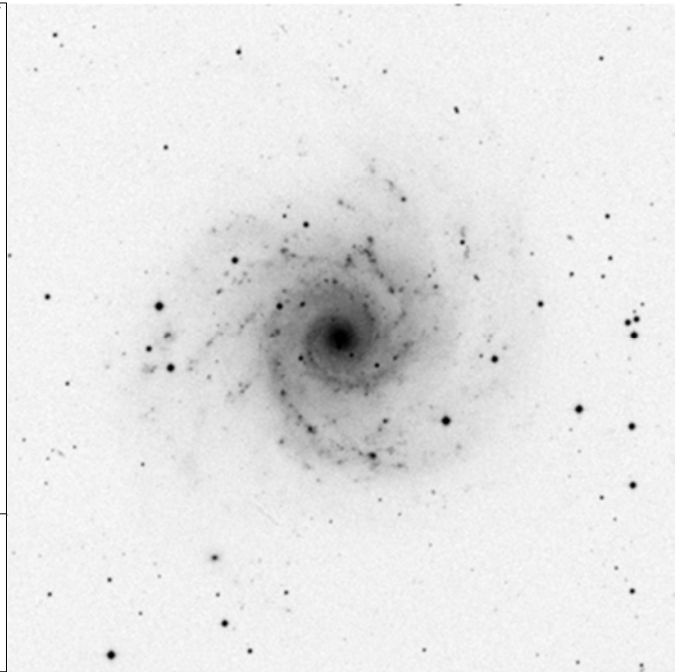
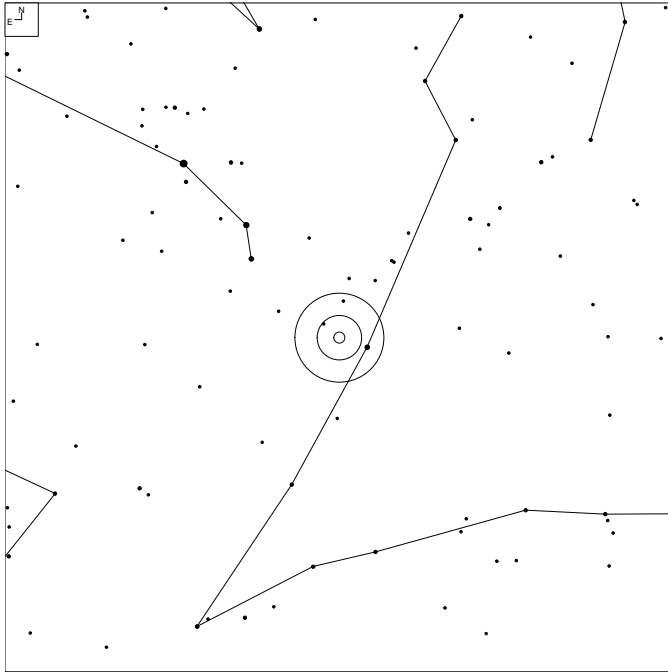
18" (9/25/06): this misclassified "Abell planetary" is a small galaxy situated in a rich star field (galactic latitude -9°). At 220x it appeared very faint, fairly small, slightly elongated, ~35"x30". Not difficult once identified and could be held steadily, though appeared featureless. A small right triangle consisting of two mag 10 stars and a mag 12 star lie close SE (the hypotenuse has a length of ~3') and the galaxy is collinear with the shorter leg.

Reiner Vogel

It's been a few years since I observed this object and I don't remember the observation.

I did not take any notes except that it was steadily visible at 350x. Definitely worth to have another look at it to try for the internal structure.

M-74 (Pisces)



Object	RA	Dec	Mag	Size
M74	01 36 41.6	+15 47 03	9.4	10.5x9.5'

M-74 (Pisces)

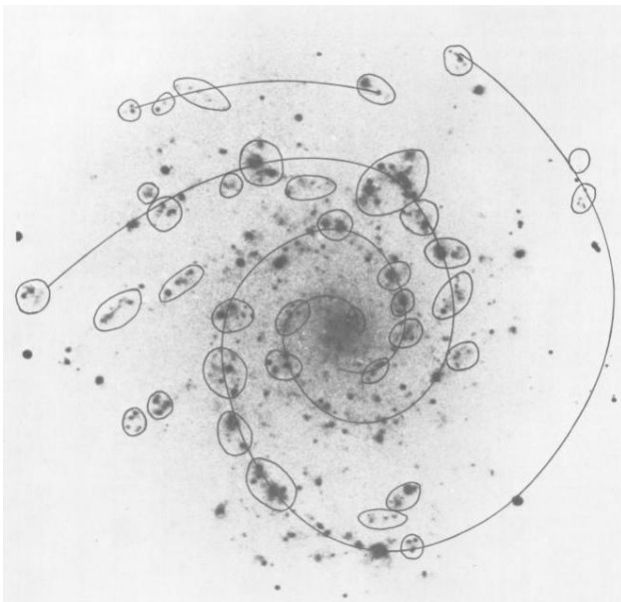
Steve Gottlieb

As a bright supernova (2013ej) was discovered in M74 just over a month ago, many amateurs turned their gaze to this beautiful "grand design" spiral of type SA(s)c.

Due to its face-on orientation, small core and low surface brightness halo, M74 is certainly among the most challenging Messier galaxies for those viewing in light-polluted conditions. I remember M74 giving me fits when I first starting logging the Messier list in 1977 with a 6-inch reflector from the bright skies over Berkeley, California and it was satisfying just to glimpse a dim glow. Once I traveled to dark skies a year later, I realized my finder scope would do the trick.

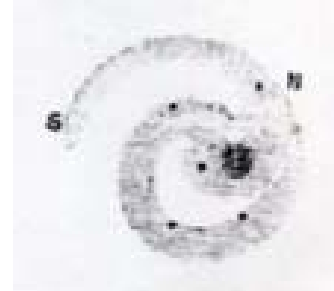
In the 1976 paper "[H II regions in NGC 628. I. Positions and sizes.](#)", Paul Hodge cataloged no less than 730 individual HII knots in M74. Visually, the brightest "knot" (HII complex/stellar association) is #627 near the end of the southern arm. How small a scope will reveal this object?

A 1980 photometric study of the HII regions by Hodge and Kennicutt "[H II regions in NGC 628. III - H-alpha luminosities and the luminosity function](#)" provided the H-alpha flux of 593 regions. This image from the paper shows how clumps of HII regions define the spiral arms. #627 is the large clump at the bottom of the image, though it is not circled.



Visually, M74 really comes to life in 16" and larger scopes with two main spiral arms wrapping around

the core and some of the brighter HII regions starting to pepper the arms. Lord Rosse in December of 1848 first detected the spiral nature of this galaxy in 1848 (one of 14 "spiral or curvilinear nebulae" he discovered before 1850). Observing with his 72-inch f/8.8 speculum telescope, he simply noted



13 Dec 1848. Rough sketch made. Spiral?

14 Dec 1848. Confirmed last night's observations; feel confident it is a spiral.

In Jimi's 48-inch, the amount of detail was stunning and the notes below were scribbled during a few minutes at the eyepiece.

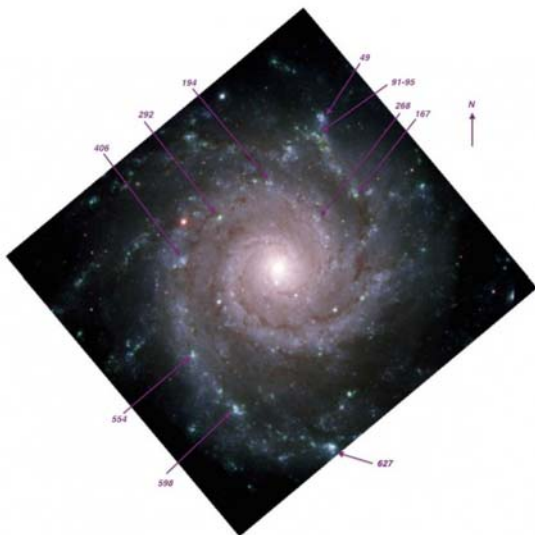
Beautiful face-on spiral with long, graceful arms wrapping around an intense 1' core that increases towards the center, but there is no sharp nucleus. At first glance at 375x there appeared to be four arms, but with a more careful look there are two main arms that each wrap more than 360° around the core as well as a couple of side branches. Each arm is studded with a number of non-stellar HII regions that highlight the arms. In addition, a number of stars are superimposed, both in the inner region (two faint stars are within 25" of the center) and around the edge of the halo, which extends to 7'-8' diameter.

The more prominent arm "southern" arm is very regular - emerging from the core on the south side and wrapping counterclockwise around the core to the north, unwinding gradually as it curves to the east and then pulls away from the central region more suddenly on the south side. This arm is very patchy and delineated by a large number of HII knots with the two most prominent ones near the outer southern end. The "northern" arm begins to emerge from north of the core, tightly wraps counterclockwise around the core, passing near or through a few superimposed stars on the south side of the core, unwinding more as it stretches again to the north. The arm structure is a bit more complex on the north side due to side branches and the embedded HII knots are more scattered.

The HII regions were viewed more carefully at 610x. The following identifications are from Paul Hodge's 1976 paper. The brightest is #627, near the end of the outer southern arm 2.7' SSW of center. It appeared fairly bright, fairly small, round, ~20" diameter. Moving clockwise along this arm towards the core, the next prominent knot is #592-598, situated 2.2' SSE of center. It was slightly fainter than #627, round, 15" diameter. Next in line is #550-555, a faint round knot of 10" situated 1.8' SE of center. East of the core by 1.5' is #406, a very faint, round 10" knot situated 36" S of a superimposed mag 14.5 star. Just 30" W of this star and 1.2' NE of center is #292, a fairly faint, very small knot, ~8" diameter. Continuing inward along this arm, the next knot is #194-197, a very faint hazy knot 1.2' N of center. Finally, less than 1' NW of center is another very faint patch with Hodge numbers #260-268.

There were no notable knots on the inner southern portion of the northern arm, but a noticeable clump of knots is on the NW portion of this arm. First was #167-168, a faint 10" knot 1.6' NW of center. Continuing outward 2.0' NNW of center is a faint, elongated patch, ~25" diameter, consisting of #85-101 and #49 at the north end of the glow. I didn't search the outer region of the halo for additional HII knots, except noted #330, a 10" knot situated between two mag 12-13 stars at the eastern edge of halo, 8' from center.

I've generally only labeled a single listing from the Hodge paper, though visually each "knot" I noted above in the 48-inch probably includes multiple clusters and HII complexes.



Ivan Maly

With my 16" I have only been able to see the Hodge 627/Ivanov 52 knot distinctly:

<http://ivm-deep-sky.blogspot.com/201...om-erupts.html>

Steve Gottlieb

It was interesting to take a look at the Ivanov et al paper "[Stellar associations and aggregates in NGC 628](#)".

Matching up three of the visually brightest HII complexes with the Ivanov "Associations & Aggregates" –

Hodge 627 = Ivanov 52 V = 15.9

Hodge 598 = Ivanov 90 V = 16.6

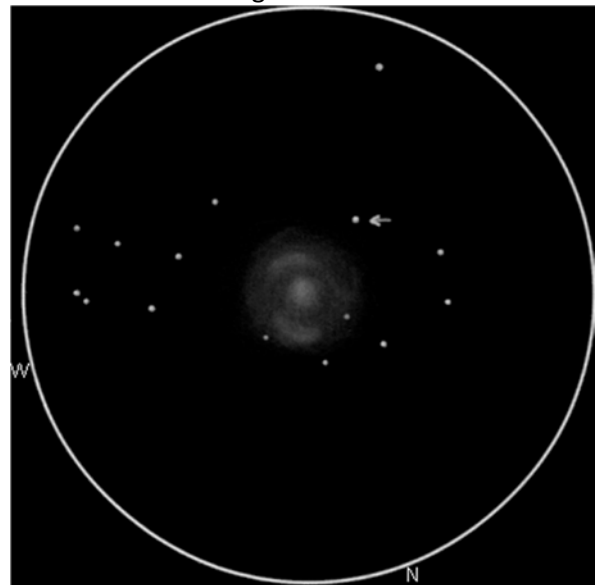
Hodge 049 = Ivanov 60 V = 16.6

Hodge 554 = Ivanov 108 is listed at V = 16.4 but I found it fainter than the latter two above.

If I'm interpreting the last column correctly, which gives the corresponding Hodge number, it's offset or shifted by one line on many or most objects.

Iiro Sairanen

Summer nights are finally over here and I started this season on last weekend with my 12" dobson. M74 was on my observing plan because of a supernova. The supernova was ~13 mag and easily visible. Otherwise M74 is pretty difficult object because of low surface brightness. I was able to see some hints of spiral structure but bigger telescope is needed to see details that are listed above. There are also several foreground stars.



Ivan Maly

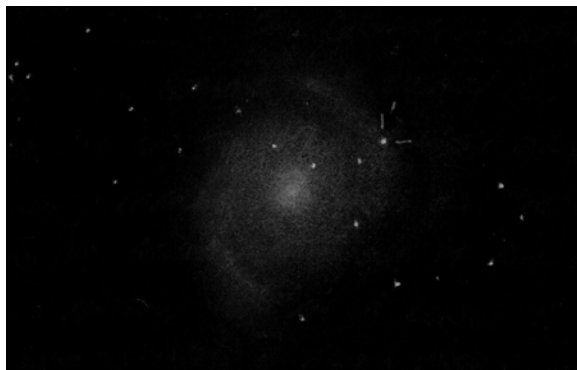
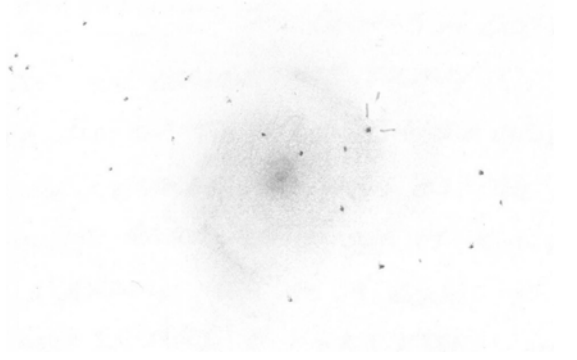
Fine sketch, Iiro - the enhancements closest to the core showed well.

I too noticed the shift in the Hodge number column in the Ivanov et al. paper.

Indeed the V magnitudes they are reporting must account not just for starlight but also for the contribution to the visual spectrum of the glowing gases of the associated HII regions. I wonder if the discrepancy with the visual perception (if it is not due to any physiological effect of the knot size on perception) might be due to different relative areas of the star complexes and HII regions in different knots, and therefore the contribution of the gas within the area of measurement. After all their intent was to measure starlight only.

Howard Banich

I laughed too! That was a great tour on Mauna Kea and the sky was fabulous that day - so blue it was almost purple. Anyway, I made a quick sketch of M74 and its new supernova 2013ej last month at the Oregon Star Party and only noted the magnification was 253x and SQM reading was 21.65:



M74 is a very dim spiral, as has been noted already, and although I didn't go looking for any of the HII complexes I think a very fine night would be needed to see them - it took some doing to see just the spiral arms when I made this sketch!

Uwe Glahn

Last new moon I tried to catch as much HII region as I can with the 27". Transparency was fairly good, Seeing unfortunately not the best. I'm sure that a few more HII region can be catch up when the Seeing is better and the observing time longer.



27", 172x-244x, Seeing III, Nelm 7m+

Howard Banich

Wow, now that's a great sketch and observation Uwe! It also represents much more than I've been able to see in M74 and is motivation to give it more effort next time - wonderful!

Uwe Glahn

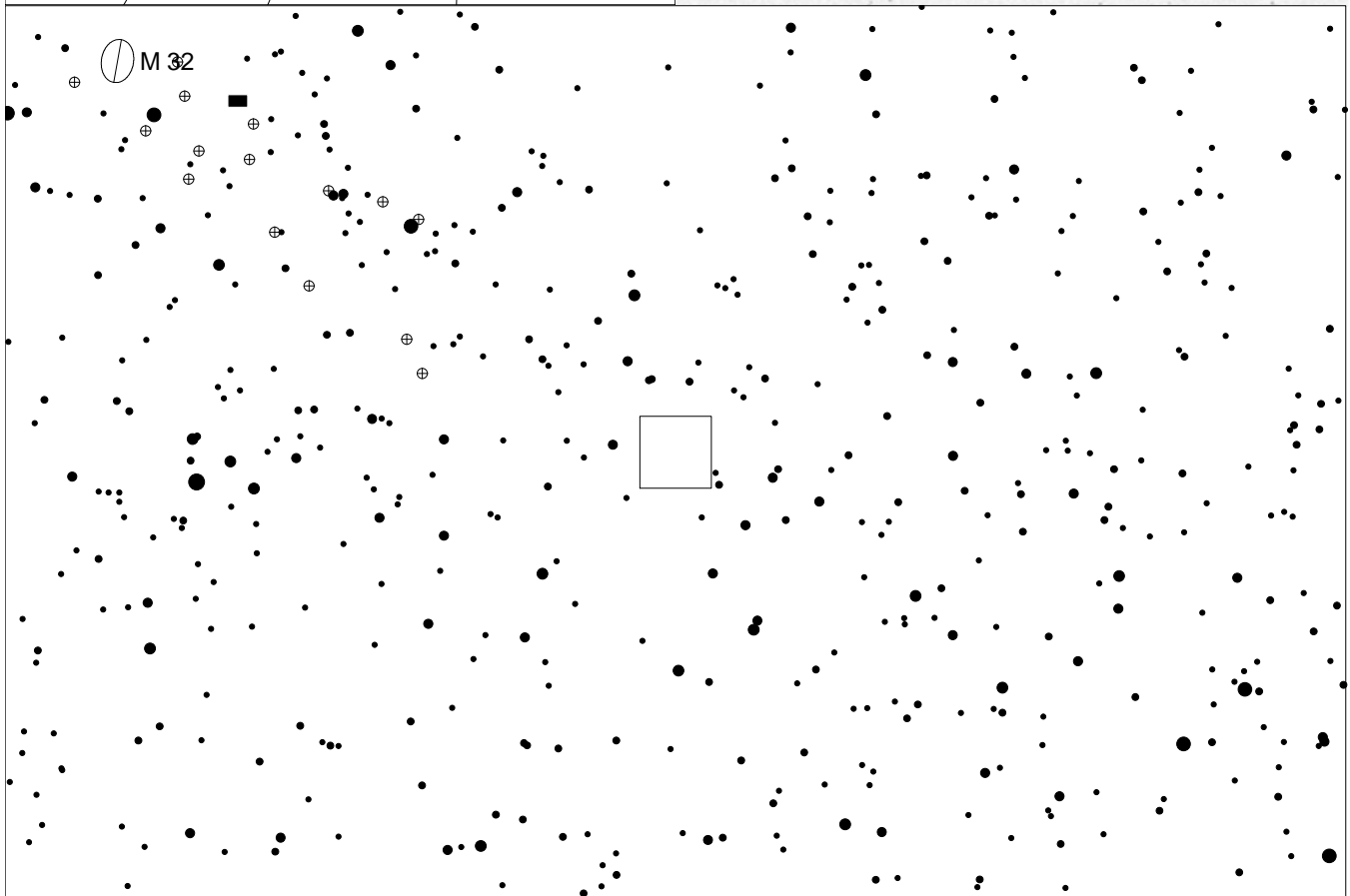
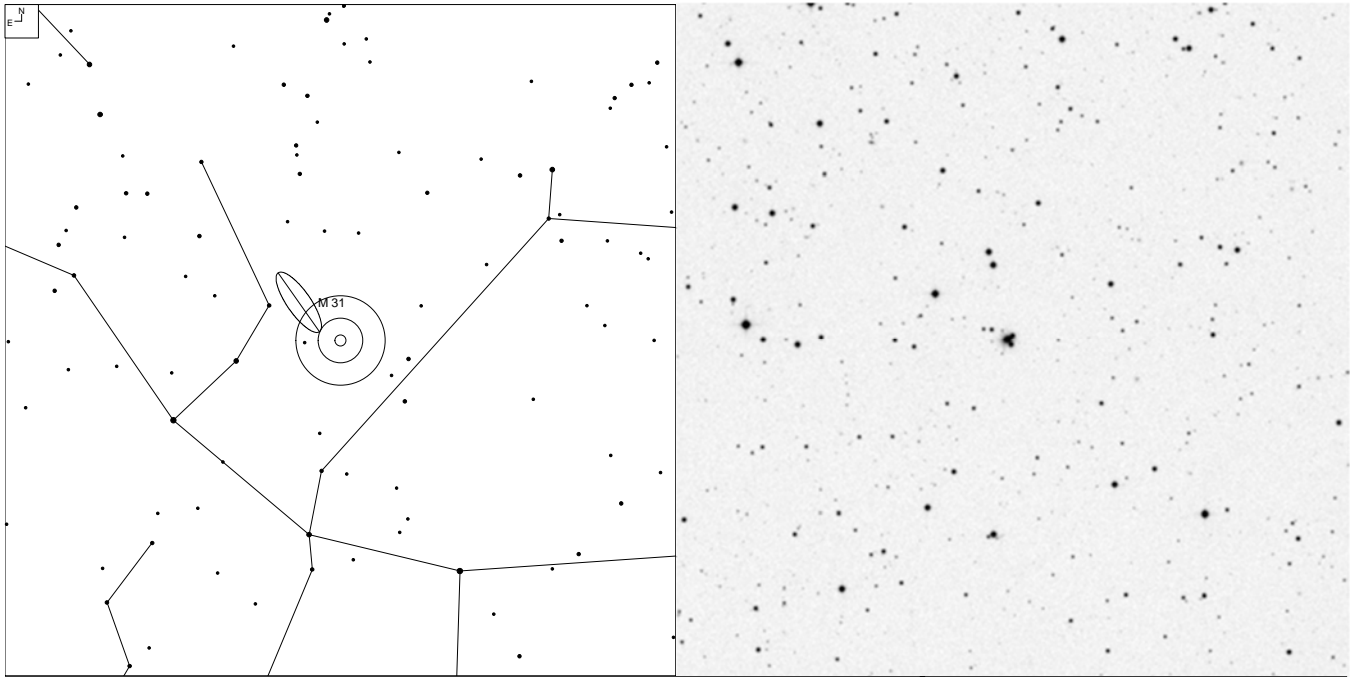
yes it made a lot of fun to pick all HII regions. I need at least around 2 hours for the rough sketch. The outer regions were only visible with 4mm AP (172x) as subtle glowing around the main structure - a little bit to bright in the sketch.

The faintest HII region was the stellar HII region [H76]-13 3,5' NW of the core. I missed the brighter [H76]-292 1,2' NE of the core, perhaps the background arm was to bright?

Look also after the galaxy

2MASXJ01365368+1542071 around 5,6' SE. NED and LEDA did not mentioned a magnitude, VizierR note 17,3bmag for the USNO-B1.0. Seems to fit with my observation, the galaxy is the same brightness like the brighter to middle bright HII knots within the galaxy.

G1 and a few other Super Size Clusters (Andromeda)



Object	RA	Dec	Mag	Size
G 1	00 32 46	+39 34 41	13.2v	0.5 x 0.5'
G 78	00 41 01	+41 13 47	14.2v	0.4 x 0.4'
G 213	00 43 14	+41 07 23	14.6v	0.3 x 0.3'
G 280	00 44 29	+41 21 37	14.2v	0.4 x 0.4'

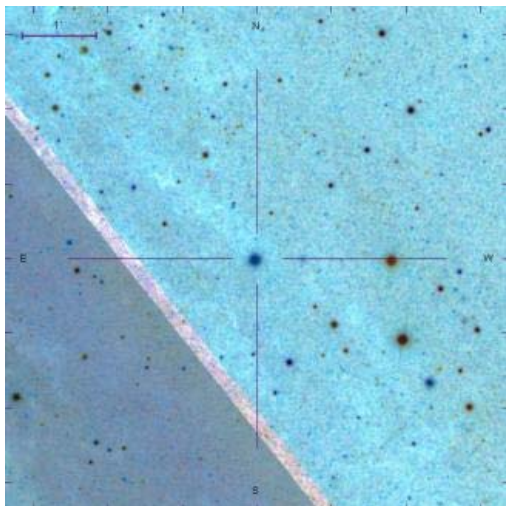
G1 and a few other Super Size Clusters (Andromeda)

Jimi Lowrey

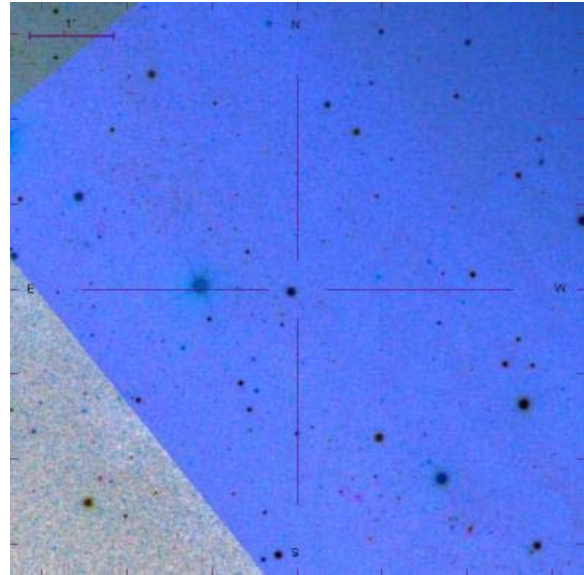
G1 is one of the brightest globular clusters belonging to M31, the Andromeda galaxy. At 13.2 Mag it is visible in most amateur telescope. In large scopes at high power stars start to resolve. So what is G 1 ? There are lots of different ideas as to what it is. Here are a few things to think about when you are viewing this most interesting object. 1-- G 1 is three times larger than Omega Centauri our largest globular cluster. 2-- G 1 is about the same distance from the core of M31 as our Large Magellanic Cloud is from ours. 3-- The metallicity of the stars in G 1 is very near the metallicity of stars in the core of Dwarf Elliptical galaxies.



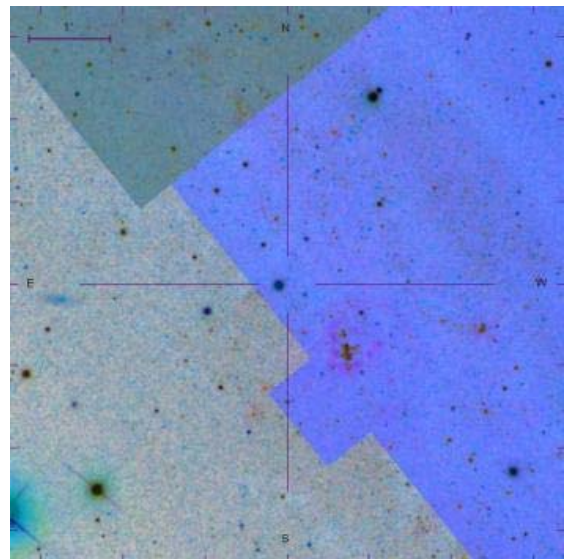
G 1 is the brightest cluster in M31 but according to S. G. Djorgovski of Caltech not the most massive cluster. I will list below three cluster that are near the mass of G 1 or larger. All should be within reach of most scopes.



G78



G213



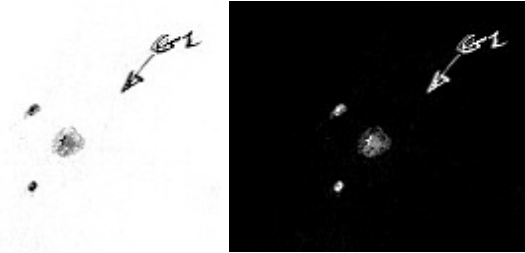
G280

In the image above 3.7 to the South West of G 280 is the cluster G 272 at 14.7 Mag it makes for a interesting field of view to have two clusters in the same telescope view!!

Howard Banich

It seems that UCD's are more common than the tiny "globulars" the Milky Way has, so maybe we should call our little star spheroids something like MGC's - mini globular clusters. Anyway, the latest observation I have of G1 is from 2006, and my notes read:

"Not much larger than the nearby field stars in this so-so seeing, G1 is still relatively easy to pick out because of the distinctive star field it's in. No stellar points, it just looks like an out of focus star. 812x" No SQM reading but my notes mention that there was some light smoke drifting through around the time this OSP observation was made.



My quick sketch shows the distinctive triangle G1 makes with two field stars, and even though there was no hint of resolution it seems that on a really steady night there might be a chance to see a sparkle or two. I've only gone after G2 as well as G1, but the other three objects you've listed look like they'll be fun to track down.

Victor van Wulfen

My first observation of this huge, but visually tiny fuzzball was on 1 October 2011, 12" SCT:

179x: The cluster is an east to west elongated streak, even in brightness, slightly clearer when using AV. Against the SSW edge of the cluster is a mag. 13 star, superimposed. To the NE is a mag. 12 star, slightly farther to the NNE are two mag. 13 stars aligned NNE to SSW.

254x: Using this magnification the cluster is a small, almost round patch, slightly elongated east to west, to the ESE of a mag. 13-14 star. Likely due to the presence of this star the cluster appeared to be more elongated at a lower magnification.

Five days ago I again observed it. A nice lead-in to pinpoint the position of the cluster are the two stars to its NNE, aligned NNE to SSW along with the star to its NE. Together with these stars the cluster forms a triangle pointing SSW, with the stars forming the base of the triangle. Visually, the cluster no more than a somewhat fuzzy star.

Ivan Maly

Here my observations of the other four M31 globulars from the OP, made three years ago with my 7" Maksutov:

G213, G272 - both non-stellar with stellar core, good night on Spruce Knob summit: <http://ivm-deep-sky.blogspot.com/201...ruce-knob.html>

G78, G280 - both star-like, average night at Cherry Springs: <http://ivm-deep-sky.blogspot.com/201...7-night-2.html>

Marc Emde

Hi Jimi, dear all,

nice objects - i really like GC in nearby Galaxies. I observed G1 two time over the last years with 15 inches (350x) and also 10 inches (220x). In both cases the GC was easy with direct vision. In both scopes G1 looked non-stellar and formed a nice triangle with the nearby stars.

I also observed G2 and G73 with my 15incher (350x). G2 was quite difficult compared to G1 (averted vision), but G273 was also possible with direct vision.

Btw: last week i observed GC C39 and C27 in M33 - much more difficult than the GC in M31 i observed before; but nevertheless much fun!

Paul Alsing

It just so happens that on September 3rd I was in a group that used the 60" on Mt. Wilson for the entire night, and G1 was one of the objects viewed that night. The "Mickey Mouse" asterism was clearly apparent and the globular itself was obviously very different from the other 2 stars, what with being fuzzy and all... but overall it was a lousy night on Mt. Wilson, the sky was so bright from the LA lights that night that I was wishing I was in the desert with my 25" instead...

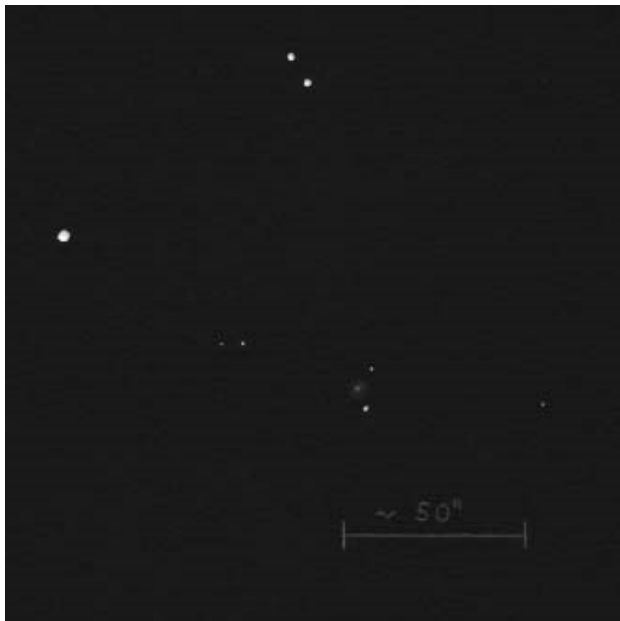
Reiner Vogel

I observed G1 last week during a slightly overcast night, when fainter objects were out of question. It took some time to locate the asterism, as I did not have a precise finder chart. G1 was relatively bright and appeared fuzzy.

I need to make finder charts for the other three. These appear to be more interesting than most of the other (in my telescope only stellar) GCs of M31.

Uwe Glahn

With 16" and higher power I could also detect a fuzzy character of G1

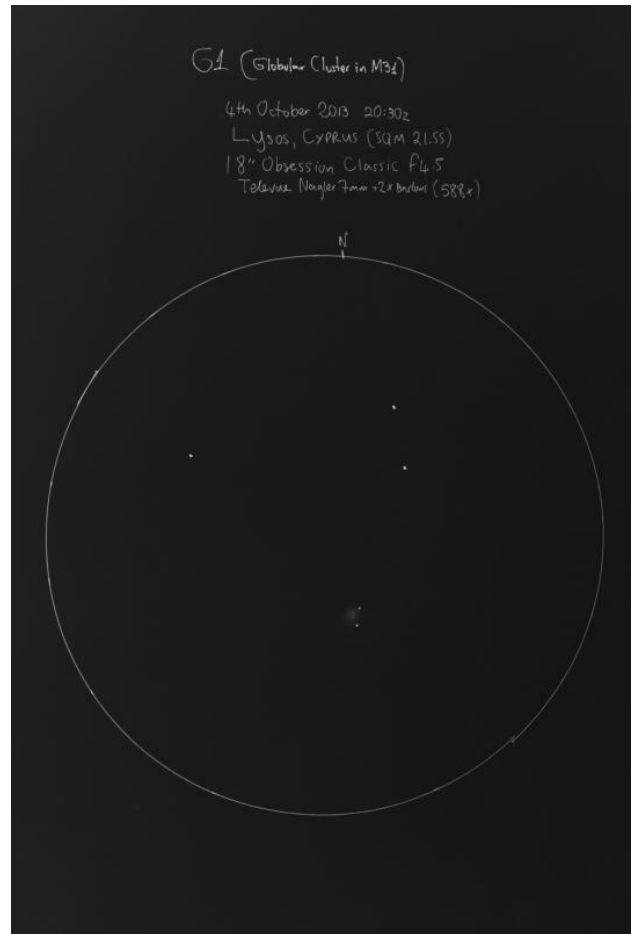


16", 600x, Seeing II, Nelm 6m+
(Cropped from original sketch)

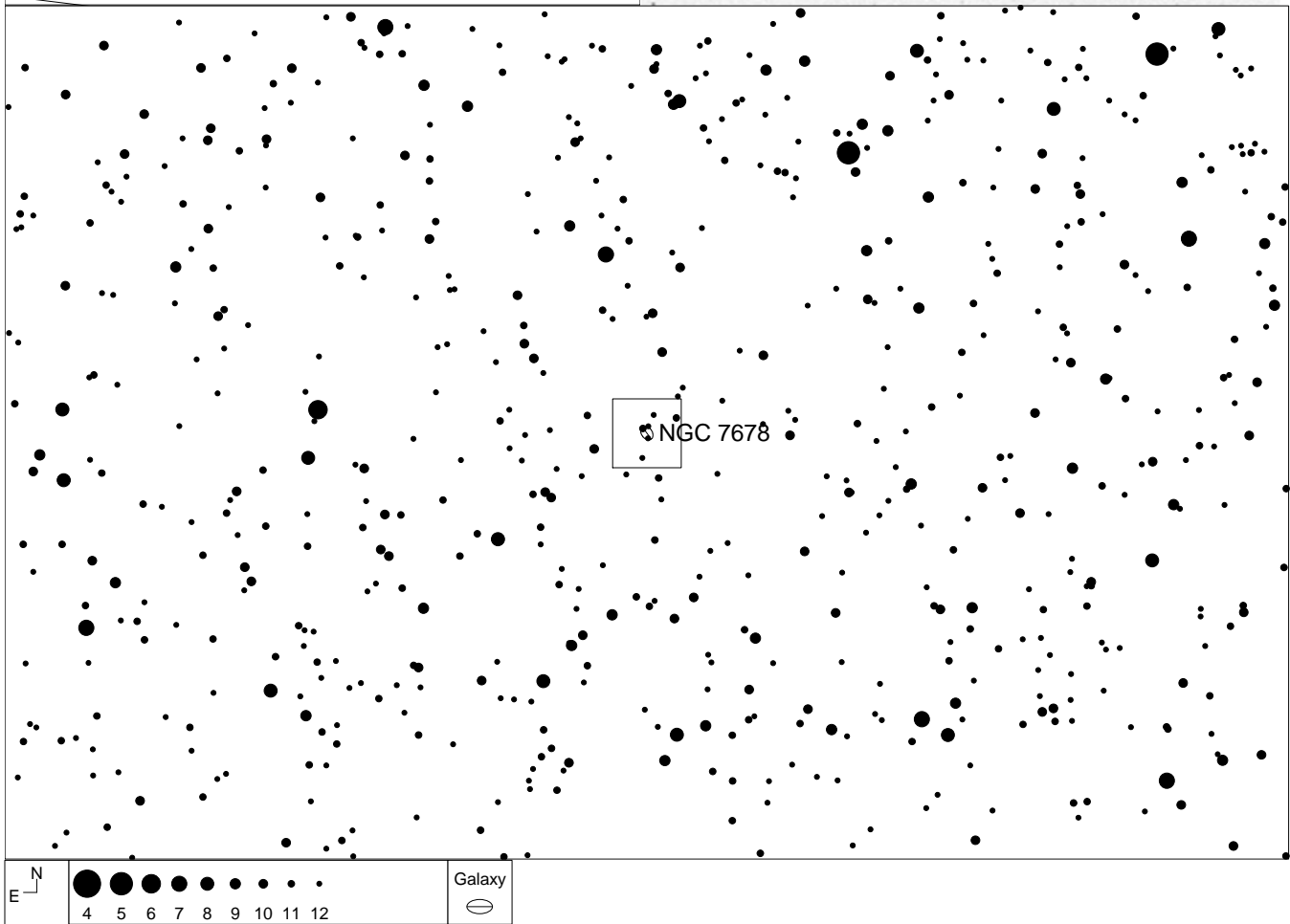
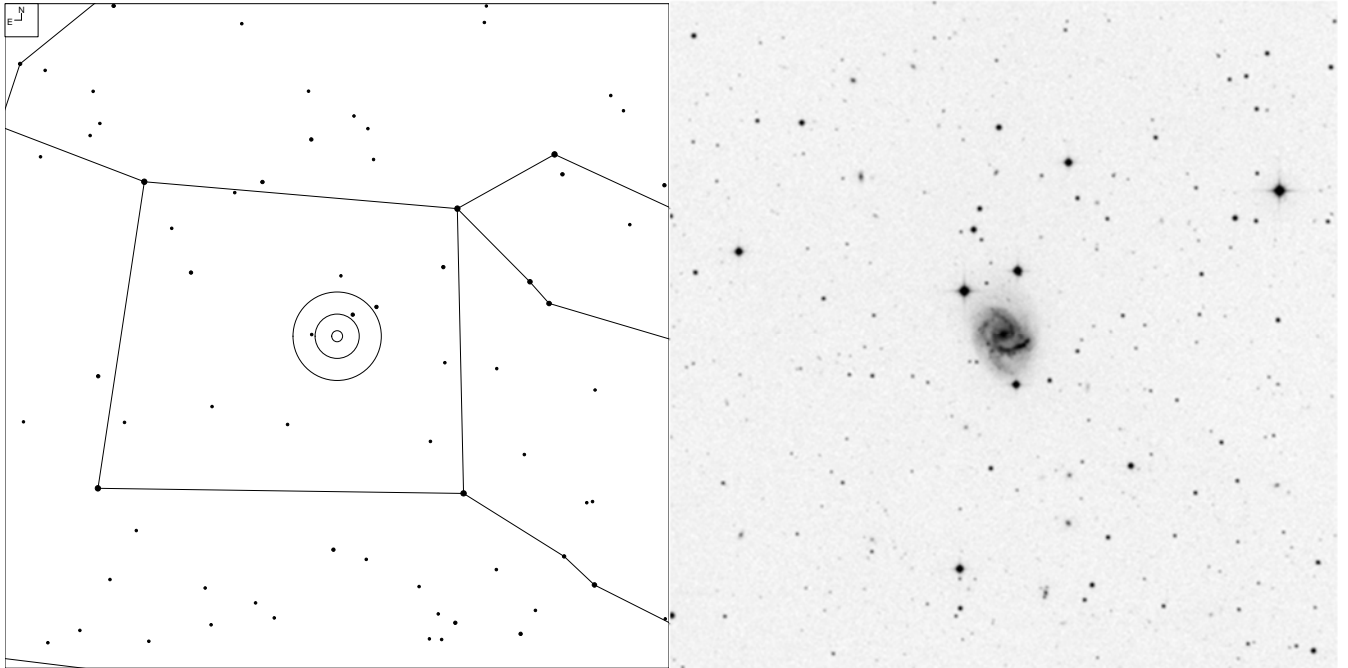
Rolandos Constantinides

And here is my rendition of G1 from a few days ago. I did observe it under relatively dark skies (SQM 21.55 with the device pointed in the direction of Andromeda) from a 1,700ft altitude site. The globular was pretty easy to locate, and have since showed it to other people under brighter skies, it seems to be quite easy in the 18". I did not achieve any resolution but the surface does appear to be granular. Perhaps under greater magnification a star or two could poke out. Definitely, the "Mickey Mouse head" effect is readily visible and becomes more pronounced if you de-focus slightly!

My plan is to try for G1 with my 6" f5.9 achro as soon as the moon gets out of the way, it seems to be within the capabilities of a 6" refractor...



Arp 28 - NGC 7678 (Pegasus)



Object	RA	Dec	Mag	Size
NGC 7678	23 28 27.9	+22 25 16	12.7	2.3 x 1.6'

Arp 28 - NGC 7678 (Pegasus)

Dragan Nikin

Approximately 140million light years away and nearly dead center in the Great Square of Pegasus lies this week's OOTW. NGC7678, also known as Arp 28, is a spiral galaxy with what Halton Arp called a "heavy arm". NGC7678 has an asymmetric appearance in photographs and the eyepiece. A beautiful face-on spiral, its southernmost arm is quite more dramatic than the others which may be caused by intense star forming regions.

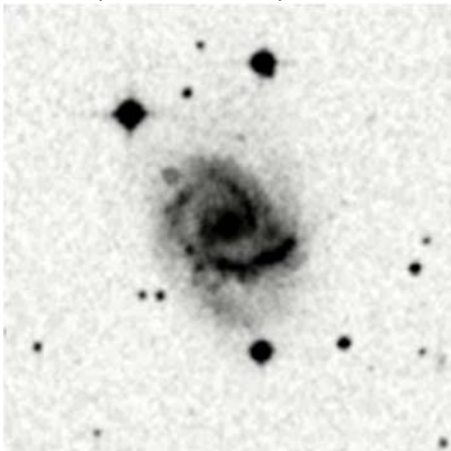
Rather easy to find the field, NGC7678 lays 1.2° southeast of 4.4 mag Upsilon Pegasi. The galaxy itself is nicely framed within a trio of 12^{th} magnitude stars creating a triangle.

In my 25 and at low power, I find the galaxy is a rather large diffuse glow with a brightening at its southern end. At 300x and higher, I observe a bright non stellar core as well its arms. The heavy arm also starts to stand out much more apparently at higher power. NGC 7678 itself should be readily visible in scopes down to about $12''$ but high power and good skies may be required to distinguish this galaxies' notable feature.

One other interesting little tidbit, NGC 7678 has been rather active as it's been a host for 3 supernovae in the last 16 years, with the most recent occurring in 2009. None of the 3 most recent supernovae occurred in the heavy arm. All occurred on the opposite side of the galaxies core. The three supernovae were:

2009ga reaching 16^{th} mag
2002dp reaching 15^{th} mag
1997da reaching 18^{th} mag.

So as Pegasus rides high in these September skies, look for NGC7678 in the relatively empty area of sky near the center of the Great Square of Pegasus. You may just be surprised at what you can see!



Ivan Maly

Observing this galaxy as part of my Herschel 2500 survey in October of last year, I recorded (16", blue-zone site, fine conditions):

The Herschel NGC 7678 near Nu Peg is the starburst Arp 28. It is visible at 45x and appears rather strongly elongated just inside a triangle of stars. 225x leaves it only slightly elongated NS. At this magnification it shows almost no overall concentration but shimmers tantalizingly, offering what seems to be glimpses of a core and an EW bar connecting to a slightly oval ring that defines the periphery of the galaxy. There seems to be an enhancement along the ring to the SW, and a faint star on the NW edge of the core. All these specific features are uncertain but seem to be glimpsed consistently.

EDIT: Dragan, you are right of course. I misread the chart in the dark. The nearby bright star is indeed Upsilon and not Nu Peg.

Uwe Glahn

Cool reminder, thanks. I have definitely revisit Arp 28 with my 27".

With my old 16" the "heavy arm" was quite obvious.



16", 200x, NELM 7m+

Rolandos Constantinides

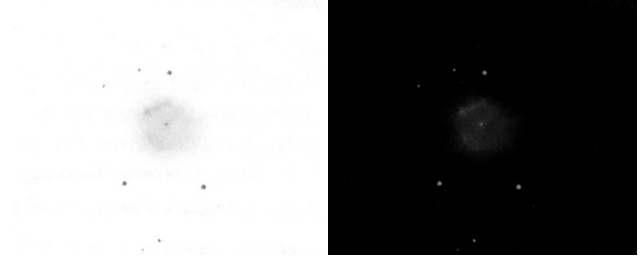
Very nice galaxy! Impressive in all respects. It was a joy to observe in my 18", and I definitely liked its field, with the galaxy framed nicely in that star triangle. I could readily detect the heavy arm, which at moments of bad seeing kind of reminded me of the view of M51 and its companion in a small instrument. I did note that the galaxy core seemed to be encircled in an outer glow with a darker 'ring' surrounding the nucleus, though the feature was low contrast, and I wonder if it was more the result of contrast from the nucleus and the heavy arm. I plan to have another go in it next weekend...



Howard Banich

When this object was first posted I checked my notes to see if I'd observed it, and sure enough I had one observation from several years ago. But it was immediately apparent from my sketch that I'd observed the wrong galaxy (!) so I set out to observe NGC 7678 correctly a few weeks ago. My notes:

"This is a beauty - two spiral arms, with the southern arm being obvious and straight and with a knot near one end. The northern arm is much more subtle, but the stellar core is easy to see and gives this faint spiral a definite center to spin around. The bright arm hooks a little as it bends toward the core but neither arm can be followed all the way to the core. Lovely sight! 408x, 21.59 SQM.



Being bracketed by a triangle of relatively bright field stars helps make 7678 an object to return to. When my observing companions saw it in my scope they went back to their own scopes and enjoyed the views just as much in their 16" and 24" Dobs.

Steve Gottlieb

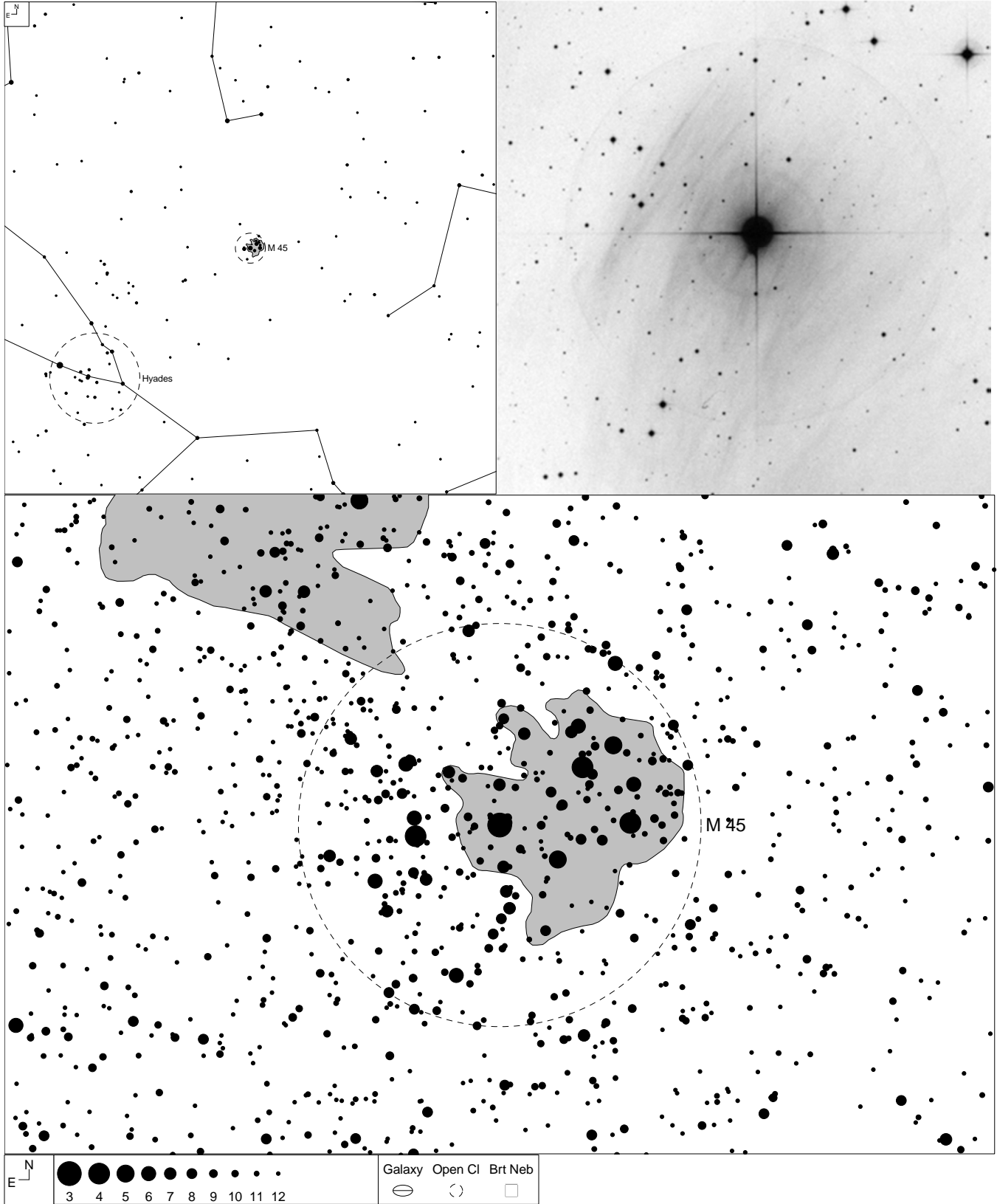
Howard, I also took at NGC 7678 earlier this month with my 24-inch and noted the more prominent southern arm "brightens right at its western tip." This feature (shown nicely on your sketch) isn't prominent on images, but is probably a brighter HII complex.

Reiner Vogel

I observed this galaxy last night (far from a perfect observing night). The galaxy is nicely framed by the triangle of stars and appears at first diffuse with some mottling in it.

The easiest feature is the stellar-like nucleus which was relatively easy and appeared consistently. Further structure in the halo consisted of the southern arm, which could be separated from the inner part. The end of the arm appeared brighter, but like a short thin bar rather than round. Of the northern arm, only the beginning was visible as a short and relatively broad extension from the inner core into the fainter halo.

Merope's and Barnard's Nebula (Taurus)



Object	RA	Dec	Mag	Size
Merope Nebula	03 46 19.57	+23 56 54.1		
Barnard's Nebula				

Merope's and Barnard's Nebula (Taurus)

Reiner Vogel

Merope Nebula (NGC 1435) is the brightest one of the reflection nebula in the Pleiades. Under good conditions, it is visible even in large binoculars as a faint fan-shaped smudge, extending from Merope outward of the cluster. Merope Nebula is one of those objects that can be hard to observe for the first time and that become relatively easy once you know what to look for.

These reflection nebula are actually not remainders of the molecular cloud in which the open cluster initially formed. Rather, they originate from denser parts of interstellar matter, through which the cluster presently happens to pass through. The visibility of the Merope Nebula is a good criterion to judge the quality of your sky (and btw, it is *very* easy to find ;-). I observe it frequently in fall and winter, and I guess most of you do similarly.



Merope's Nebula is therefore not what this is all about and why I chose it as OOTW. Superimposed on the large Merope Nebula is a much smaller one, Barnard's Nebula (IC 349), which is brighter, but very close to Merope, extending only 30" from it. IC 349 is considerably more difficult than the Merope Nebula and not just visible at first sight (at least it wasn't at all for me). Instead, it requires a lot of patience to successfully observe it.

When I observed it for the first time, I used a 6mm eyepiece equipped with a strip of black slide film at the field stop. This allows placing Merope behind that strip and to suppress its glare (this is actually the same equipment that I use for Sirius B and some of the fainter moons of Uranus). With a lot of

patience, a small appendix to Merope could be made out. Its orientation could be noted using the surrounding small field stars and later be verified using photographs of this object. Barnard's Nebula has a diameter of only 30".

Here is an amateur image by Gert Vandenbulcke (scroll down on the linked page)

<http://www.astronomie.be/Tranquility...es/pagem45.htm>

Here is an excellent image by the Capella team taken from Crete

<http://www.capella-observatory.com/l...bula/IC349.htm>



And here is the famous HST image of IC 349

This is an object that requires excellent seeing conditions, which I rarely have at my usual observing site. So I never went beyond "detection" of the object. I would be very interested in hearing about your observing results of this tiny reflection nebula. Has anybody succeeded to see parts of the structure of Barnard's Nebula?

Dragan Nikin

What a cool and unique OOTW! I never imagined, or let alone had known, that IC 349 was visible in scopes. I leave next week for a week of observing under some dark skies in western Nebraska. (the site of NSP) This will definitely be on the list.

What a cool challenge object! Thanks!

Steve Gottlieb

Barnard's Nebula was discovered visually in November of 1890 using the Lick 36-inch refractor on Mt Hamilton. His discovery note and comments are quite interesting.

"On Nov. 14 [1890] while examining the cluster, I discovered a new and comparatively bright round cometary nebula close south and following Merope, every precaution was taken to prove that it was not a ghost of Merope by examining the other stars of the group under the same conditions. I have since seen it several times and on Dec. 8th I could see it with some difficulty in the 12-inch by occulting Merope with a wire in the eyepiece. With the great telescope the nebula can be seen fairly well with Merope in the field and is conspicuous when the star is placed just outside the north edge of the field. It is about 30" in diameter, of the 13th mag, gradually brighter in the middle, and very cometary in appearance. It was examined with powers of 300, 520 and 1500, with all of which it was comparatively easy."

The following year S.W. Burnham made several observations with the Lick 36-inch and commented –

I have lately made a set of measures of this singular object from Merope with the 36-inch equatorial. The nebula is readily seen with that instrument when one is aware of its existence, and it can probably be seen now with a somewhat smaller aperture; at the same time, its discovery with any instrument is little less than remarkable, from the difficulty of seeing it at all except when when the bright star is placed outside the field, and, of course, there is only one position which is favorable for this purpose. The distance between the two is so small, that the nebula even then is in the extreme margin of the field, and easily overlooked with careful attention.

Paul Alsing

Like you, my regular observing site rarely has excellent seeing, so I have only "detected" IC 349 myself, and seeing structure was out of the question! I think it might be easier to see if an occulting bar is used, and I plan on trying this next time out.

There are not many realistic photos of this object because it is usually very overexposed in most pictures, but this one is close...

<http://innerberg-astro.lima-city.de/...ebel/IC349.jpg>

Howard Banich

This object has given me fits over the years but I know I've seen it well once with my 20" years ago - but I'll be darned if I can find any mention of it in my notebooks. I'm planning a trip to Steens Mountain next week if the weather is good, and IC 349 is near the top of my observing list.

Reiner Vogel

@Steve: Thanks for the mentioning of the discovery story. I think it is amazing to visually discover such an object and a major feat by Barnard. In particular given that it was a very difficult object for me even with the knowledge that it is there.

@ Paul: Yes, there are not that many images that reflect its visual appearance. To me, it was not more than a small appendix to the speckles of Merope.

@Duane and Howard: Let us know about your results. For me, it is as well on the list. I haven't observed it this season and last year I had not been successful. My last successful observation is therefore already some time ago.

Uwe Glahn

My first time is already a few years ago. I call it "Horsehead effect", when you know what to look at, the object is not difficult to see, of course the seeing and the transparency (halo of Merope) has to be fairly good.

With 16" and 600x the RN was visible with Merope outside the field.



(cropped from original sketch)

A quick look with the 27" shows some structure within the RN. I could not hold the structure because of the seeing but it is possible to see more than a nebulous patch.

I always wishes an eyepiece with a baffle in the middle, so you could mask the bright star. Also cool for Abell 12 or Leo I. Unfortunately the new eyepiece design has their field stop inside the front lens. Maybe I have to test is with an simple eyepiece design like a plössl. Does anyone has such a baffled eyepiece in his collection?

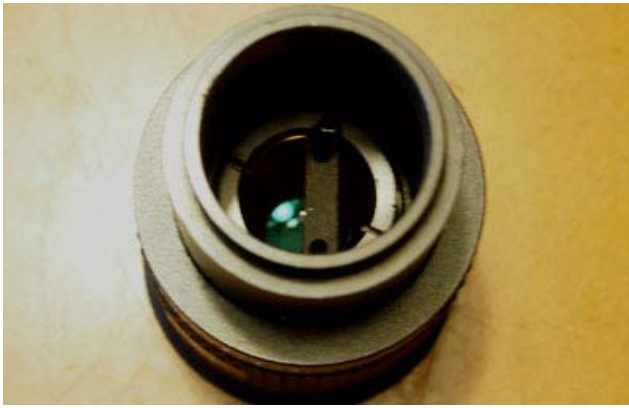
Reiner Vogel

your report on Barnard's Nebula several years ago actually started my own interest in this object :-)
It also works with eyepieces with internal field stops. Of course, you have the open the eyepiece to place the bar to the field stop. In fact, my 6mm eyepiece with the black bar is a Skywatcher 6mm UWA that I did not use anymore and that I optimized to reduce stray light with an internal baffle. Here are two images, it's the middle one in the upper picture, while the lower one shows the additional internal baffle above the negative element (the occulting bar is not shown).



Here a two more pictures showing the occulting bar in my TMB 5mm eyepiece (which replaced the 6mm eyepiece for this purpose)



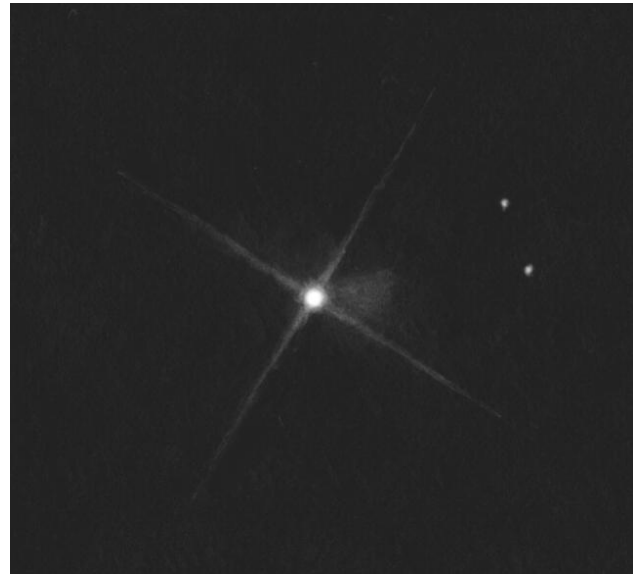
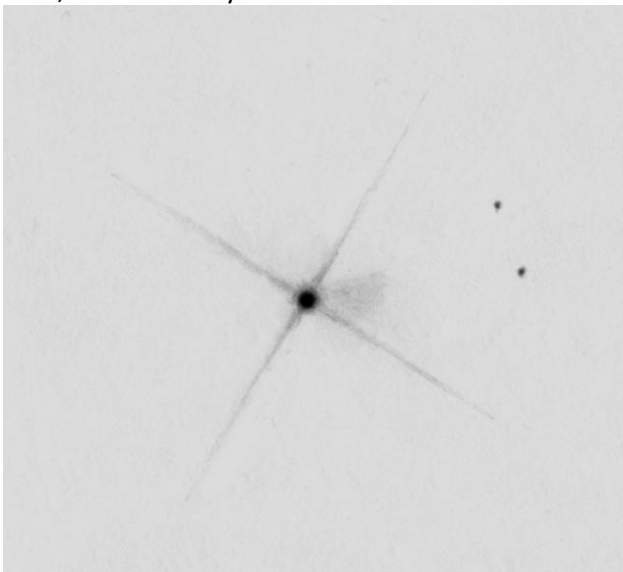


In the old 6mm it was black slide film of the pre-digital age, while in the newer 5mm it is plain black paper. Both work, though the paper has a fuzzier edge. The bar was glued into the field stop using all-purpose glue, such that it is in the focus of the eyepiece.

Howard Banich

I was able to see IC 349 On October 4 under a dark sky (21.52) that was full of thin, high clouds. It was faint but not very difficult to see once I had the star just outside the fov, but I found that I had to wait until M45 was near the meridian so IC 349 was between Merope's diffraction spikes. When I tried earlier in the evening, the nebula was right on a diffraction spike and impossible to see. I also found that using the Televue 8-24mm zoom eyepiece worked much better than an Ethos - the edge of the zoom's fov had better contrast! That was perhaps the biggest surprise, but the view was quite nice at 250x to 400x. I haven't scanned my notes and sketches yet yet, but it looked very much like Uwe's sketch.

...Ok, I've added my sketch now:



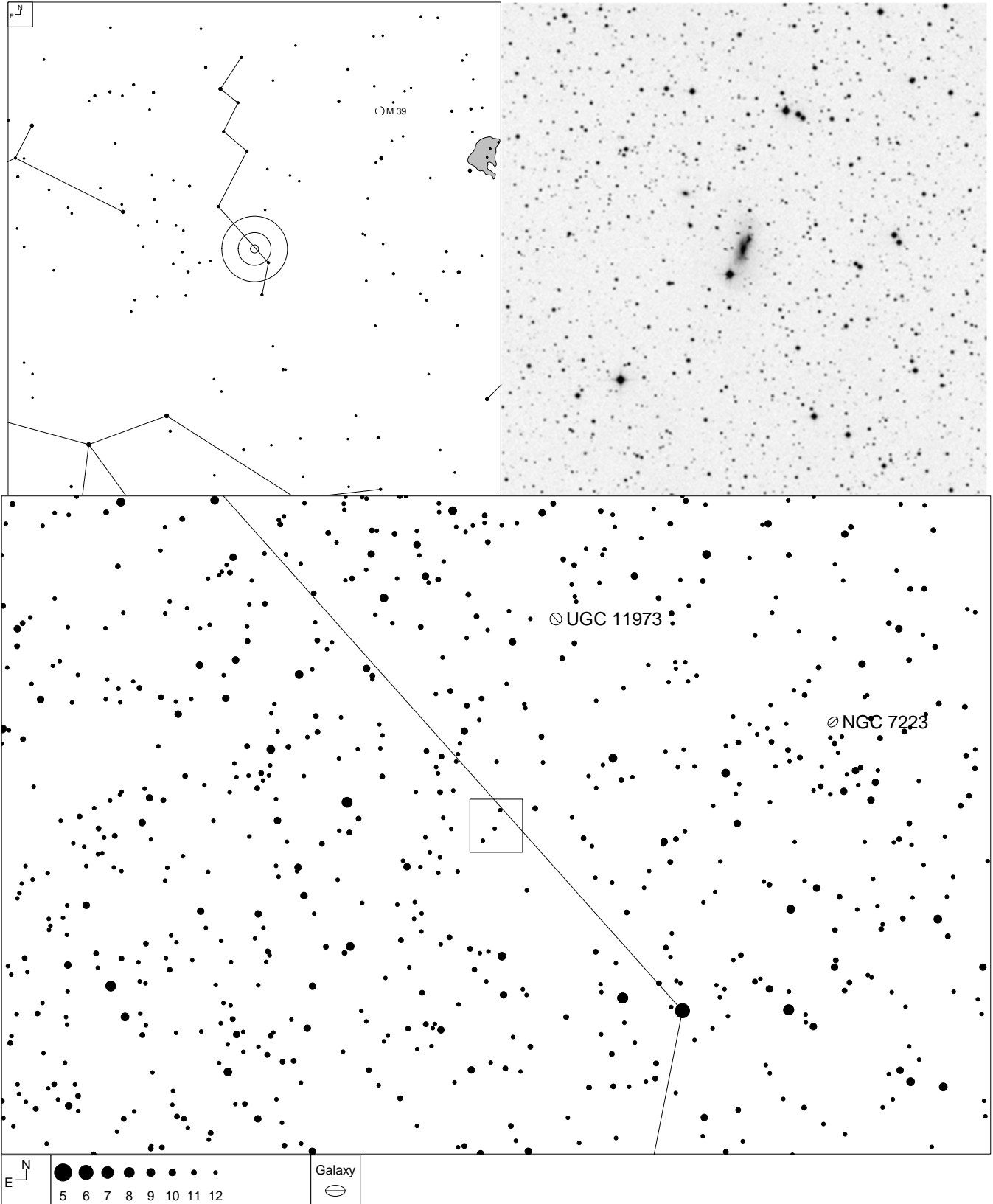
Reiner Vogel

I re-observed Barnards Nebula yesterday (fst 6.0 or even worse, a thin high cloud layer was disturbing). I actually did not expect to be able to be successful. With the 5mm eyepiece equipped with the bar, I placed Merope behind the occulting bar. IC 349 was immediately visible as a faint low contrast protrusion between the two spikes of Merope. The protrusion was shorter than the spikes and broader, very similar as in Howard's sketch. I noted that the nebula's edge distal to the star was quite well defined, yielding the "triangular" appearance noted by others.

I cross-checked by turning the eyepiece and looking at the other "inter-spike" areas, which were, as expected clean. If IC 349 were coinciding with one of the spikes, it's observation would likely have been much more difficult.

I found it quite astonishing that IC349 was visible under these sub-par conditions without much difficulty. 22" telescope.

NGC 7250 (Lacerta)



Object	RA	Dec	Mag	Size
NGC 7250	22 18 17.8	+40 33' 45"	12.6v	1.7' x 0.8'

NGC 7250 (Lacerta)

Rolandos Constantinides

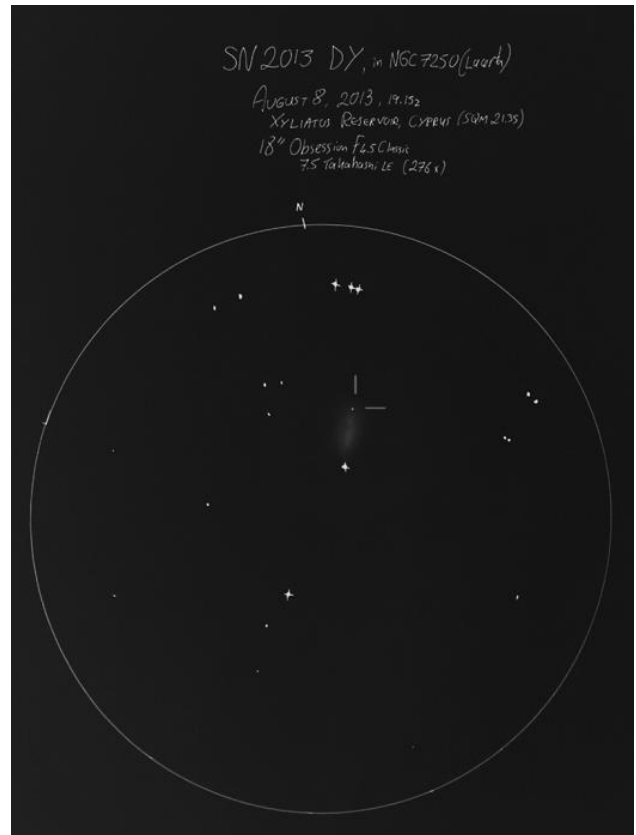
Type: Starburst Galaxy / Possible Double Galaxy

The recent supernova SN 2013DY in Lacerta was one of the highlights of this past summer, but not for its own merit: Rather, it was the reason for “discovering” NGC 7250, a little known gem of a galaxy in the usually neglected constellation of Lacerta, the Lizard. Lacerta culminates during fall evenings, so now it’s the ideal time to observe NGC 7250.

This little galaxy sits just to the north of the middle star of a distinctive asterism (made of 10th and 11th magnitude stars) shaped like a bent arrow, making it a snap to identify the correct field. I first observed NGC7250 (when I heard of SN2013DY) on July 29th, 2013, from a rural site (SQM averaging 20.9 at the zenith) with my 6” achromatic refractor. Although some observing reports I had read described NGC7250 as “very faint” in 10” instruments, both the supernova AND the galaxy were readily visible in my 6” refractor, provided I used rather high power (129X was ideal). The galaxy was distinctly lens shaped with a steady brightness profile, but at the time it was a bit overwhelmed by the light of the 11th magnitude supernova on one side and of the 11th magnitude field star on its other side.



The tiny galaxy seemed like an ideal candidate target for my 18” dob, and I re-observed it on August 8, 2013, from a much darker mountain locality with the lightbucket. Using a power of 276x I logged a distinctly elongated 3:1 shape for the galaxy, with a brighter core area that was even more elongated (4:1) than the outer halo. What piqued my interest though was that this inner, brighter area seemed “split”, especially with averted vision. It sort of reminded me of a tiny “M82” contained within the halo of NGC7250. After finishing the observation, while driving back, I kept thinking whether this split was real, or whether my mind was playing games – could it be that the light of the nearby supernova was creating contrast effects?



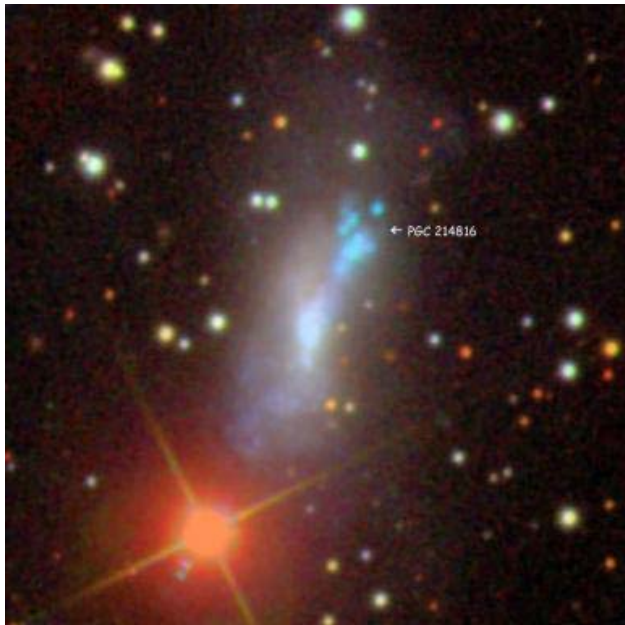
The next day, I found out that what I was seeing was real. Not only that, but actually the second brightening to the north of the nucleus is actually further split in three sections! In addition, there is a debate about what this collection of bright knots might be. The only piece of information that seemed to be available on the web is Courtney Seligman’s website

(<http://cseligman.com/text/atlas/ngc72a.htm>)

which mentions that this group of (at least!) three bluish bright knots are listed as the galaxy PGC 214816 in LEDA catalogs but he doubts about their galactic nature! I have also located a report where

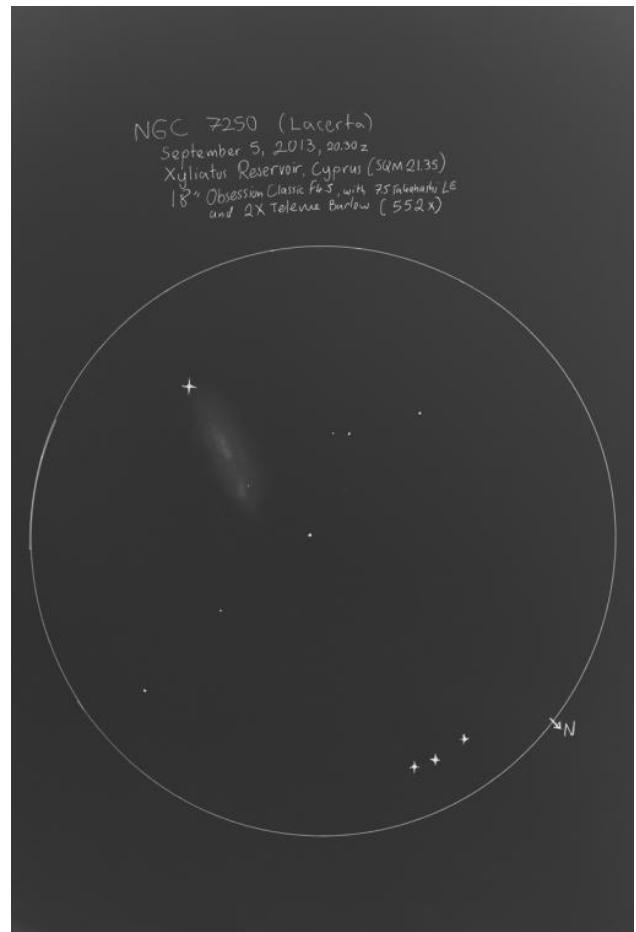
www.deepskyforum.com

the author considers this “cosmic mess” as he calls it the result of a galaxy merger ([http://cosmoquest.org/forum/showthre...warf-galaxies&](http://cosmoquest.org/forum/showthread.php?p=114444)). Amazingly, this galaxy was not listed by Arp in his famous catalog of Peculiar Galaxies, nor has it ever received (it seems) any distinct fame in the amateur astronomer circles! I have found very few observational reports for this galaxy, which is surprising as the second brightening is distinctly visible (but not split in three parts) in DSS photographs. The only report that mentions an observation of the second brightening was by Steve Gottlieb in his NGC Observations, made with his 17.5” dob.



Needless to say, I impatiently waited for another observing opportunity. Now that I knew that the second brightening was real, I wanted to examine it

as much as I could. On September 5, I was again at my usual mountain site with quite steady conditions, which allowed me to push the magnification of my 18” dob to 552X. I could hold steady the second brightening with direct vision, and I could detect that it seemed triangular, but I was unable to further split it in three sections. The dimming of the supernova certainly helped my observation. The galaxy has quite a high surface brightness, so it can take magnification well. After my last observing session, I thought that I should check the galaxy with OIII or H-beta filters. Maybe the brightening could be extensive hydrogen clouds with star-forming regions. Seems far-fetched, but who knows?



So, NGC7250 can give us a nice set of challenges: What is the smallest aperture through which this galaxy can be seen? It was not hard in my 6” on a good night, and I think that it might be detected even with 4”. What is the minimum aperture and magnification required to “split” the galaxy and get that “M82 within galaxy halo” effect? What are the prerequisites for splitting “PGC 214816” into the three knots? Magnification, steadiness of seeing, or transparency? Does this “second brightening / “galaxy” respond to nebula filters? And, of course,

there are the astrophysical questions: Are these really two superimposed galaxies? Are we watching the merger of two galaxies? Or, are the second group of knots mere starburst regions within NGC 7250?

I know for sure that I will be soon returning to NGC7250.

Uwe Glahn

what a unique object. We, forum members Jimi L., Christian R. and I observed this in my 27" last nights. The SN was visible very easy, simply a "missing" star in the DSS. The knots were also easy to see.

Unfortunately the Seeing was not good enough to resolve all knots, I also could pick up two points, like a close Double Star. I made a sketch and post it next days.

Christian remembered me, that we both saw the sketch two month ago in his 12" ([sketch](#))

--

Here is the sketch



27", 586x, Seeing III, NELM 7m+

Rolandos Constantinides

Dear Uwe, I can see in your sketch two brightenings that look like stars on the north end of the galaxy. So I guess you managed to split the general brightening I saw into two starlike knots. This is what I have tried ever since realizing the complexity of this galaxy, but it seems that splitting that area might be beyond the reach of my 18". Great job!

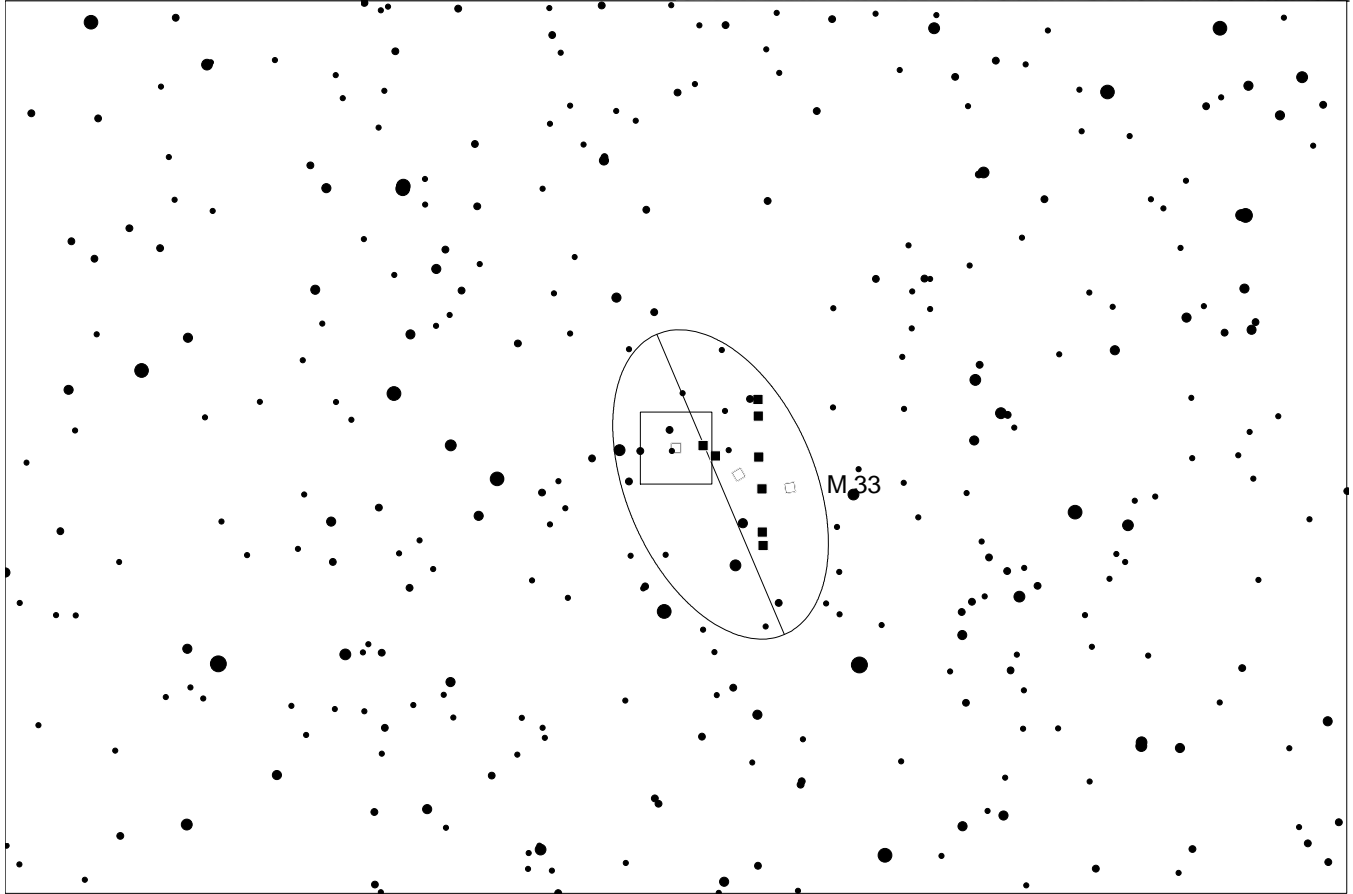
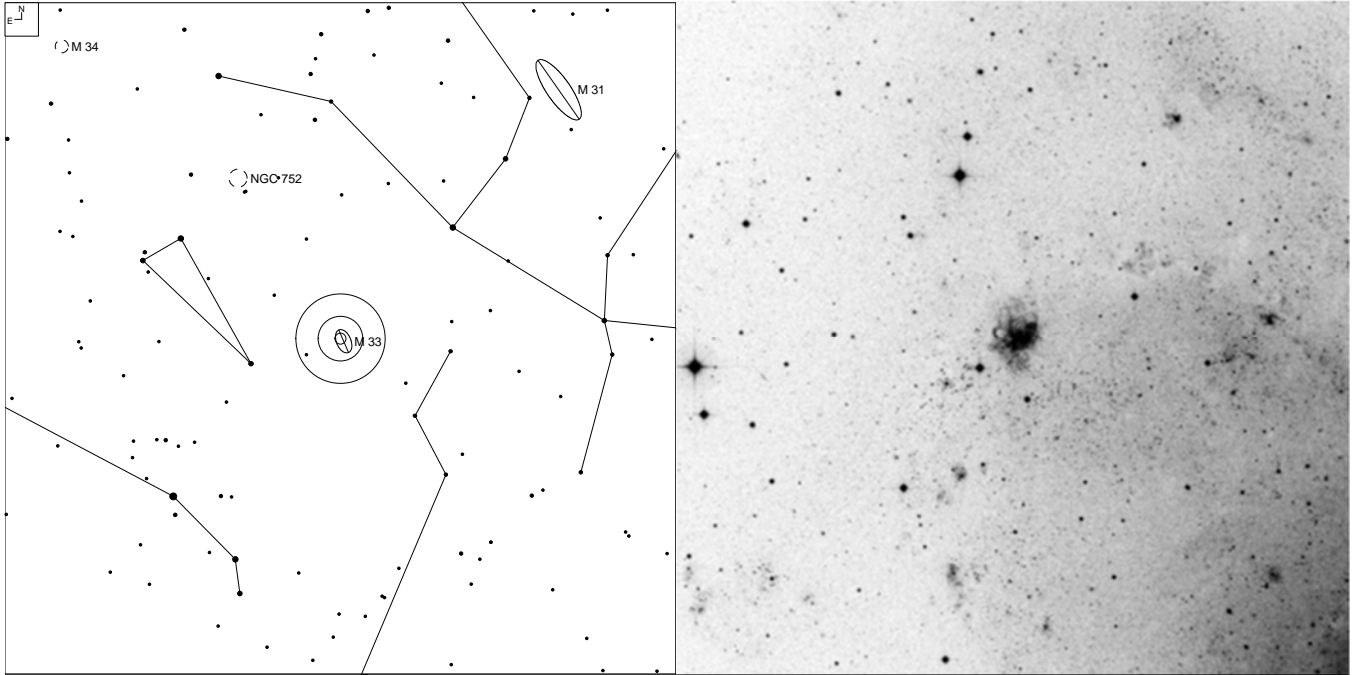
Uwe Glahn

you are right, the knots were separated into two points, like a close double star. To separate it into more knots the seeing and the magnification was too low. Quite possible that the third knot is within reach but the seeing has to be perfect and the power 800x+. Difficult to say if the separation is possible in the 18". The problem could be the AP. You need at minimum 500x+ where the knots are perhaps too dark in the 18".

Reiner Vogel

I observed this object last night and my results are similar to yours. The main core of the galaxy is distinct and more elongated than the galaxy itself. Also the detached part was distinct, with a somewhat triangular shape visible from time to time. I did not succeed in further splitting of this detached part (maximum useful magnification was around 500x).

NGC 604 (Triangulum)



E ↙ N ↑	● ● ● ● ● ●	Galaxy	Glxy Knot	Brt Neb
	6 7 8 9 10 11	○	■	□

Object	RA	Dec	Mag	Size
NGC 604	01 34 32.8	+30 47 06		1.93 x 1.2'

NGC 604 (Triangulum)

Howard Banich

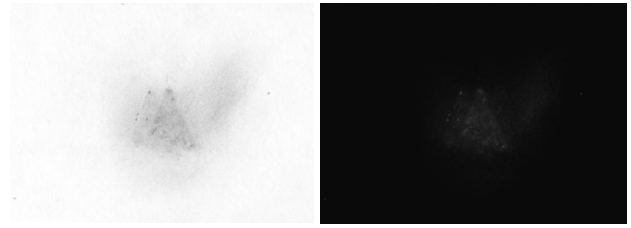
Type: Extra galactic HII region, size 1.93 arc minutes x 1.2 arc minutes

NGC 604 is almost as interesting as all the rest of M33. Why would I think that? First of all, 604 is the largest and brightest HII region in M33. Visually, it has the highest surface brightness of anything in M33 and in actual size is approximately 1500 light years across its longest dimension. Seen from 3 million light years away it's still a pretty impressive sight. For a sense of scale, consider that M42 in our own galaxy is about 24 light years across and about 1344 light years away – a distance smaller than the width of 604!



Observers with even moderately dark skies and a scope 12 inches or larger will find that 604 is more than a shapeless blob. I first started observing 604 with a 20 inch scope years ago and was immediately struck by what appeared to be two overlapping triangles of nebulosity. It took about 250x for the shapes to be apparent and they become easier to see with increasing magnification, a benefit of 604's high surface brightness.

If you have a dark sky you might also notice a fainter fan of nebulosity curving away from the brighter triangle, and a slightly fainter halo around both triangles. Although I've tried my best to see the arc as shown in the HST image above, I've so far come up short. However, Jimi has seen it with his 48 inch scope.



This is my latest sketch from the 2013 Oregon Star Party on a night with consistent SQM readings of 21.85 and excellent seeing. Using around 700x, small stellar points glimmered into visibility. I've been able to boost magnification to 1250x with my 28 scope to best see them. I'm not sure if I'm seeing individual stars in 604, because they could be compact groups of stars or highly compressed parts of the nebulosity, but each time I see them I'm astonished to be able to detect this level of detail from 3 million light years away.

Uwe Glahn

one of my favorites which I visit very often. I have a small project ([DS challenges](#)) on my website which is only in German. I try to translate my experiences with this object.

First look inside NGC 604 gave my Frank Richardsen in his 20" around 10 years ago. In his scope several spots were visible which fascinated me. After that I tried the object with lots of scope stuff and waited the best Seeing conditions I could get to resolve as much star cluster I could.

10x50; NELM 6m5+
not visible, star GSC 2293642 1' SE easy visible but not the HII region

4", 63x-113x, NELM 7m+
NGC 604 easy visible, a little bit concentrated to its middle ([sketch](#))

20", 830x, NELM 7m+, Seeing II
four spots are visible with averted vision, form of a triangle, fifth spot pops in and out of view

27", 837x, NELM 7m+, Seeing I-II
shocking resolution of the central triangle into four spots; altogether 14 spots could be resolve, perhaps a few foreground stars; no nebulous detail, no positive filter reaction; perhaps AP to small



I spoke with several people who also observed this central triangle. I think you have it also on your sketch. To resolve this triangle you need very good seeing, which seems to be more important than aperture (I know some sketches and observation with 32" and 44")

Thomas Jensen

Funny, I was thinking yesterday of suggesting this object as an OOTW. I've observed it recently quite a few times in my 12" dob. The scope has very poor optics, unfortunately, but still I'm able to begin to glimpse mottling and some uneven shape in this fascinating object. I've seen it in scopes as small as a 50mm Zeiss refractor and regularly see it in my

63mm Zeiss. I tried for it with a 42mm refractor, but couldn't see it. In a 5" f/14 refractor at 140x, I distinctly saw its irregular elongated shape and hints of mottling.

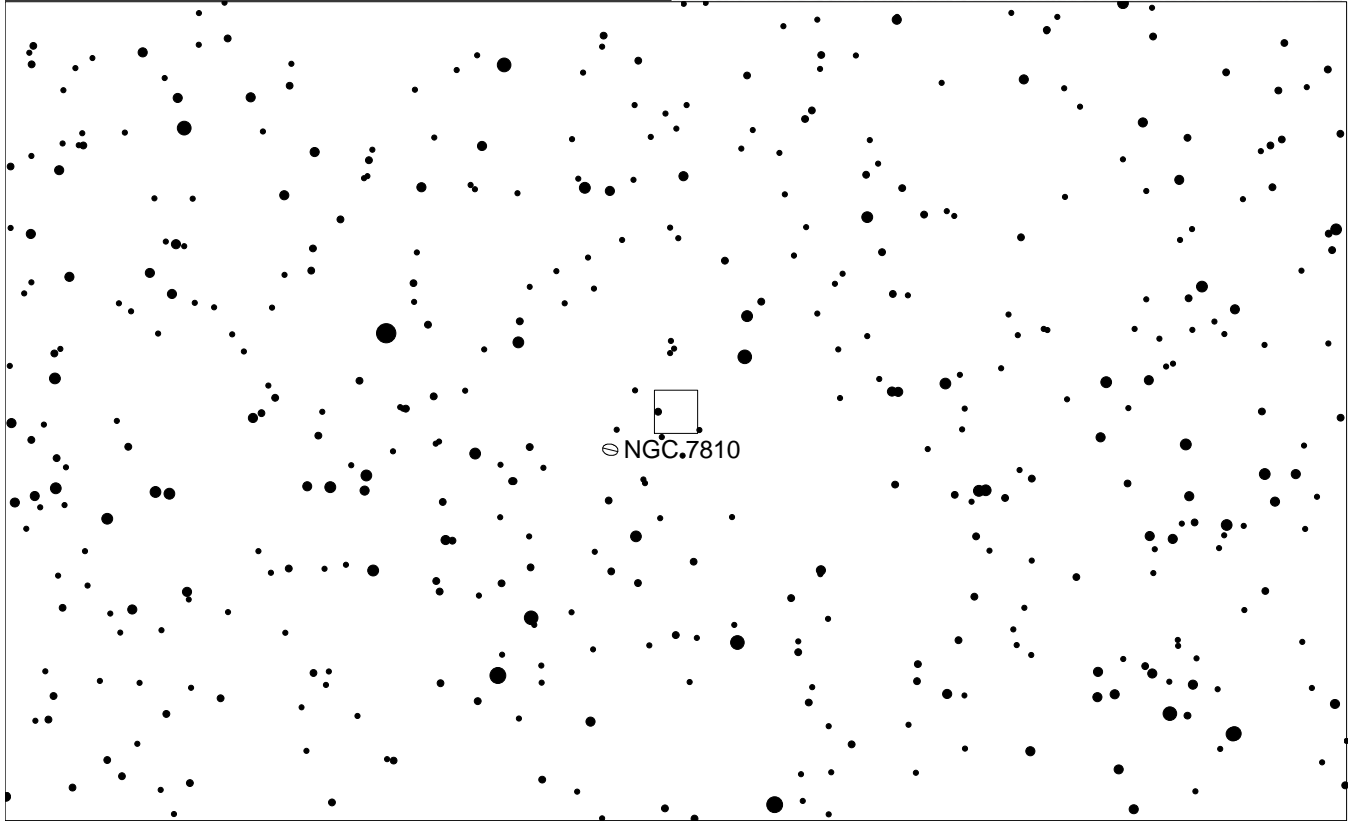
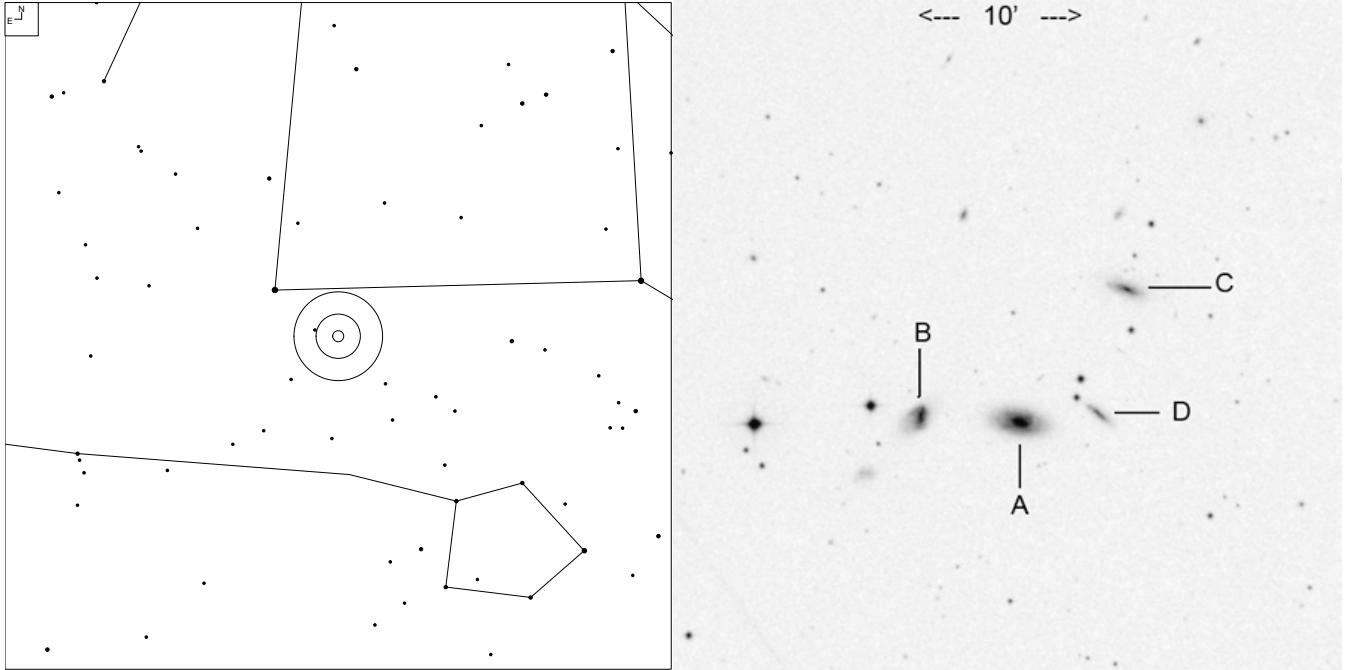
Jimi Lowrey

The first time I looked at NGC 604 with the 48" was last year I was shocked at seeing the loop in the nebula. Has anyone else seen this feature in NGC 604? I was using 813x on a night of good seeing.



Image showing the loop

Hickson 100 (Pegasus)



Object	RA	Dec	Mag	Size
100A – NGC 7803			14.1b	1.2' x 0.7'
100B – Mkn 934			15.3b	0.8' x 0.5'
100C – MCG +2-1-9	00 01 20.0	+13 06 40	15.9b	0.8' x 0.4'
100D – MCG +2-1-10			16.6	0.6' x 0.3'

Hickson 100 (Pegasus)

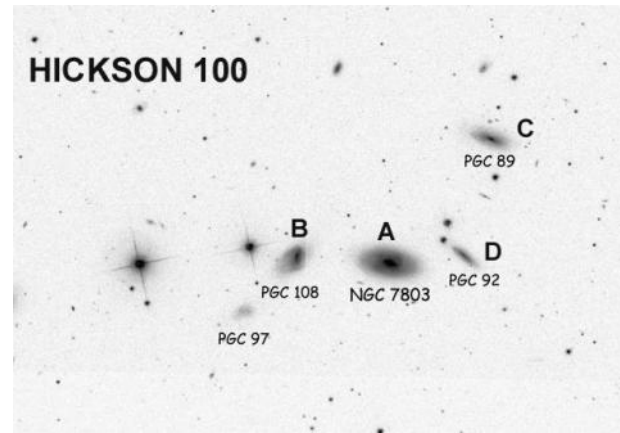
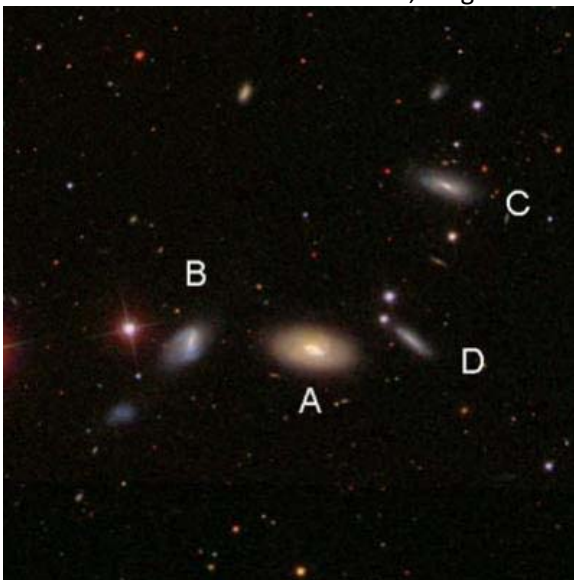
Paul Alsing

I spent 4 days this last new moon at CalStar, an informal star party in northern California. The skies were dark but the transparency and seeing were about average, in my view, but the great friends in attendance more than made up for any deficiencies. More patience than usual was required to see details, we just needed to wait for those moments of improved seeing to tease out the faint stuff.

One night I spent 6 hours just cruising around in Pegasus, together with several friends, we started when it was half way up the eastern sky and ended when it was half way down the western sky, staying high on the ladder most of the night. There are 7 Hickson galaxy groups in Pegasus and we observed all of them. I thought that Hickson 100 was just a little better than any of the other groups, it just seemed to be more pleasing, somehow. Maybe the seeing improved during the time we observed it, or the transparency, but whatever the reason, it was a fine view.

HICKSON 100 is comprised of (4) components, as follows (magnitudes from SkyTools);

HCG 100A = NGC 7803 = PGC 101 = UGC 12906 = MCG +02-01-011 = CGCG 433-013, mag 14.1 B
HCG 100B = PGC 108 = Markarian 934 = MCG 2-1-12, mag 15.3 B
HCG 100C = PGC 89 = MCG 2-1-9, mag 15.9 B
HCG 100D = PGC 92 = MCG 2-1-10, mag 16.8 B



My 25" Obsession has a new set of 10,000 tic encoders and the Argo Navis put Hickson 100 almost dead center in the FOV using my 13mm Ethos, my favorite eyepiece. The anchor galaxy of the group, NGC 7803 (HCG 100A), was obvious but small, presenting as slightly oval in the E-W direction, with an evenly illuminated disk and a brighter core. About 1' to the NW of this galaxy is a 16" pair of mag 14.3/15.2 stars, making a very pretty picture.

About 1.3 to the E is HCG 100B, more than a full magnitude fainter than component A, but still obvious with direct vision. I saw no structure whatsoever, it was just a hazy area near a mag 12 star to its east.

Just over 1' west of HCG 100A is HCG 100D, and although this guy is nearly 3 mags fainter than Component A, it has a high enough surface brightness due to its smaller area that it flickered in and out with regularity, and after a while it was resolved as a faint 4/1 elongated streak that pointed at the dimmer member of the previously mentioned wide double NW of NGC 7803.

The 4th and last member of Hickson 100, HCG 100C, is located 2.3' NW of NGC 7803, but it is not the dimmest member, being about a magnitude brighter than HCG 100D. With the effort required to see HCG 100D, HCG 100C was an easy score on this night.

All members of Hickson 100 fit easily into the FOV of the 13mm Ethos, and even fit in the FOV of the Meade 8.8mm UltraWide. The other labeled galaxy in the photo, PGC 97, was not seen, even though it has the same stated magnitude as component D, @

mag 16.8, its surface brightness was much lower, due to its extended surface... and none of the even fainter galaxies that are obvious in the photo were even considered :->

Uwe Glahn

I only knew the group through a 14,5". I could see all 4 members but HCG 100d (PGC 92) was at the limit for the 14,5". I could not hold it, it only pops in and out of view. I also could not see PGC 97. ([sketch with 14,5"](#))

Reiner Vogel

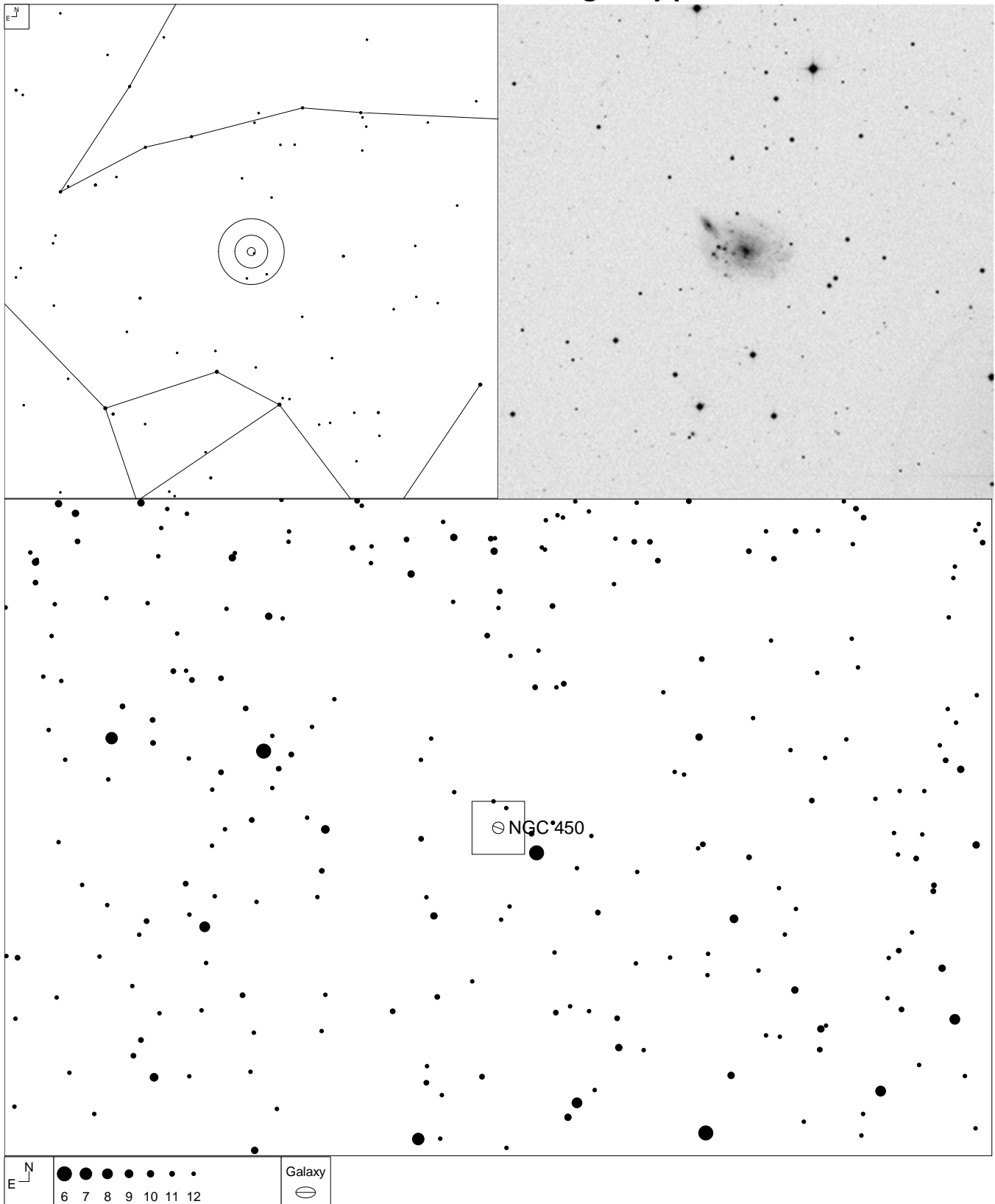
I still remember the night when I observed Hickson 100 for the first time. It was several years ago and I observed in fall, all by myself, and at a remote location next to a forest where I had never observed before. Sometime during that night, some animal was bumping heavily against my rocker box

and my heart almost failed. I never found out what it was (well, it was dark), probably a hedgehog or something of similar size. Nevertheless, it took me quite a while until I calmed down again ...

Back to Hickson 100: I remember the group to be quite nice and not overly difficult, despite all members were indirect vision objects to me (well I did not try hard probably :-). A was quite distinct and concentrated, B was much more diffuse and a bit more difficult. C was much smaller and again more concentrated. I was not sure about D. I suspected it every once in a while, but the two nearby "bright" stars that you mentioned were a bit disturbing. So I am not certain about D.

The observation was with my 22" Dob under fair, but not very good conditions. And, I never went back to that place for observing...

NGC 450/UGC 807, a discordant galaxy pair in Cetus



Object	RA	Dec	Mag	Size
NGC 450	01 15 30.4	-00 51 41	11.6v	3.1' x 2.3'
UGC 807			15.7b	0.9 x 0.4'

NGC 450/UGC 807 a discordant galaxy pair in Cetus

Uwe Glahn

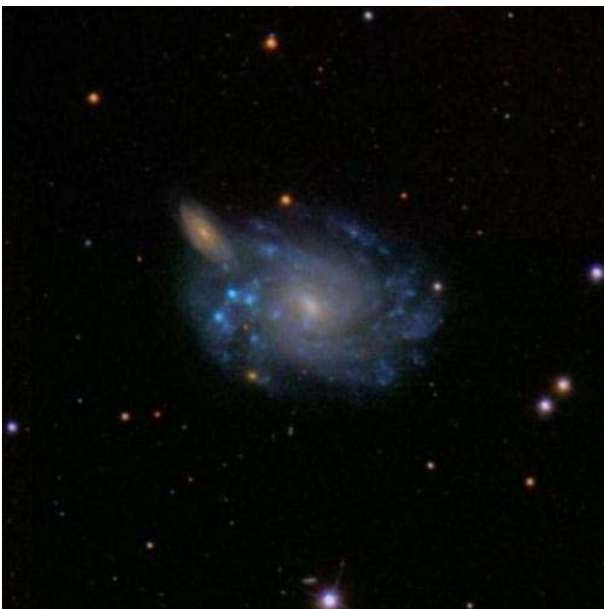
Discovered by F.W. Herschel in the year 1785 - NGC 450 seems to be a normal SAB(s)cd spiral in the sky. "Hand GoTo friendly" 12' NE of the 5,7mag bright 38 Cet the galaxy should be visible even with a small 4" aperture telescope.

A second view shows a fainter companion at the NE edge – UGC 807. The different redshift and radial velocity numbers seems to show an unmistakable situation. While NGC 450 is calculated 64 Mio Lj, UGC is around 8 times more distant with 484 Mio Lj (NED). [Rubin and Ford](#) measured their rotational velocities 1983 and concluded that both galaxies are not physically associated.

[Moles et al](#) again studied the galaxy pair 1994 and conclude the opposite. Their studies showed that both galaxies interacting with each other.

Nevertheless the observation of these two "discordant" galaxies seems very interesting. With a brightness of 15,7bmag the fainter UGC should be visible as a faint spot from perhaps 12"-14" range? A 20" showed the UGC as a prominent companion with hints of elongation. The 27" showed the pair as a wonderful object – both galaxies bright and easy.

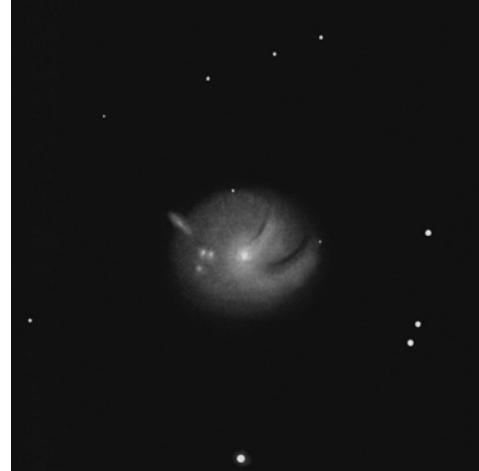
Aside from the companion NGC 450 sowed some bright HII regions at the eastern edge which should be in reach of a 16"-18" telescope.



SDSS image



HST



sketch with 27" (27", 419x, NELM 6m5+, Seeing III)

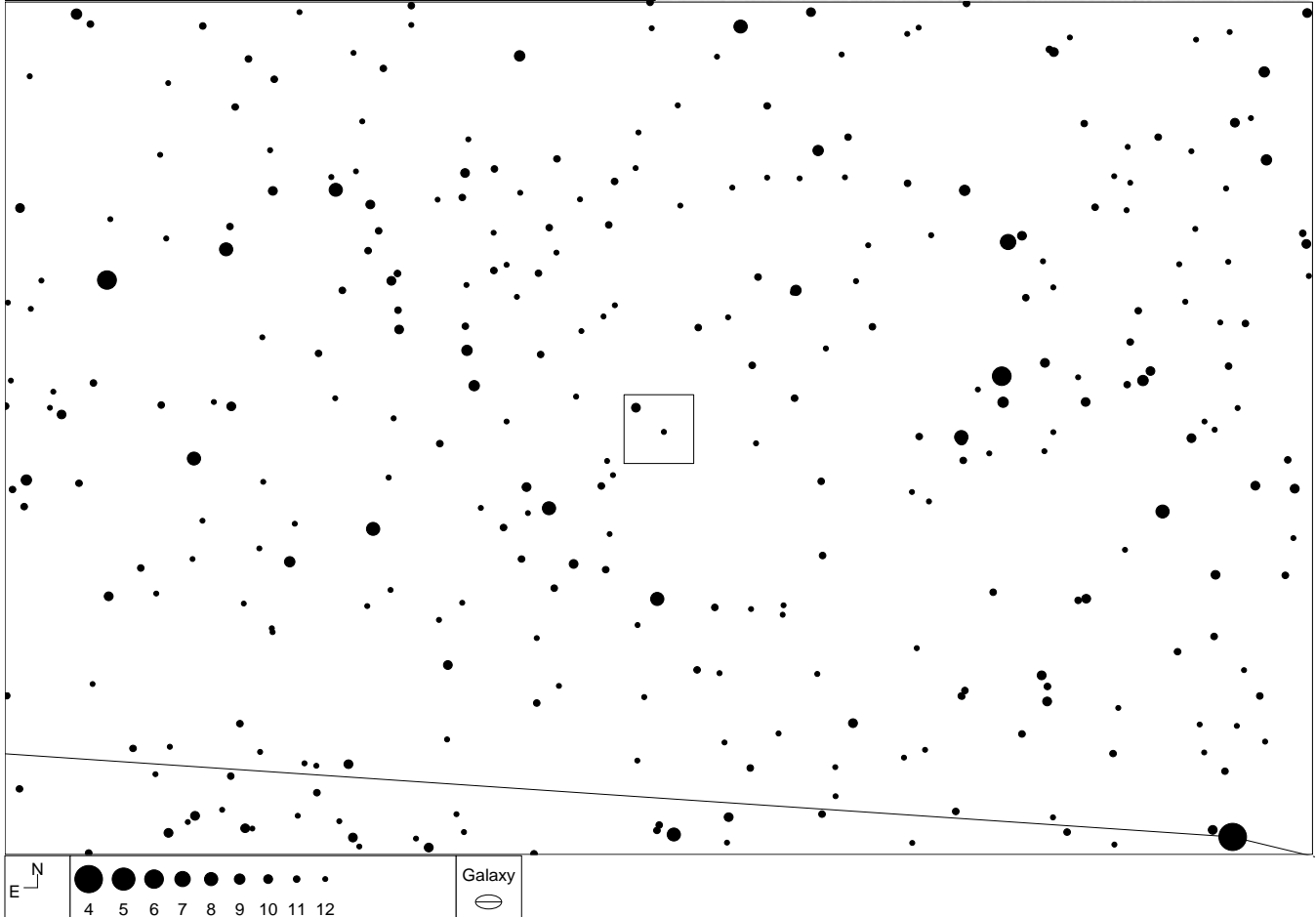
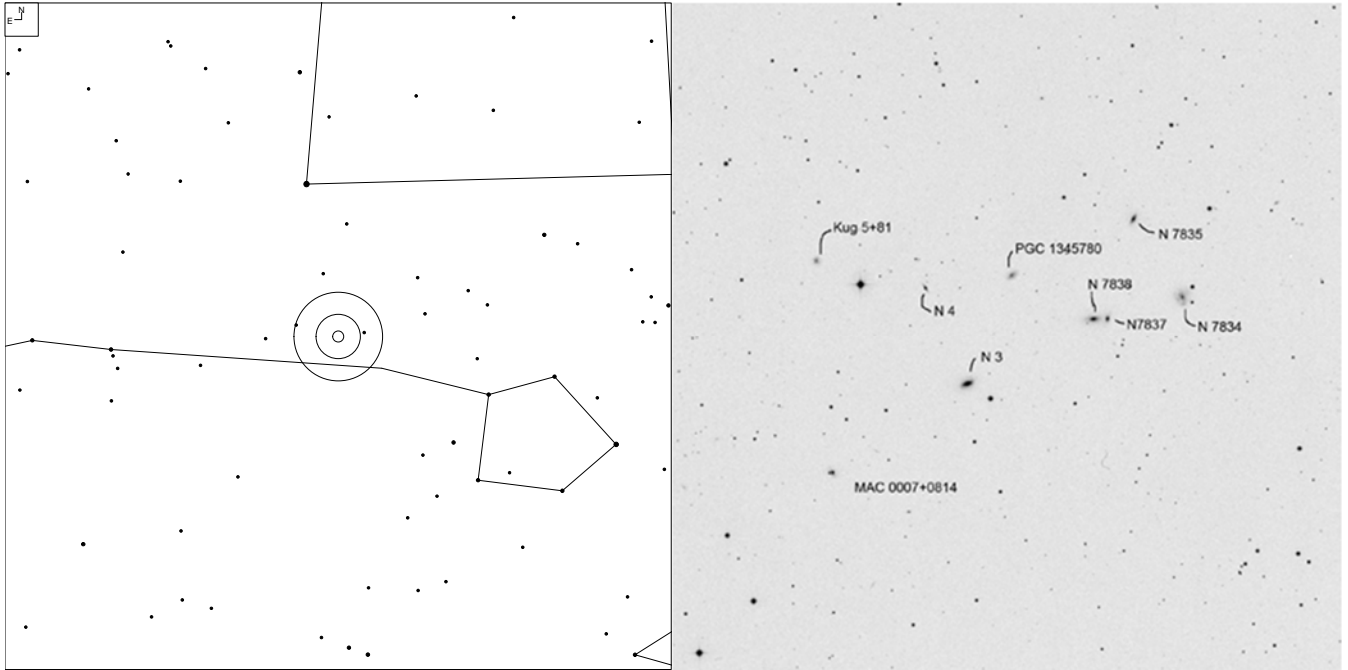
Steve Gottlieb

I took a look at this interesting "overlap" pair a couple of years back with Jimi's 48-inch and missed the structure you sketched on the west side of the galaxy.

At 610x this double system is dominated by NGC 450, which appeared bright, large, 2.3' diameter. Sharply concentrated with a relatively large 30" bright core, surrounded by a very large, low surface brightness halo. The halo is slightly asymmetric and more extensive on the west side.

Three faint "stars" are superimposed on the east side of the galaxy; two appear stellar, but the faintest and most westerly object is clearly "soft" at 610x. These are apparently HII knots in the galaxy and the southeast object is listed in NED as UM 311 from the University of Michigan Emission Line Survey. UGC 807 is attached at the NE side of the halo, 1.4' between centers. UGC 807 appeared fairly faint, fairly small, elongated 5:2 SW-NE, 0.7'x0.3', even surface brightness except for a very small brighter nucleus.

NGC 3 Group, the beginning and end of the NGC (Pisces)



Object	RA	Dec	Mag	Size
NGC 3			14.2b	1.2 x 0.6'
NGC 4			16.8b	0.4 x 0.2'
NGC 7838	00 07 09.7	+08 20 16	15.3	1.0 x 0.3'
NGC 7387			15.4	0.5 x 0.3'
NGC 7835			15.5	0.9 x 0.4'
NGC 7834			14.9p	1.2 x 0.9'

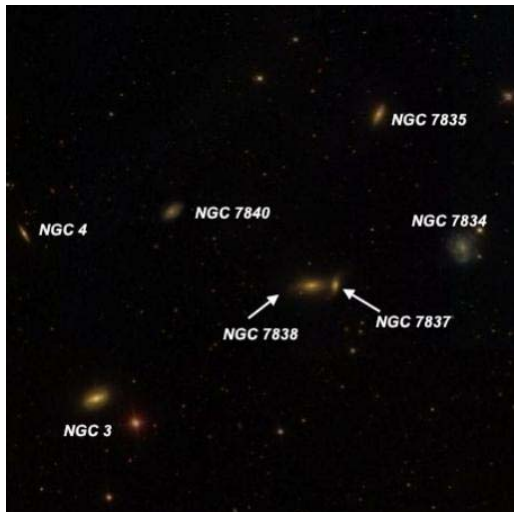
NGC 3 Group, the beginning and end of the NGC (Pisces)

Steve Gottlieb

This collection of 7 NGC galaxies in a 10' field holds an interesting distinction -- it contains several of the last numerical entries of the 7840 listings in the NGC as well as a couple near the beginning. On 29 Nov 1864, Albert Marth discovered this entire group using William Lassell's 48-inch equatorial reflector on Malta. In 1860 coordinates, NGC 7834, 7835, 7837, 7838 and 7840 were measured between 23h 59m 26s and 23h 59m 56s so occur at the end of the NGC, but NGC 3 and 4 just crossed over the 00h threshold and appear at the beginning of the NGC. So, someone casually scanning the NGC in numerical order might not be aware the end and beginning were connected!

But are they a physical group? NED gives recessional velocities for NGC 7834 and NGC 3, which imply a distance of ~200 million l.y. But NGC 7835, 7837 and 7838 have recessional velocities roughly 2 1/2 to 3 times as large, indicating a distance of ~500 million l.y.

NGC 3, the brightest galaxy at $V = 13.3$, should be visible in a 10-inch scope, but the other galaxies from $V = 14.3$ to 15.9 can be challenging in an 18-inch scope. The most interesting is NGC 7837/7838, a contact pair just 0.6' between centers. It requires good seeing in my 18-inch to resolve this duo. NGC 4, at $V = 15.9$, is the faintest member and required averted vision to glimpse with this scope. The RING misidentified PGC 620 as NGC 4 (this galaxy is located 19' SE of NGC 3 - nowhere near Marth's position), so beware -- you may find NGC 4 misplotted on amateur software.



Finally, if you're successful with NGC 4, give PGC 1342413 = MAC 0007+0814 a try (7.2' SE of NGC 3) as well as KUG 0005+081 (8.8' NE of NGC 3). How many of these can you find?



Reiner Vogel

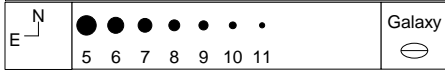
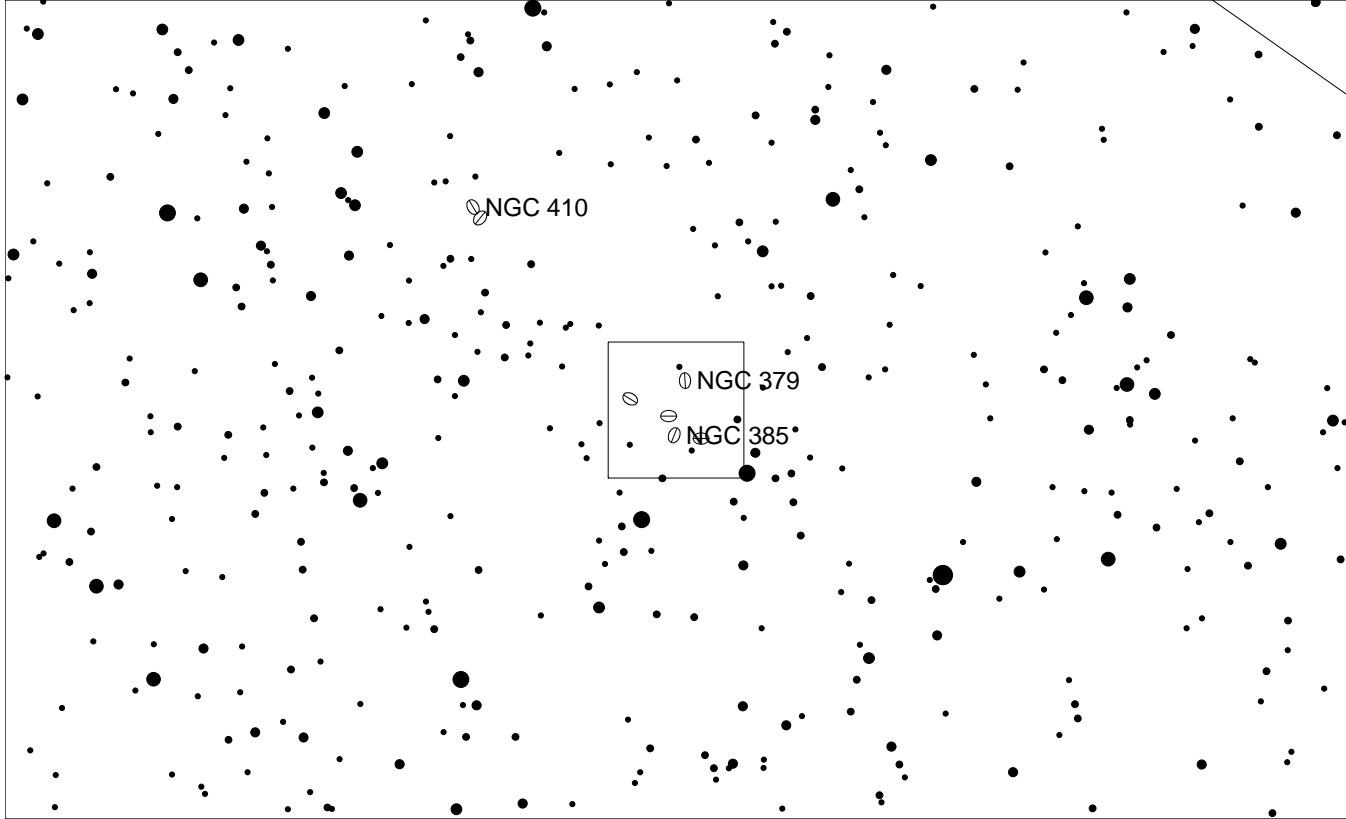
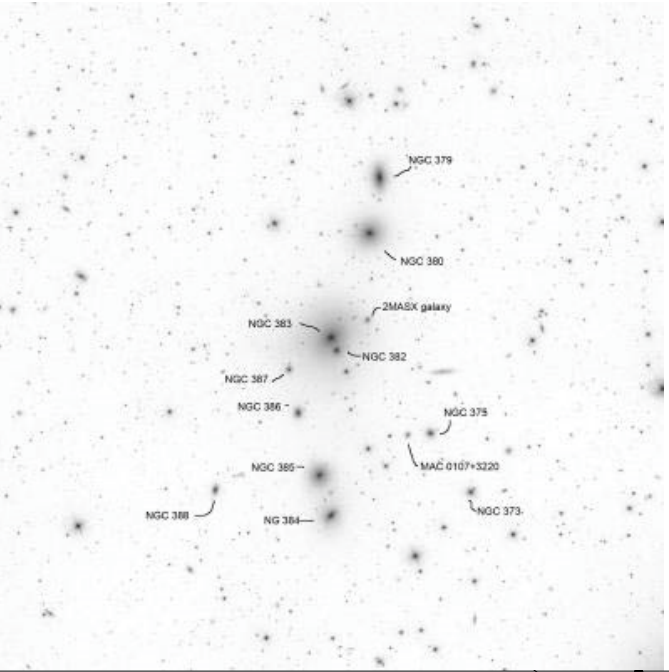
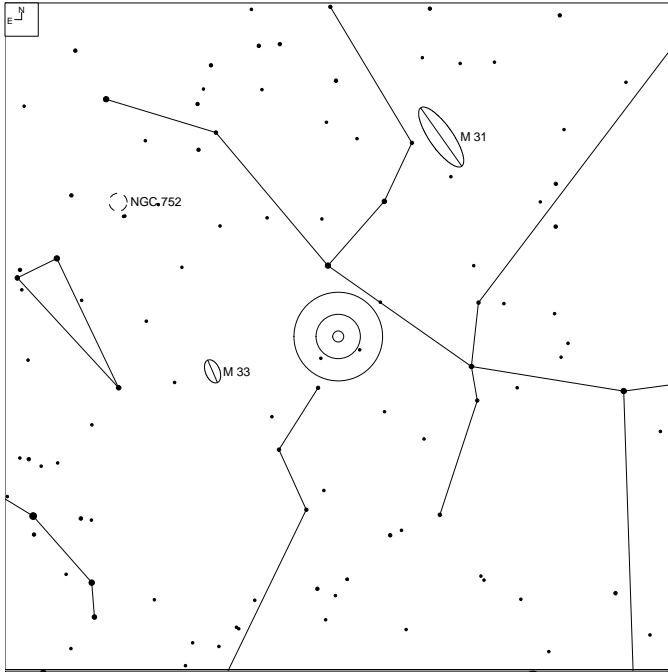
I had marked this group in my Sky Atlas, but never actually tried to observe it. So I gave it a try yesterday night, which was quite humid with below par transparency.

NGC 3 was, as expected, very distinct and elongated next to the star. 7838/37 were distinct already with direct vision as an obvious clump, while clearly separating the two galaxies was more difficult. 7835 was as well quite difficult and could be seen only with averted vision and not all the time. The same for NGC 7834, the face on spiral, which popped in only from time to time as a very faint diffuse patch (borderline). Here, the two neighboring stars are a bit distracting.

I was uncertain about 7840, which was again more difficult than the other four. I have to revisit this group under better conditions to be sure about this member of the group. I therefore did not spend much time with NGC 4, which appears on the DSS even fainter and which I did not see.

Definitely a nice group of galaxies, in particular with the knowledge that 4 and 7834 are likely foreground objects.

NGC 383 chain (Pisces)



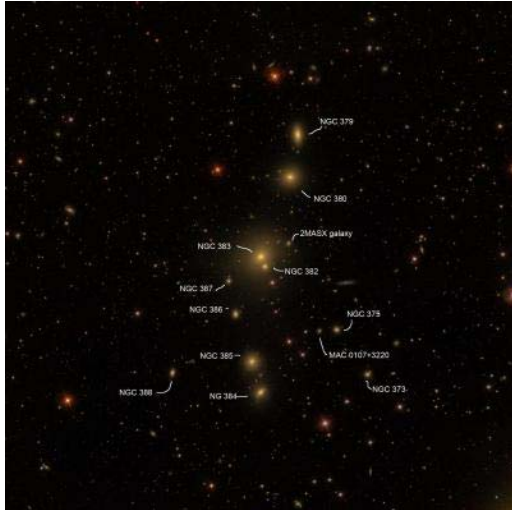
Object	RA	Dec	Mag	Size
NGC 383			12.8	1.8 x 1.8'
NGC 379			12.8v	1.4 x 0.9'
NGC 380			13.6b	1.3 x 1.3'
NGC 382			14.2p	0.7 x 0.7'
NGC 386	01 07 25	+32 24 47	14.3v	0.8 x 0.5'
NGC 385			12.9v	1.2 x 1.0'
NGC 384			13.1v	1.1 x 0.9'
NGC 388			14.3v	0.9 x 0.8'

NGC 383 chain (Pisces)

Alvin Huey

This week I decide to select an easy object, actually chain of galaxies. NGC 383 is a nice bright chain of 8 NGC galaxies ranging from mag 12.8 to about mag 15.5. This group is also known as the Pisces Group.

This group is suitable for 8" or larger scopes. I observed it last week with my 22" scope at a fairly dark site in the western slopes of the Sierras. This was a pretty fun group.



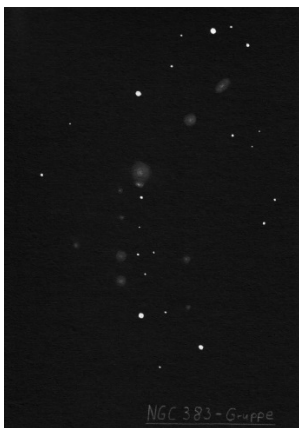
SDSS image

Al Lamperti

Saw 6 of the 8 in this group in 2001 with a 20". The Seeing and Transparency were less than ideal; both 5/10. Hope to take a look tonight with the 22".

Uwe Glahn

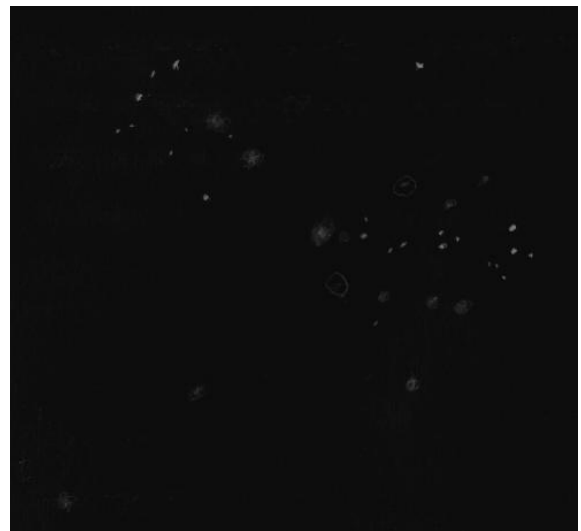
And a wonderful object. Perfect for starting the love for galaxy chains. I could see 11 galaxies with my old 16".



sketch: 16", 189x, NELM 6m9

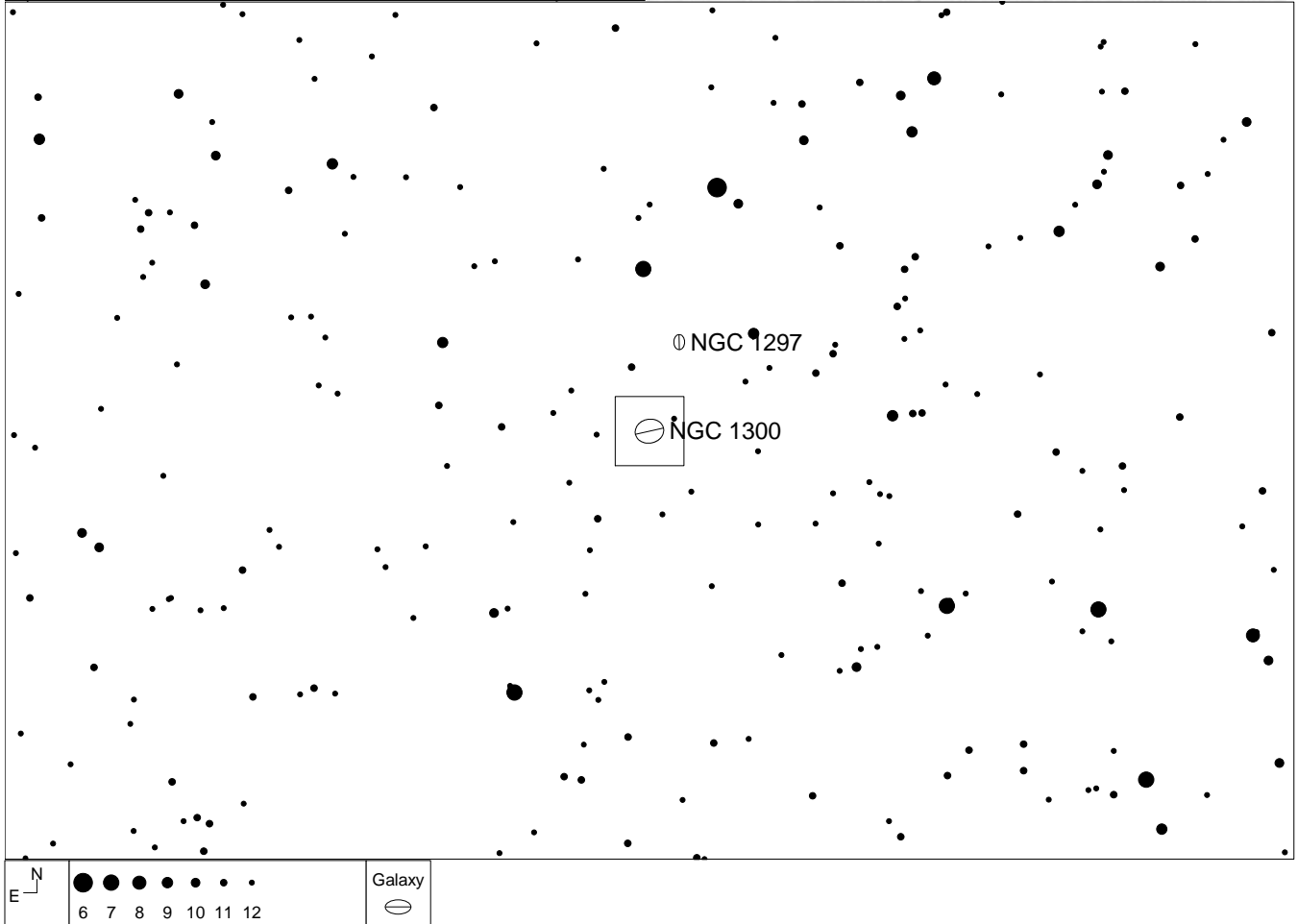
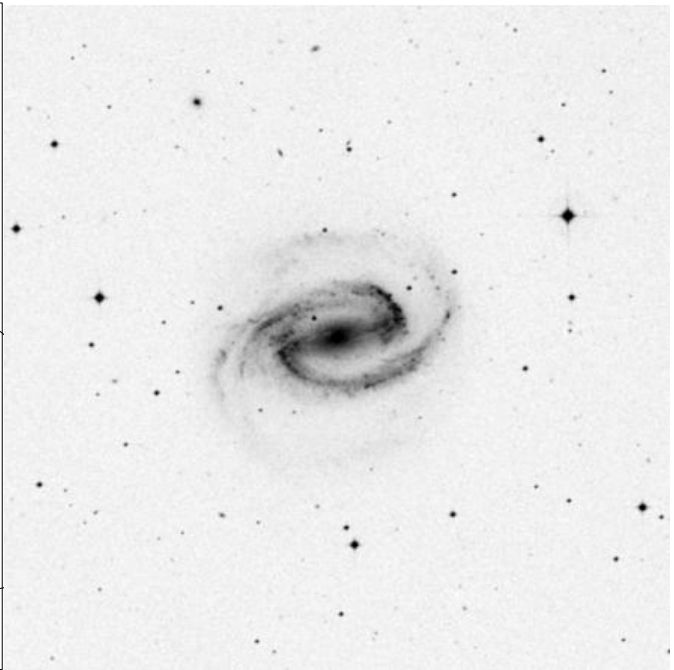
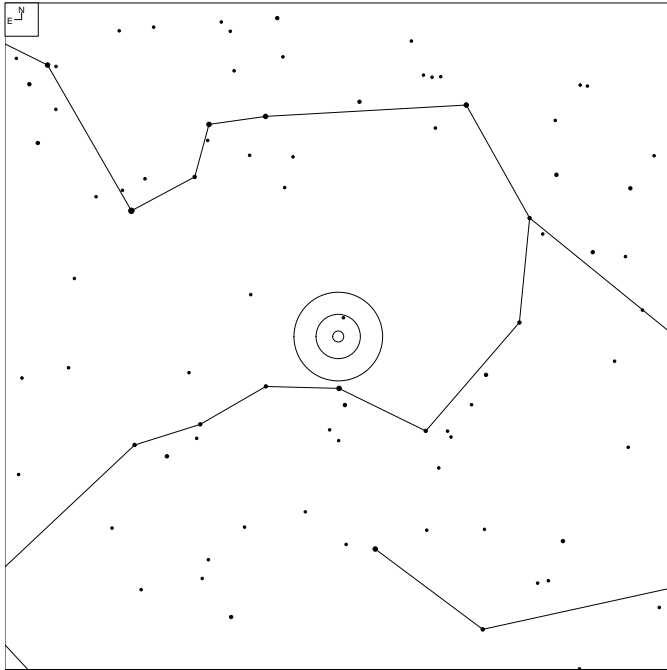
Howard Banich

I have an old observation of the Pisces Chain, and this reminds me that it would be a good idea to re-observe it again soon - it is a fun a group! I used my old 20 inch f/5 scope for this observation and used 227x and 359x to make my unfinished sketch.



"A beautiful string of galaxies with only one really faint tough one. Galaxy Clusters are all over this part of the sky, I could spend several hours galaxy hopping..."

NGC 1300 (Eridanus)



Object	RA	Dec	Mag	Size
NGC 1300	13 19 40.8	19 24 41	10.3	5.9 x 4.9'

NGC 1300 (Eridanus)

Dragan Nikin

Discovered in 1835 by William Herschel, NGC 1300 is the embodiment of a face-on barred spiral galaxy. Lying approximately 61 million light years towards the constellation Eridanus, NGC1300 is a prominent member of the Eridanus Cluster, a galaxy cluster containing approximately 200 members.

During my research of this week's object, I learned that NGC1300 contained a "grand design" spiral structure or "spiral disk", a feature commonly observed in the cores of galaxies that contained a large prominent bar. (This is a feature visible in the attached HST pictures) Theory was that these spiral structures, within the core of a barred spiral galaxy, would feed gas from the bar to a black hole situated at the core of the host galaxy. The problem was that NGC1300 wasn't believed to contain a blackhole. Early observations did not indicate a blackhole existed at the galaxy's core. Why did 1300 contain this spiral structure so commonly associated with blackholes but *not* host a blackhole? Digging further I found that in 2005, a team of astronomers released a paper announcing the discovery of a blackhole. The paper revealed that NGC1300 contains a blackhole on the order of 66 million solar masses! So not only does NGC1300 have a blackhole, but it contains a supermassive blackhole! <http://arxiv.org/ftp/astro-ph/papers/0502/0502573.pdf> What I personally don't understand is how so many sources online still reflect the old theory of NGC1300 not containing a blackhole.

In the eyepiece, this weeks OOTW is always a spectacular sight. In my 25, both arms are visible with the bar being somewhat bright and elongated. I even tend to see some mottling. I have also found that the southern arm tends to be more prominent than the other. And though I've read reports of some observers having seen NGC1300 in scopes as little as 8" in aperture, I'm not certain what the smallest scope that is needed to make out any arms or bar.

One last note, being placed at -19 in declination makes it a decent target for mid latitude observers both north and south of the equator! So next time you're out, be sure to give NGC1300 a good onceover.



DSS



(Hubble Space Telescope)



Hubble Space Telescope Core

Ivan Maly

Actually a John Herschel discovery made from South Africa. I believe I have seen some of John Herschel's galaxies in that region of the sky but not this one.

Uwe Glahn

Unfortunately the object is very low in the sky here from Germany. That is why the galaxy is not so famous here...sad but true. I tried it with my 16" from an Alpine site and could easily see the both arms. I revisit the galaxy from Namibia 2009 and 2011 and what a burner especially in the 24".



16", 180x, NELM 7m+, Seeing II (Bieler Höhe, Austrian Alps)

Dragan Nikin

It doesn't get exceptionally high here either but it does get high enough above the crud in the southern sky to make it a worthwhile visit. John Spack was out last night with average conditions and was able to see it in his 18". He described it over the phone to me as an elongated glow with some mottling. He was unable to discern the arms he said.

Unfortunately, I had to work and was unable to join him. 🙄

I did observe NGC 1300 in Oct of 2009 with Jimi and the 48". Without it needing to be said, the view was astonishing as it was truly a fantastic sight!

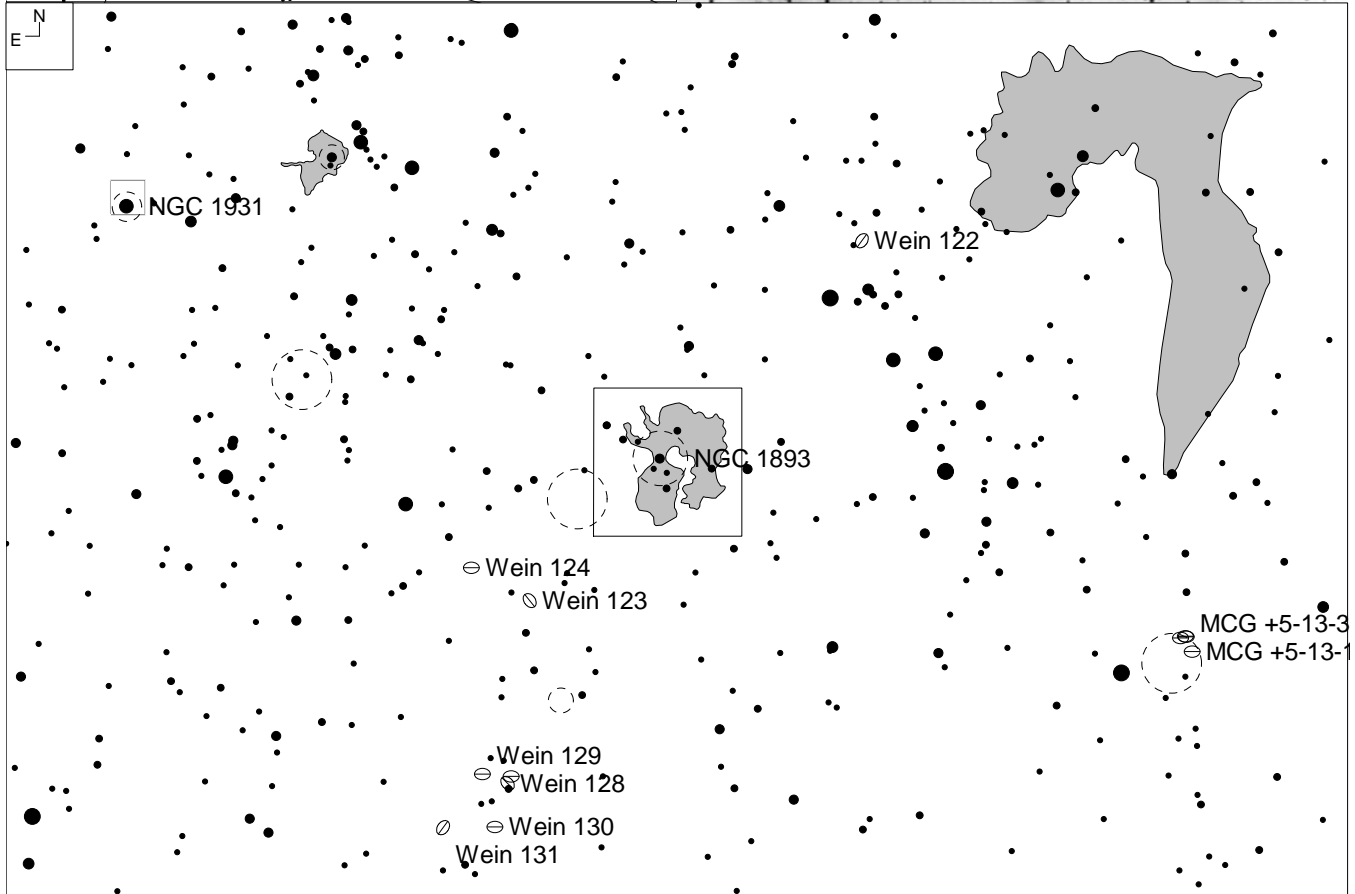
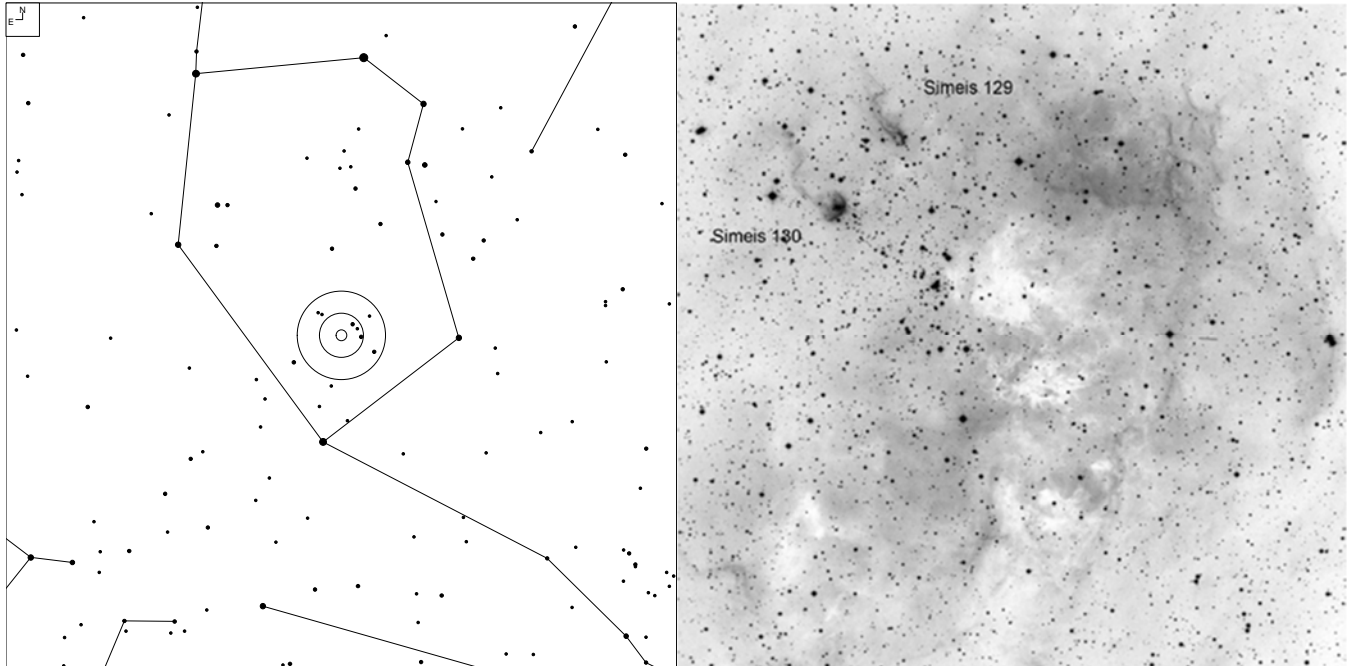
Steve Gottlieb

I'll throw in my notes with Jimi's 48-inch from a couple of years ago. I was hoping to get another look earlier this month in his scope to resolve some of the HII regions at higher power, but we didn't get around to NGC 1300.

I took a look at the preprint that Dragan referenced (thanks!) and the mass of the black hole the authors modeled is actually closer to 65 million solar masses.

48" f/4 (10/25/11): This prototype barred spiral was mesmerizing at 375x. Running roughly E-W through the center is a long bright bar, ~3' in length. The center is sharply concentrated with an intensely bright 1' core that continues to increase to a stellar nucleus. At the west end of the bar a fairly bright arm emerges and hooks back dramatically to the east (counterclockwise) to the north of the bar and continues to the NE end of the galaxy. The arm is brightest in the thick arc, oriented SW-NE, where it attaches to the bar. The central section of the arm to the north of the core is slightly fainter and then brightens slightly on its northeast end. A mag 15.5-16 star is superimposed in the gap between this arm and the core, 45" NE of center. The second arm emerges at the east end of the bar and is brightest initially in a fairly thick arc extending counterclockwise to the SW. This arm is slightly more separated from the core as it gracefully curves to the southwest side of the galaxy. The arms extend the overall size of the galaxy to 5'x3' WNW-ESE.

The two Tadpoles of IC 410 in Auriga



Object	RA	Dec	Mag	Size
IC 410	05 22 25	+33 27 00	-	25.0 x 20.0'
Simeis 129	05 23 08	+33 28 40		
Simeis 130	05 22 58	+33 32 29		

The two Tadpoles of IC 410 in Auriga

Reiner Vogel

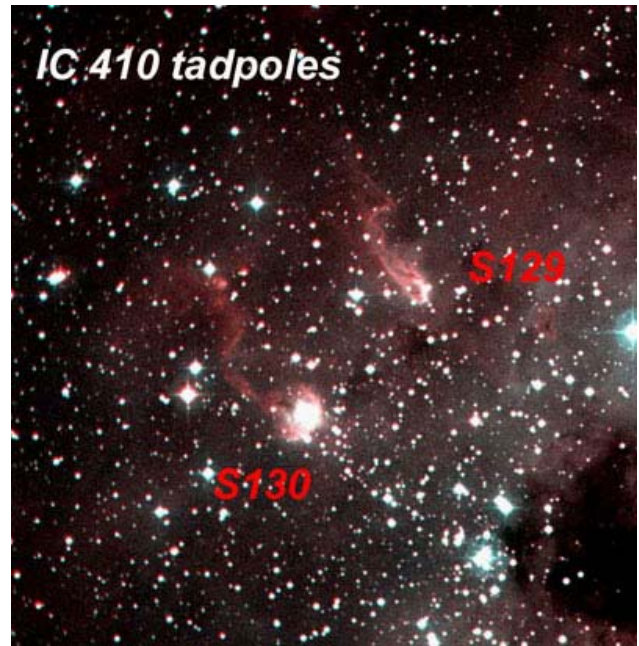
Type: Dense Globules in Emission Nebula

Despite being not listed in either the Messier catalog or the NGC, IC 410 is a very conspicuous and bright emission nebula in Auriga. With UHC or OIII filter, it is distinctly visible from my suburban backyard using my small 4.5" reflector as a faint smudge. With larger telescopes, it is an interesting object with a horseshoe shape plus internal dark and bright structure and a central cluster of new stars.

The Tadpoles in IC 410 are so-called globules, which may be the birthplace of new stars. These globules are eroded by the radiation of the central star cluster similar to the Pillars in M16. The side of the globules that faces the cluster is excited and is visible as a bright rim.



Despite there are many beautiful pictures of these tadpoles, as for instance by Richard Crisp [here](#) as narrow band image, I did not find any observing reports of them when I tried to observe them for the first time about 6 years ago. In February 2008, I finally succeeded in observing them at the first try. In the meantime, they even made it into Sue French's Deep Sky Wonder column in Sky and Telescope (01/2010, p65), where I found out that they even bear designations of their own, Simeis 129 and 130.



The brighter of the two globules, bearing the name Simeis 130 and being the left one in the close-up left, is relatively easy and well within reach of a 12". It reacts well to filters and in particular to the UHC filter, appearing as a small extended brighter patch with a superimposed group of three very faint stars.

The second tadpole (upper right, Simeis 129) is more difficult, partly also due to the star superimposed on the bright rim of the globule, but well within reach of my 22" using filtering.

My first observation in 2008 was with my 22" under pretty murky skies, maybe mag 5.5 at the city border of Freiburg, Germany. Nevertheless, the brighter one of the globules could be observed easily with UHC using averted vision. The OIII and H beta filters were not as helpful as UHC. Since then, I have revisited IC 410 and the Tadpoles numerous times, but not for the past two years. It's therefore on my list as well for the next clear nights.

Uwe Glahn

I tried both globules with my 16" a few years ago. With 140x (AP 2,9mm) + UHC both were visible. I noted a very good response on a UHC filter with a distinct blinking effect. SE tadpole was much easier than the NW and was visible as a round, diffuse patch of light. I could only pick up the central bodies of the globules, not the fainter extensions.

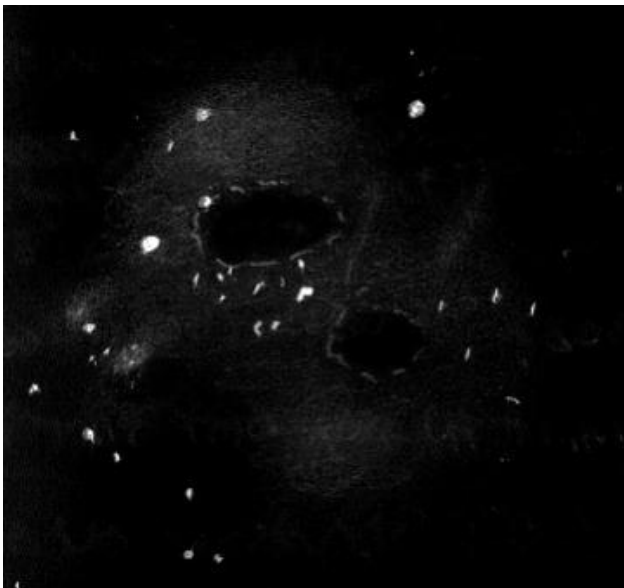
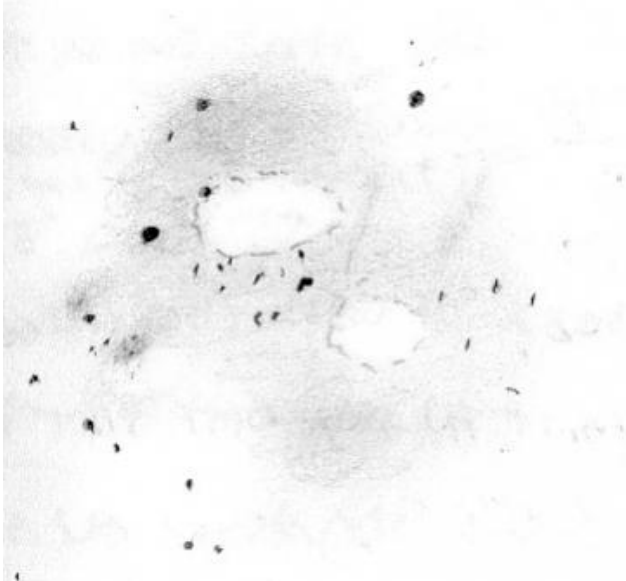
Howard Banich

I was just going through my notes looking for inspiration for my next OOTW and came across two observations of IC 410 I'd forgotten about with my 28 inch f4:

"Lots of nebulosity seen at 105x and the OIII filter, I was surprised how much I could see even though the 3rd quarter Moon rose during the observation. I was looking for the Tadpoles but not sure I saw them but i did see two definite streaks. 20.96 SQM"

"I saw the Tadpoles pretty easily with the OIII at 105x and added them on my January 17 2009 sketch (the first observation above). 21.80 SQM but partly cloudy"

And here's the rough sketch:



Reiner Vogel

I took the chance last night to re-observe the tadpoles with my 22". Conditions were so-so with a thin high cloud layer and a limiting magnitude below 6.0. I therefore only tried the brighter one of the two.

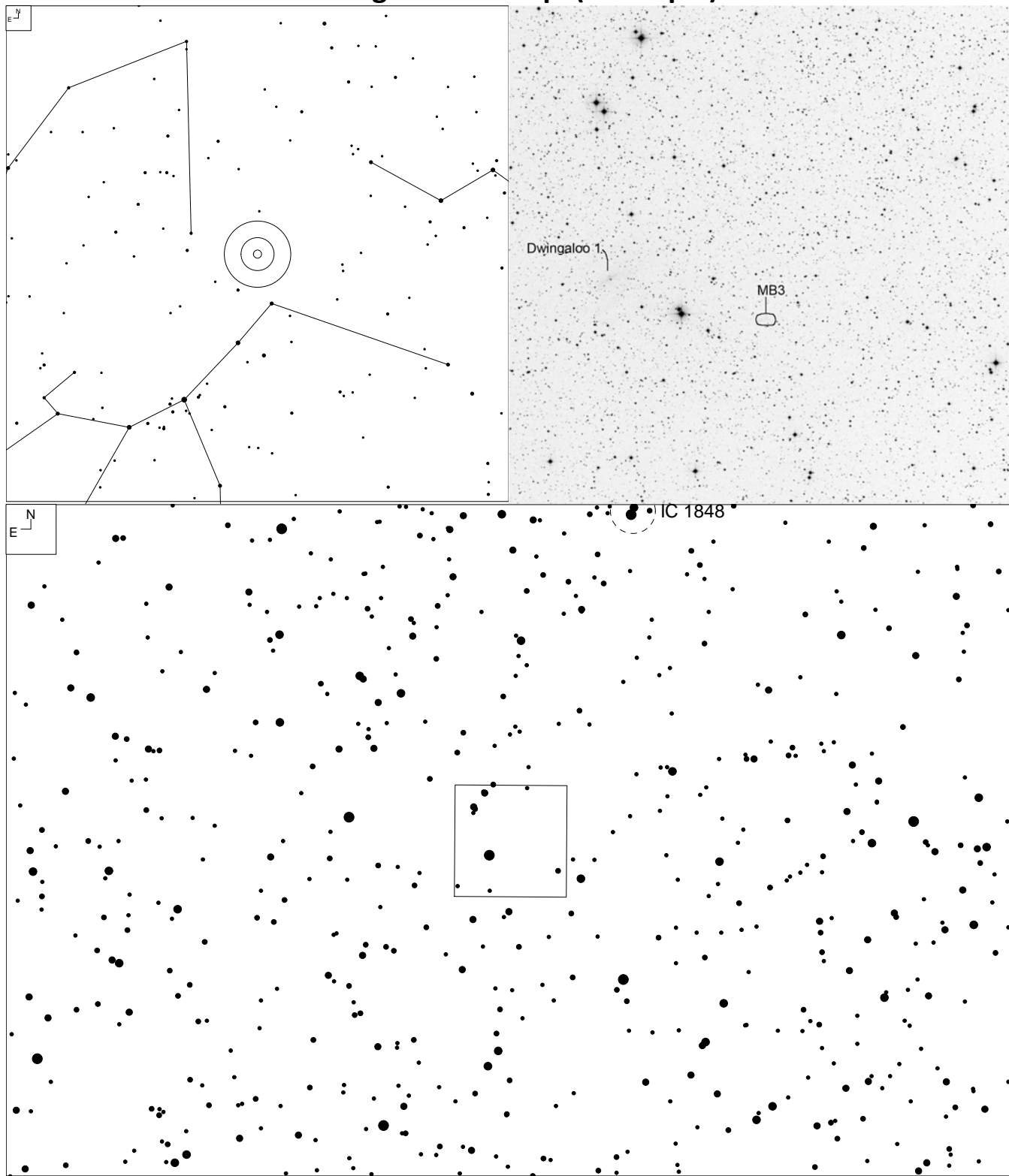
Visibility depended considerably on the exit pupil. With my 13 mm Nagler (exit pupil 2.9 mm), the core of the brighter globule was well visible as a faint round patch superimposed on one of a group of faint stars using either OIII or UHC filtering. No tail was visible. With my 7 mm Nagler (ep 1.6 mm), which I routinely use for such small objects, it became very difficult to resolve this round patch from the stars and the background nebulosity of IC 410.

Dragan Nikin

Today's APOD offers a beautiful image of Reiner's OOTW.....

<http://apod.nasa.gov/apod/ap140109.html>

Dwingaloo 1 Group (Cassiopeia)



Object	RA	Dec	Mag	Size
Dwingaloo 1			8.3	
Dwingaloo 2	02 56 51	+58 54 42		
MB 3				

Dwingeloo 1 Group (Cassiopeia)

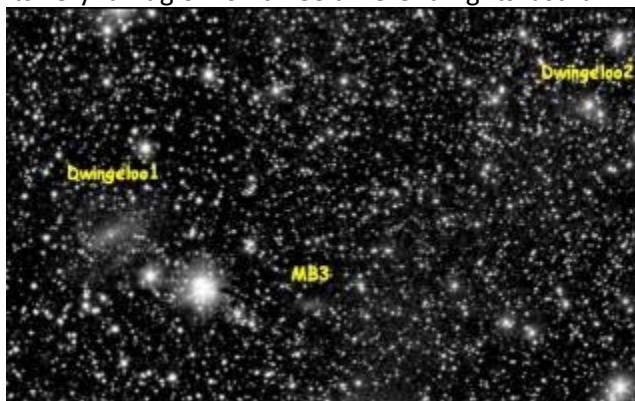
Jimi Lowrey

Type SB

Dwingeloo 1 was discovered by the Dwingeloo Obscure Galaxy Survey(DOGS) in 1994. Dwingeloo 1 is a barred spiral at 10 million light years away and is heavily obscured by our Milky Way galaxy. This galaxy is a real challenge object and I highly recommend that you have a good finder chart to help you track down this object. It makes all the difference when you know just were to look with the galaxy.



Dwingeloo 1 is part of a three galaxy group and for those of you that are looking for a real challenge to see the 3 members of this group is very difficult. The second member of this group Dwingeloo 2 was discovered by the (DOGS) survey in 1996 and the 3rd member MB 3 was discovered by McCall and Buta while doing research on the IC 342 Maffei group in 1997 at 19.8 Mag (Ouch) its tough. I have seen MB 3 as a averted vision only soft diffuse glow almost at the limits of my vision. I was able to see its very faint glow on three different nights last fall.



Reiner Vogel

I had tried to observe Dwingeloo 1 (and only this one, not the others) two or three times a few years ago. I was able to see the stellar object, which I assumed to be a foreground star and not the core of the galaxy. I was not sure about anything beyond this stellar thing.

Alvin Huey

One night at CalStar (~2009), I pulled it up in my 22" and showed it to several TACos and we all saw a soft glow in a very rich star field. The skies were pretty good, actually, one of the best I've experienced at CalStar (NELM close to 7). I don't remember the magnification.

Uwe Glahn

With 27" and AP 4mm under very good transparency of a high Alpine observing place Dwingeloo 1 was not a problem to detect. I wrote:

*27", 172x, Seeing V, NELM 7m+
round diffuse glow around faint 15mag star; a little bit concentrated to its middle but difficult to say because the star is just in front of the glow; round, not elongated; around 1'-1,5' large; faint, but could hold the glow with averted vision*

I did not try MB 3

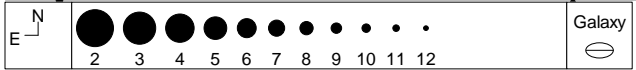
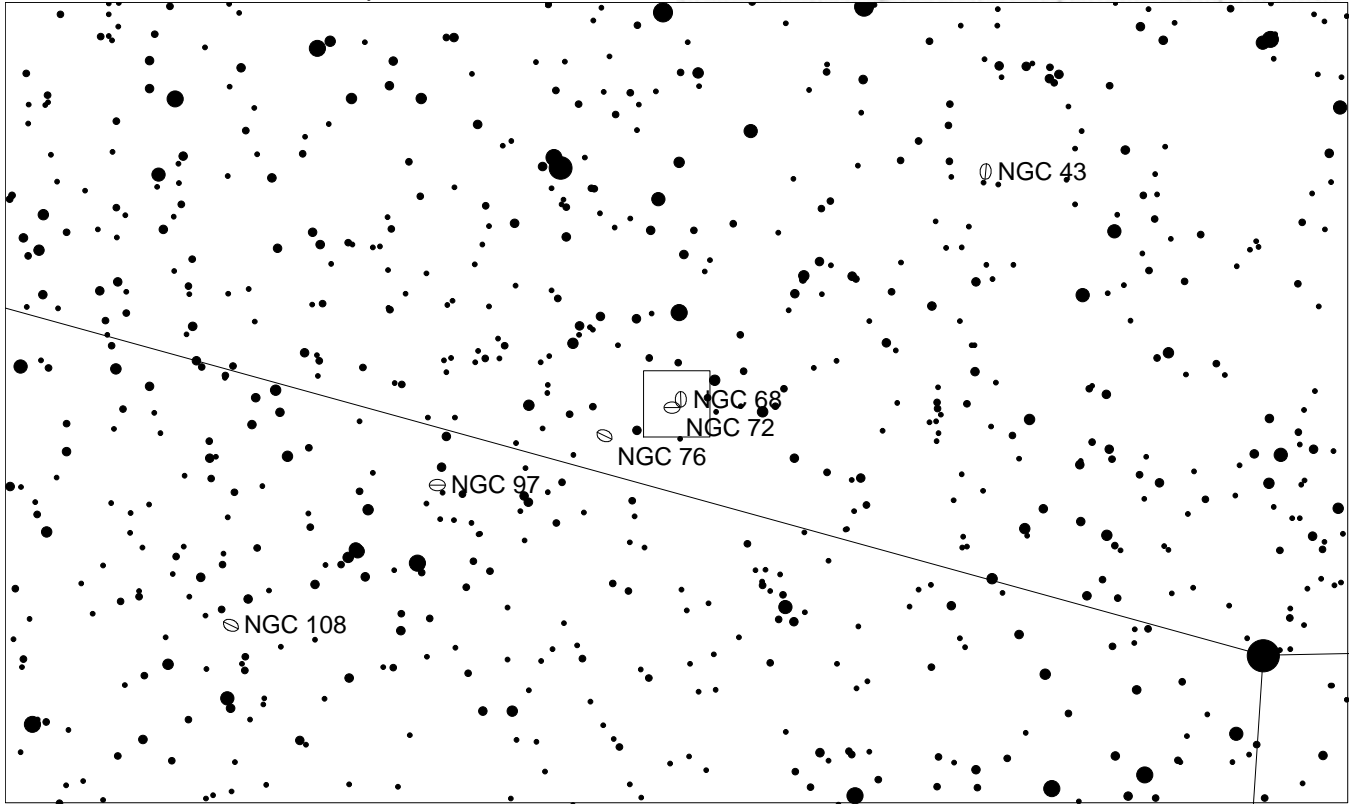
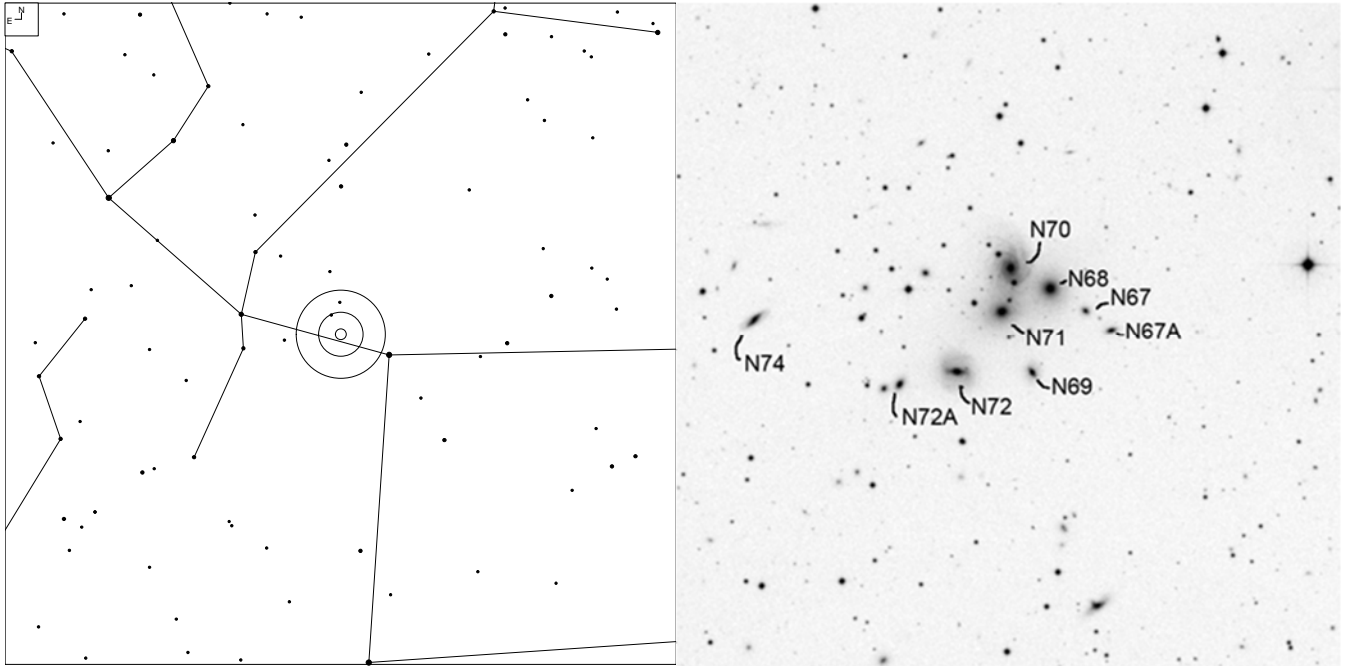
Jim Chandler

I viewed Dwingeloo 1 in October 2008 from a dark sky site at 1500' elevation.

30" f/4.5, transparency 8/10, seeing 6/10, power 175x-769x

Not seen at lower powers. Suspected with averted vision at intermediate powers. Using 769x and averted vision, it was intermittently detectable and popped strongly twice. The two strong views were sufficient to see it as almost edge on and to reveal the orientation. Later, after looking at several different images of the galaxy, it was apparent that I was seeing the galaxy's bar but not the arms.

Arp 113, NGC 67 – 72 Galaxy Group (Andromeda)

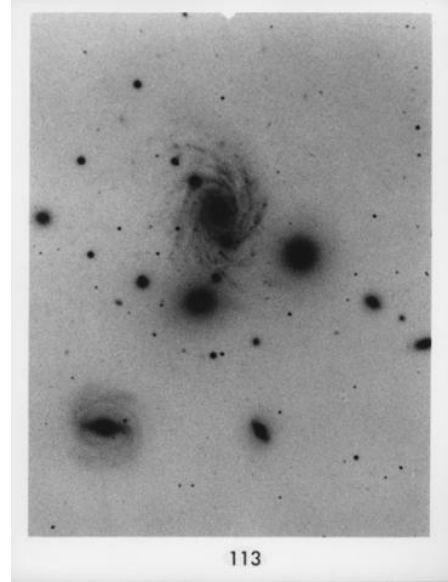
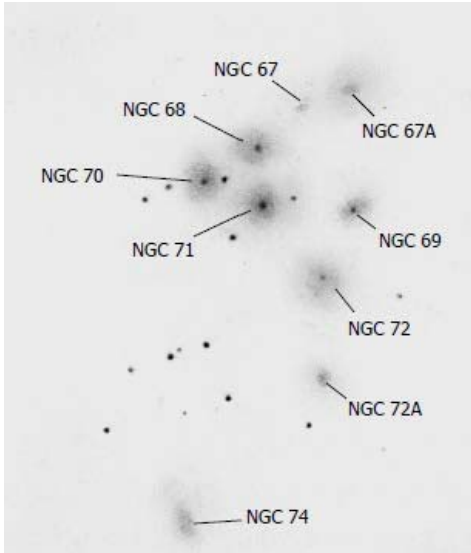


Object	RA	Dec	Mag	Size
NGC 70			14.2p	1.9 x 1.2'
NGC 71			14.2b	1.2 x 0.9'
NGC 68			13.9p	1.2 x 1.0'
NGC 67			15.2p	0.4 x 0.3'
NGC 67A	00 18 22	+30 04 10	15.5	0.5 x 0.3'
NGC 69			14.8v	0.5 x 0.4'
NGC 72			13.4v	1.1 x 1.0'
NGC 72A			14.7v	0.5 x 0.4'
NGC 74			15.5	1.0 x 0.3'

Arp 113, NGC 67 – 72 Galaxy Group (Andromeda)

Howard Banich

I came across this wonderful galaxy group for the first time on December 10, 2009 with my 28 inch f4 Newtonian. It was a cold, transparent night, the SQM read 21.32 and I used 408x for my observation and sketch:



The distorted spiral NGC 70 and the elliptical galaxies NGC's 68 and 71 make up this bright subgroup, but all three appeared much the same to me, each with a bright, nearly star-like core.

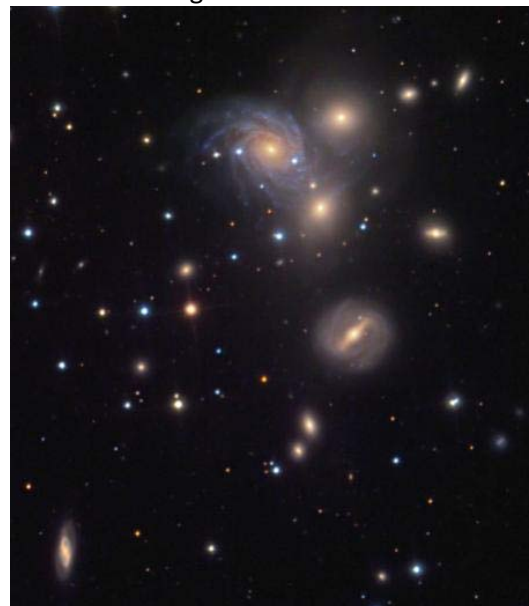
The remaining galaxies of this group are strung out in a ragged line from the three galaxies mentioned above, with NGC 69 appearing as the brightest in this line.

I'm looking forward to observing this group again on a better night to try and see the distorted spiral arms of NGC 70 and the central bar of NGC 72, along with a handful of fainter galaxies that may or may not be a physical part of this group. This wonderful image from Adam Block and the Mount Lemmon SkyCenter/University of Arizona shows a bunch of fainter targets to look for.



“Reminiscent of Stephan’s Quintet, only it’s better in that there are nine galaxies here! A beautiful group that was as much fun to look at as they were to sketch.”

The trio of NGC 68, 70 and 71 forms the bright, triangular focus of the group, and may be what Arp considered as the 113th entry in his catalog – they certainly seem that way in his Palomar 5 meter image.

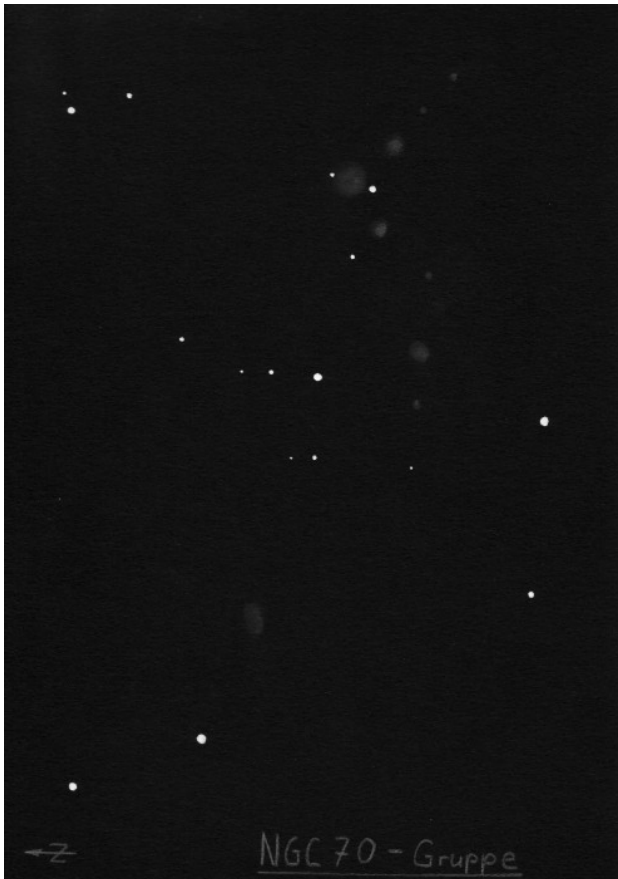


Ivan Maly

Excellent target and observation. Curiously I see that while NGC 67 through 72 all belong to the interacting system VV 166, NED only considers NGC 70 as Arp 113. The Arp classification of his #113 however is "elliptical and elliptical-like galaxies close to and perturbing spirals".

Uwe Glahn

Very beautiful group Howard, thanks for the reminder. I have to revisit it with the 27". Looks, like the two PGC's E of NGC 70 and the pair of NGC 72A is in reach of the 27". I remember that the group is dimmer than the naked magnitudes suggests and that it was always a tough group for the 16" aperture. Here my sketch with the 16".



16", 230x, NELM 6m+

Mark Johnston

Caught this group 11/28/2008 at 338x from a sqm 21.1 site but I had noted transparency was off that night and seeing ok but not excellent. I missed Ngc67 (both of them) but that may also have been me not taking time to really study it and I was still 'earning my deep sky eyes' at that time. These are brief observations and I had called it the NGC70 group as well but the chart I used had one of the

NGC67s circled so I must have looked and not seen it being on the chart and so on (see attached megastar image). I have noted that Ngc72A was at my limits 30% of the time so perhaps the night would not have yielded the others anyway.

NGC 68 And MltG 00 18 18.5 +30 04 18 13.9p 1.2x 1.0' Ngc70_group: Just under 1' len, spherical.

NGC 69 And MltG 00 18 20.6 +30 02 22 14.8v 0.5x 0.4' Ngc70_group: 0.5' dia, smaller than 68, spherical similar mag.

NGC 70 And MltG 00 18 22.6 +30 04 46 14.2p 1.9x 1.2' Ngc70_group: Bright glow, in between 2 stars of similar mag

NGC 71 And MltG 00 18 23.7 +30 03 46 14.2b 1.2x 0.9' Ngc70_group: Just under 1' dia, spherical. Tiny dimmer than 68

NGC 72 And MltG 00 18 28.5 +30 02 24 13.4v 1.1x 1.0' Ngc70_group: Easy to spot, similar bright to 68

NGC 72A And MltG 00 18 34.4 +30 02 09 14.7v 0.5x 0.4' Ngc70_group: 1/4' dia? Averted only 30% time.

NGC 74 And Glxy 00 18 49.3 +30 03 42 15.5 1.0x 0.3' Ngc70_group: Limits of visibility. 80% averted, difficult to spot, used field stars

NGC 76 And Glxy 00 19 37.8 +29 56 01 14.0p 1.2x 1.0' Ngc70_group: 0.5' dia spherical, even fade, stellar core.

Alvin Huey

22" f/4.1 reflector @ 305, 327 and 458x

Nice group of many galaxies. I could cram 10 galaxies in a 6.8' field.

NGC 70, 71 and 68 form a perfect equilateral triangle about 1.2' on each side. All are bright and round with much brighter cores. All three are about 45" across. The interesting part of this trio is they all look like the same type of galaxy, but the core of NGC 70 is somewhat larger than NGC 68, which is a tiny bit larger than NGC 71. None of the interaction was detected in the 22" reflector.

NGC 67 - Faint and very small 2:1 elongated patch. Slightly brighter center. About 15" across and PA = 45°. To the SW lies MAC 0018+3003, which is a small slightly 3:2 elongated faint even surface brightness patch.

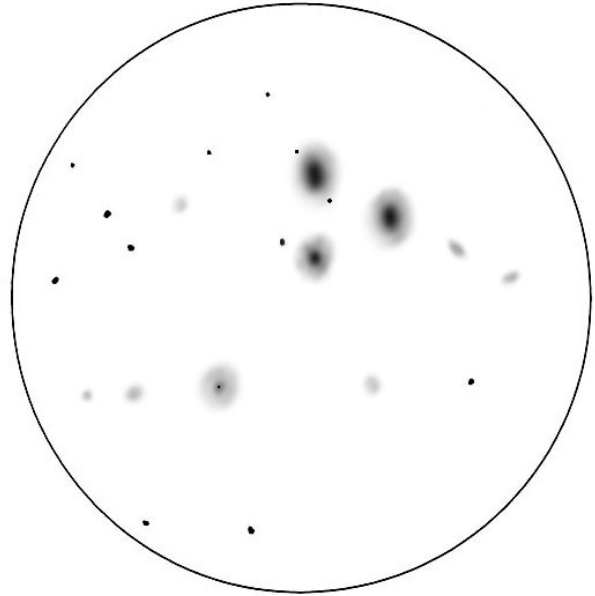
NGC 69 – Faint, small, slightly elongated even surface brightness patch, PA = 20°. About 15" long.

NGC 72 - Small round patch with a distinct stellar core with a very low surface brightness halo. About 40" across.

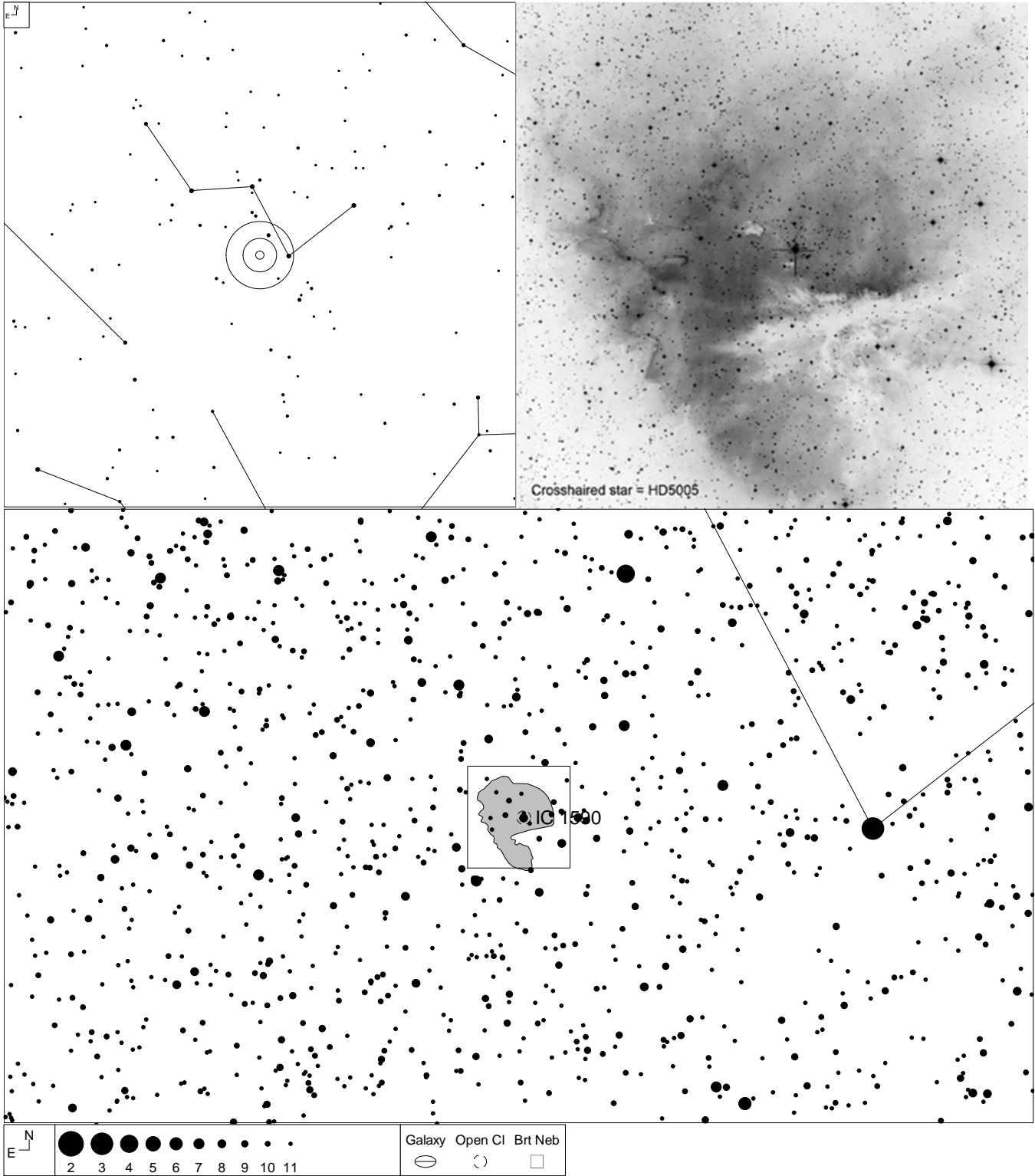
NGC 72A - Considerably bright, very small round patch. Slightly brighter center. About 15" across. MAC 0018+3002 located 45" east of NGC 72A is a very faint, very small round patch. Less than 10" across.

MAC 0018+3004A located 1.9' east of NGC 70 is a very faint very small round patch. Less than 10" across.

NGC 74 (not in sketch) - Thin faint spindle about 30" across. Even surface brightness. PA = 135°



NGC 281 – IC 1590 – HD 5005 (Cassiopeia)



Object	RA	Dec	Mag	Size
NGC 281	00 52 49.2	+56 37 39	7.4	
IC 1590			12.3	
HD 5005			7.8	

NGC 281 – IC 1590 – HD 5005 (Cassiopeia)

Paul Alsing

Emission Nebula - Open Cluster - Multiple Star - Bok Globules

NGC 281 is also known as the PAC Man Nebula, having roughly the same shape as the old video game character of the same name. It is an emission nebula, discovered in August 1883 by E. E. Barnard, is about 10,000 light years distant, 30 arc-minutes across and is very nice when viewed using a variety filters, my own favorite being the NPB filter. NGC 281 can be thoroughly enjoyed using even the smallest of telescopes, and in my 25" f/5 is terrific eye candy. This guy is not really much of a challenge, but so what? Here is a photo via APOD...



IC 1590 is a small 12th magnitude open cluster near the center of NGC 281. It contains approximately 65 members and is only about 3.5 million years old, making this a very young cluster. I'm not usually much of an open cluster observer, but this report is mostly about multiple objects in the same field of view, so that makes me interested 😊

HD 5005 = ADS719 = Burnham 1 - Speaking of multiples, there is a dandy multiple star at the heart of NGC 281/IC 1590, the trapezium HD 5005, with members as follows;

	Vmag	Sep (")	PA
AB	8.6, 10.1	1.6	79
AC	9.2	3.9	134
AD	9.8	8.9	193
AE	12.5	16.6	336

Lastly, there are several Bok globules scattered throughout NGC 281, which are large molecular clouds of dust and gas that can condense to

eventually form new stars. The easiest globule to see is located about 3 arc-seconds NE of HD 5005. I could not find any designations for these globules, but I'll assume that such designations exist somewhere. Read about Bok globules here...

<http://heritage.stsci.edu/2006/13/caption.html>

My own best observation of this area didn't really include NGC 281 itself, because the field of view of the 82" at McDonald Observatory in Ft. Davis, Texas is only 5 arc-minutes wide using its lowest power! Here is what I wrote about this object in 2006... "Although this bright nebula itself is way too big for the 5 arc-minute FOV, the targets here were really the Bok globule near the middle and the nearby HD 5005 trapezium-like multiple star. The Bok globule was clearly visible, but not nearly as contrasty as I thought it would be. The multiple star was obvious, and made for a very pretty picture. At 812X the 1.6" AB pair was easily split. Of course, there was a lot of nebulosity coursing through the whole area." I could have looked around this area for a long time, but there were 2 dozen people waiting in line behind me for their turn at the eyepiece 🙄



This photo was 'borrowed' from my friend Dave Jurasevich's great web page...
http://starimager.com/Home_Page.htm ... and only shows a portion of NGC 281, concentrating instead on the Bok globules and other fascinating structures in that area.

Howard Banich

Checking my notes show that I haven't looked at NGC 281 for quite awhile as my most recent observation is from 1997! Here's what i wrote then:

"Large-ish emission nebula is Cassiopeia that has a distinct dark lane, and parts of the bright nebula are very obvious. Detectable without a filter, best with UHC. Reminiscent of the North American Nebula but small and with more detail. 73x, 133x, 20" f5 Obsession"

Your description of the Bok globules and IC 1590 has me eager to have a long look with my 28" on the next clear dark night, thanks!

Steve Gottlieb

Here are my last notes from 2007 with my 18-inch f/4.3. Well worth another visit!

Remarkable view of this detailed emission nebula/cluster at 115x and 220x. Without a filter at 220x about three dozen stars are visible in the region of the nebula, including a number of faint stars. At the center of the cluster (IC 1590) and nebula (NGC 281) is the multiple star Burnham 1, a striking triple with a difficult 4th component at 1.1". A 13" pair of mag 11.5 stars lie 0.9' SW of Burnham 1.

The nebulosity responds dramatically to a UHC or OIII filter. The two brightest regions have a butterfly

appearance with the two lobes or wings partially divided by a curving dust lane oriented roughly N-S. A fainter detached portion is on the southeast side. The overall dimensions extend to 15'-18'. The two lobes are fairly similar in size and surface brightness, though the following section is larger including the southern piece. The western section has the brightest and most sharply defined edge running along its southern side and oriented E-W. A long straight dust lane extends along the southern boundary of both lobes and defines the sharp edge on the western lobe. The curving central dust lane intrudes into the nebula on the south side and nearly divides the two sections, though weaker nebulosity connects the two wings.

Uwe Glahn

Perhaps the object itself is not the challenge but the details inside are, so, good choice for the OOTW.

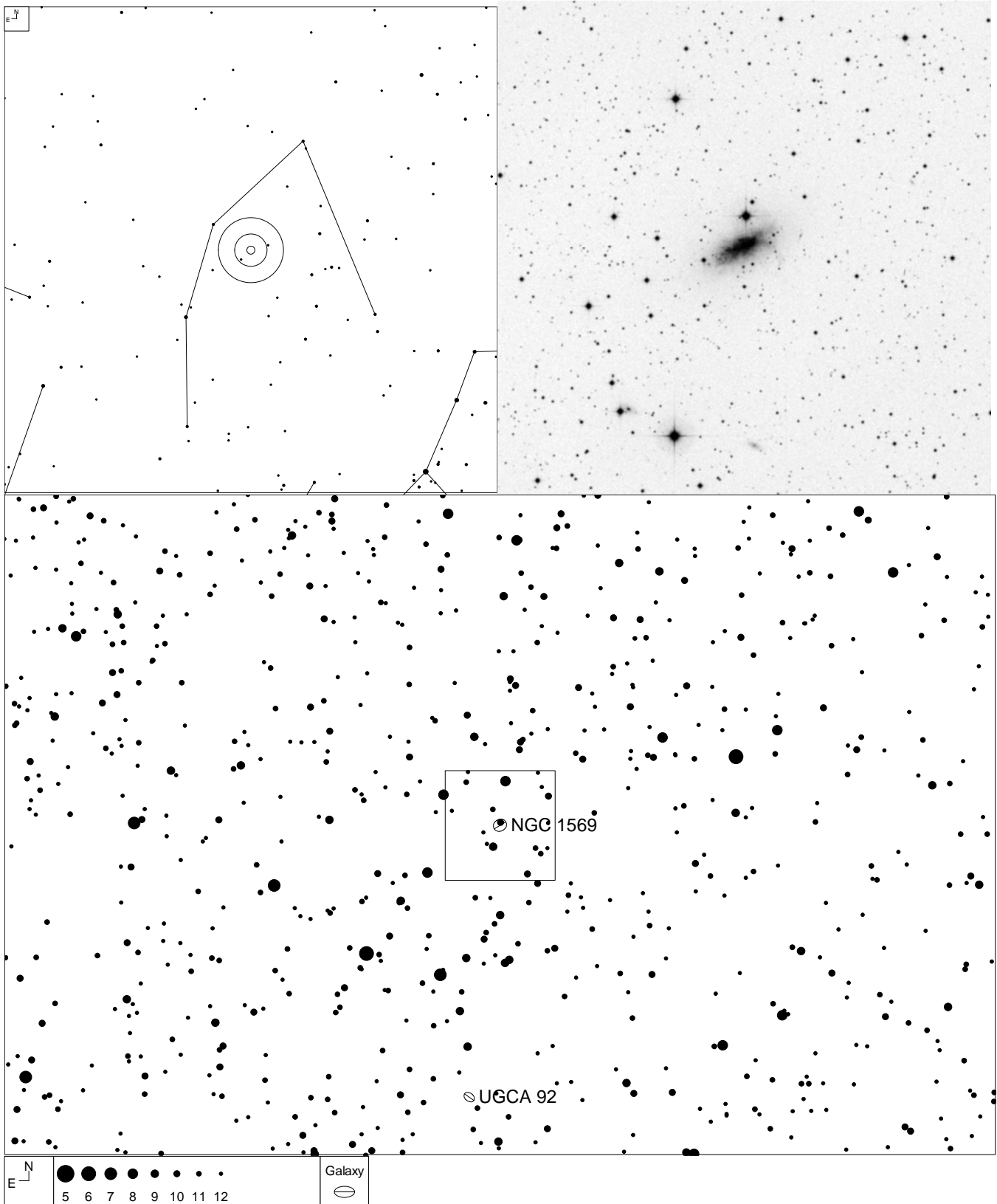
I was always too much concentrated to observe the challenges itself like the Bok globules that I ever looked at Burnham 1 in detail. Thanks for the reminder.

The darker Bok was visible with my 16" under very good transparency but exactly as you said only with a low contrast - no comparison with the pictures. The smaller Bok to the S was much harder to detect with my 27" but it works.

Another detail I love is the sawtooth structure at the inner corner of NGC 281.

My old sketch with the [20x125 Bino](#) shows not much structure but the sketch of Rainer Mannoff with a [16" Dob](#) shows very much the detail what I remember.

Starburst galaxy NGC 1569 – Arp 210 (Camelopardalis)



Object	RA	Dec	Mag	Size
NGC 1569	04 30 49.1	+64 50 53	11.2v	3.7 x 1.8'

Starburst galaxy NGC 1569 – Arp 210 (Camelopardalis)

Uwe Glahn

Discovered in 1788 by F.W. Herschel with his famous 18.7" Speculum Metal Reflector (~ modern 16" Reflector) he described his new nebula as "pretty bright, small, extended, brighter Nucleus in the middle, 9.5 star 1' north"

The first look in the data and the historical description shows a "normal" small galaxy. Arp catalogued the galaxy under number 210 which means the subgroup "galaxies – irregularities, absorption and resolution".

Looking at deep pictures shows the irregularity morphology. And indeed, today NGC 1569 counts as a starburst galaxy with a starburst rate which is 100 times larger than that of our galaxy. The reason for that is the membership to the Maffei 1 Group (IC 342 Group) and the interactions between them.

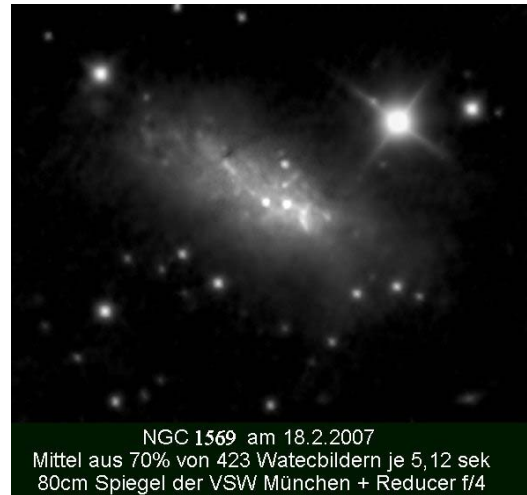
The results of this interaction are the real interesting issue for us amateur astronomers. The galaxy shows large and bright super star clusters (SSC) mainly two prominent ones – SSC NGC 1569A and NGC 1569B. They belong to the brightest ones (beside e.g. M 82 and NGC 6946) and are in reach of the 10"-12" telescope class. Bigger aperture shows more smaller and fainter SSC.

deep amateur picture (Bernd Gährken) Discovered in 1788 by F.W. Herschel with his famous 18.7" Speculum Metal Reflector (~ modern 16" Reflector) he described his new nebula as "pretty bright, small, extended, brighter Nucleus in the middle, 9.5 star 1' north"

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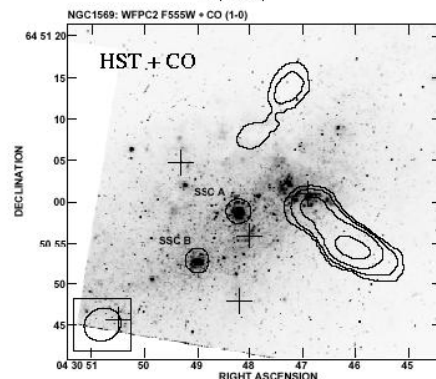
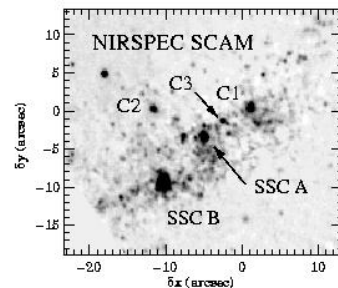
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NGC 1569 am 18.2.2007
Mittel aus 70% von 423 Watecbildern je 5,12 sek
80cm Spiegel der VSW München + Reducer f/4

deep amateur picture (Bernd Gährken)



Some visual amateur observations

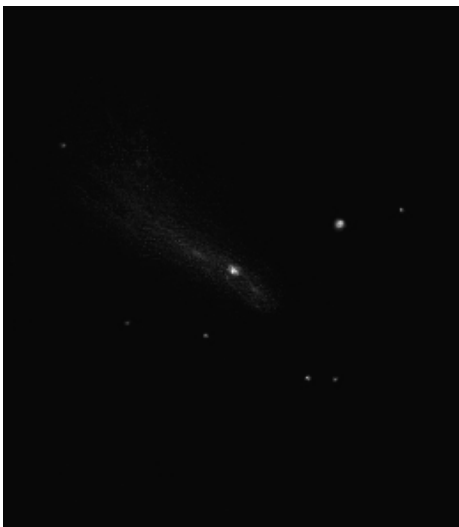
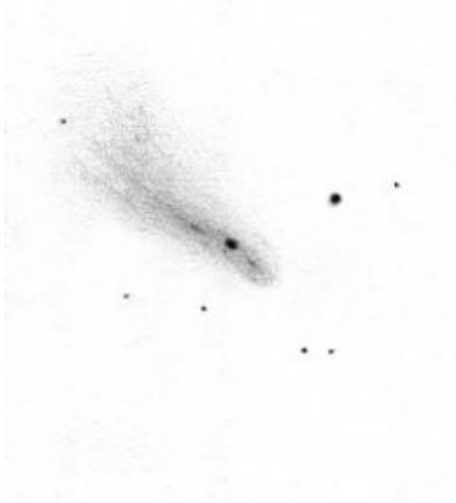
- sketch with 12", 375x-500x, NELM 6m5+ (Christian Rausch)
- sketch with 16", 488x, NELM 6m5+ (Uwe Glahn)
- sketch with 27", 586x, NELM 6m5+ (Uwe Glahn)

Howard Banich

My only observation of NGC 1569 is from 2005 with 28 inch at 654x:

"This object was a tip from Tom (Osypowski) - very nice! An unusual galaxy so it seems this may be a couple of galaxies in mid-merger. There are three bright core areas so maybe three galaxies are merging. Great sight regardless, best at 654x. High surface brightness takes magnification well." No SQM reading.

I had little idea what I was seeing were super star clusters, so my musings about the nature of 1569 were simply guesses based on what my brain was capable of at 2 am on that long ago morning. This is another good one to revisit on a dark, serene night especially since I now have a better idea what's there to see. I remember being intrigued by this object at the time and curious to find out more but it slipped away until now, so many thanks Uwe!



Uwe Glahn

Seems that Howard caught both SSC A and B plus the SSC number 10 or perhaps the conglomerate of 6,7,9,10.

I'm not sure yet if the seeing is the most important factor here to catch the SSC, quasi a M57 ZS effect. I remember very good that it was always hard to detect both brighter cluster with my old 16". I did not note the seeing in the past. It was amazing how easy the SSC were in Christians 12" f/5 under good but not perfect conditions. It easily can be, that the clusters are in reach of a 10" or maybe a 8". [Jens Bohle](#) noted 14,8vmag for A and 15,5vmag for B.

Paul Alsing

My best view of this great object was again using the 82" @ McDonald Observatory in Ft. Davis, Texas. I wrote:

"A dwarf irregular galaxy that may belong to the local group. This galaxy is home to several SSC's, Super Star Clusters, that are very apparent in this telescope. The galaxy itself is a bright slash that fills most of the 5 arc-minute FOV, and the SSC's show as 2 non-stellar bright regions aligned along the long axis of the galaxy. The literature suggests that these SSC's have an absolute magnitude 3 mags brighter than Omega Centauri does."

I have otherwise observed NGC 1569 several times using my 25" f/5, but those views were not quite the same, although I could still see the SSC's within.

Ivan Maly

An object I would like to re-observe. Interesting information here, especially about the SSCs. Here are my notes from last winter.

January 9, 2013. Cherry Springs. 16". Transparent by Clear Sky Clock in the evening, then above average. Clouds cleared after astronomical twilight. Zodiacal light to culminating Pisces. 0 deg. C, 70% humidity. Strong wind gusts, horrific seeing.

NGC 1569. IBm 5 Mly distant. Not in Herschel 400. Arp 210. Herschel's class II. Wind too strong. The scope jerking in azimuth punched me in the eye with the 8 mm Ethos. 1 hr break in Steve's observatory with the roof rolled on. Drinking tea and trading stories. Topic: "slapstick astronomy".

Example: melting the fabric of one's tent by the heat of the campfire when trying to camp in winter on an unimproved remote dark site.

Wind now manageable. NGC 1569 is elongated S of a star at 45x (Pentax XW40). 225x (Ethos 8 mm) brings out a second star farther N. A similarly faint star is SE of the galaxy, and a fainter one SSE. The galaxy at the first glance looks like a comet with the tail pointing SE. This "comet" is gradually brightening to the galaxy's core S of the bright star. The core ends abruptly on the NW side and appears pointed there. There is darkness beyond that point. The middle of the tail is wider than the core. To the NW of the core is a separated faint patch. It is symmetrical to the outer half of the tail. The tail extends more than half-way to the SE star. The patch cannot be held continuously, but the glimpses are persistent. The galaxy overall is elongated at least 5x1. 01:30.

Reiner Vogel

that's a really impressive starburst galaxy. I observed it during a few subsequent nights one year ago. I did not look specifically for superclusters, but I noted that the core of the starburst galaxy appears very structured. Overall, the galaxy appeared asymmetrical with the eastern part being fainter than the western half. There are as well a few stars superimposed a bit off the core.

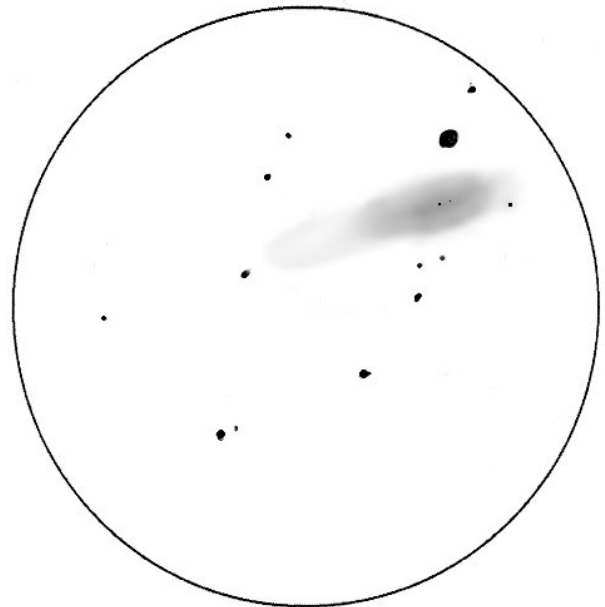
Uwe Glahn

thanks for your input. I'm impressed that you Paul could detect the nonstellar character of these SSC's with the 82". Very cool. I found another detailed observation this starburst galaxy from [Andreas Domenico](#). Very impressive detail for 18" aperture.

Alvin Huey

22" f/4.1 reflector @ 305, 327 and 458x

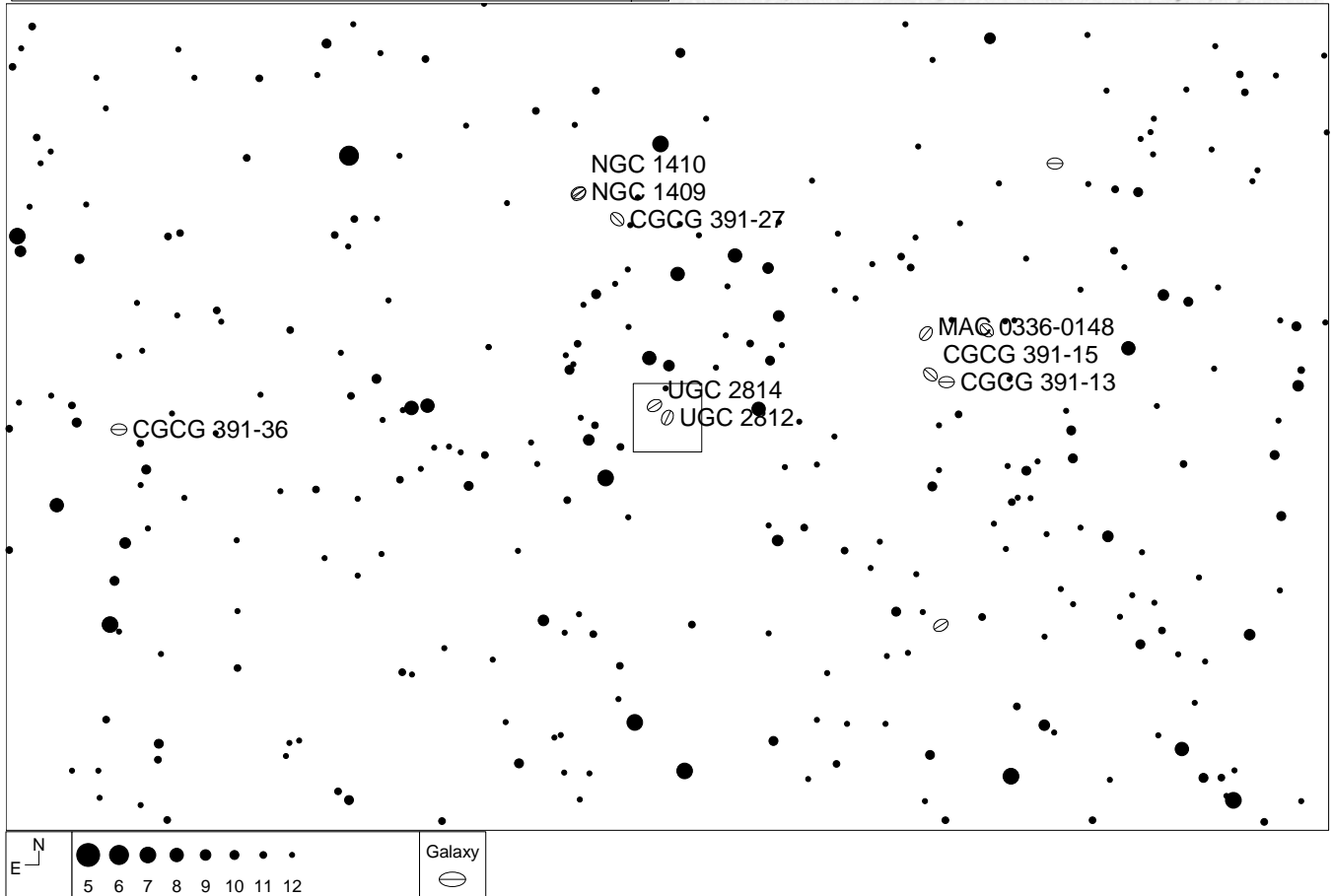
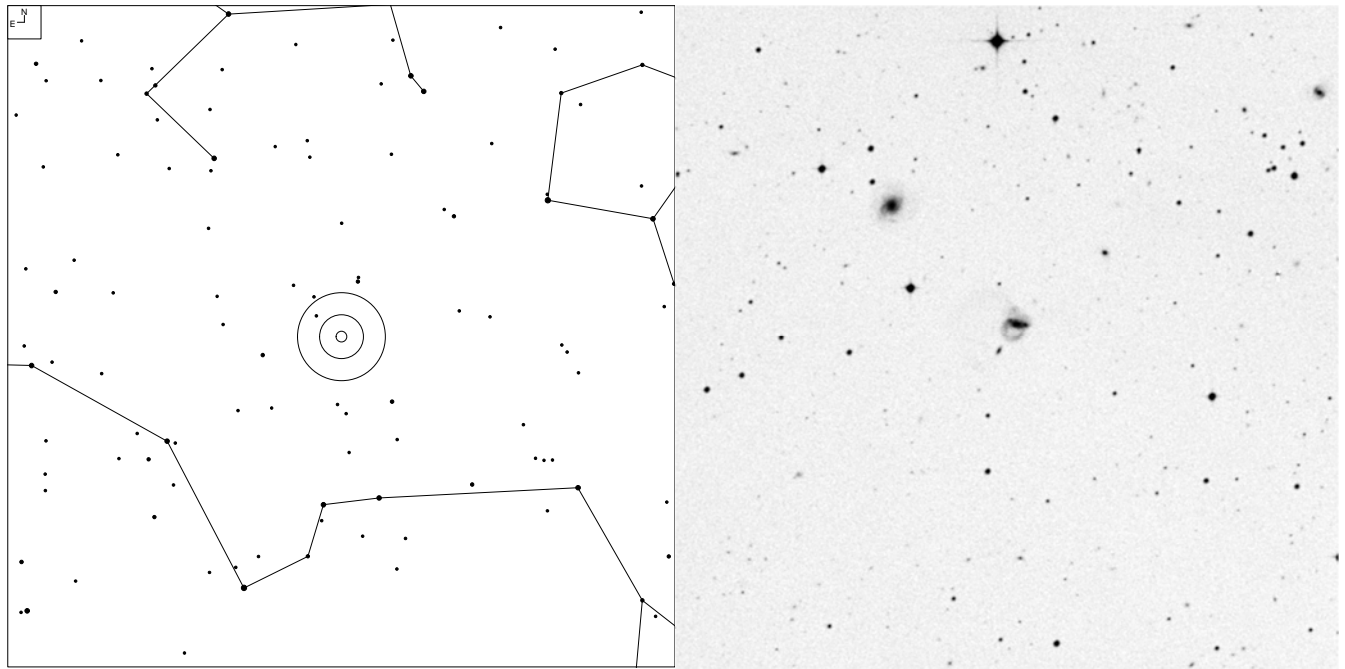
NGC 1569 - Bright dominant off-centered core with a double stellar nucleus arranged along the axis of the galaxy. I'm pretty sure that one is a star. Faint but obvious extension to the east, about 45" more. Total length is 1.8' and 40" thick. The bright part is 1.1' long. PA = 110°. A 9.5 magnitude star lies 45" north.



Mark Johnson

What a bright 'treat' this object was and thanks for the tip. Observed in my 18" no problem even from the fairly bright sight I was at for the observation. It will be interesting to look again at a darker site in the 21.5 mag sort of range as it should expose more detail in the mottled areas.

Arp 219 (Collisional Ring) (Eridanus)



Object	RA	Dec	Mag	Size
UGC 2812 = VV495	03 39 53.3	02 06 47	14.0V (13.2 mag SB)	0.8' x 0.7'

Arp 219 (Collisional Ring) (Eridanus)

Steve Gottlieb

I was intrigued by this interacting system when I ran across it a few years ago in Madore, Nelson and Petrillo's 2009 "[Atlas and Catalog of Collisional Ring Galaxies](#)". Madore et al considered it a collisional ring (as seen in Arp's original image below) with a small "collider" (identified as C1 in the paper) to the upper right (southeast) in the image. The redshift-based distance of Arp 219 is ~470 million light-years, although the "collider" has no redshift data.

Arp placed this object in his category "Galaxies with adjacent loops". In addition to the main loop extending towards the companion, there is a huge, extremely low surface brightness outer arc or loop that can be partially seen in Arp's image extending to the lower right and out of the frame. The collider is actually inside this huge outer arc! A full resolution image of Arp 219 is available at NED [here](#)



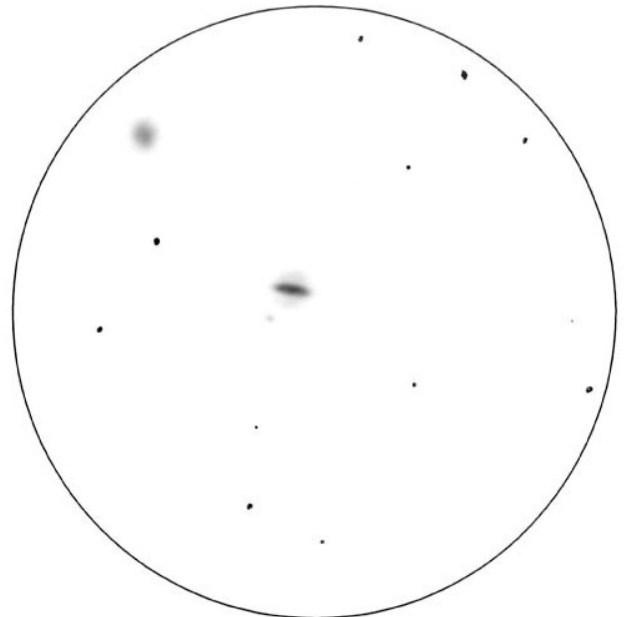
How much of this action can be seen in amateur scopes? The main galaxy is visible in an 18" (and perhaps smaller) scope, in addition to nearby UGC 2814, a mag 14.3V galaxy 5' NE at roughly the same distance as Arp 219. The close companion, though, will probably require more aperture. But let us know!

Here's the view I had through Jimi's scope a couple of years back -- the collisional ring galaxy appeared fairly faint with a weakly concentrated "bar" elongated 3:1 or 7:2 WSW-ENE, ~40"x12". The well-defined bar is surrounded by a very low surface brightness halo, but a clearly brighter rim was not evident. The collider, PGC 200217 = 2MASXJ03395491-0207241 (B = 17.9), was visible 45" SE. It appeared extremely faint and small, round, 8" diameter. UGC 2814 lies 5.5' NE and is moderately bright, fairly small, round, 35" diameter, broad concentration with a brighter core. An isosceles triangle of mag 14-15 stars is close NE.

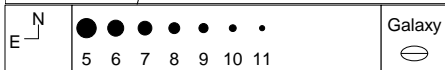
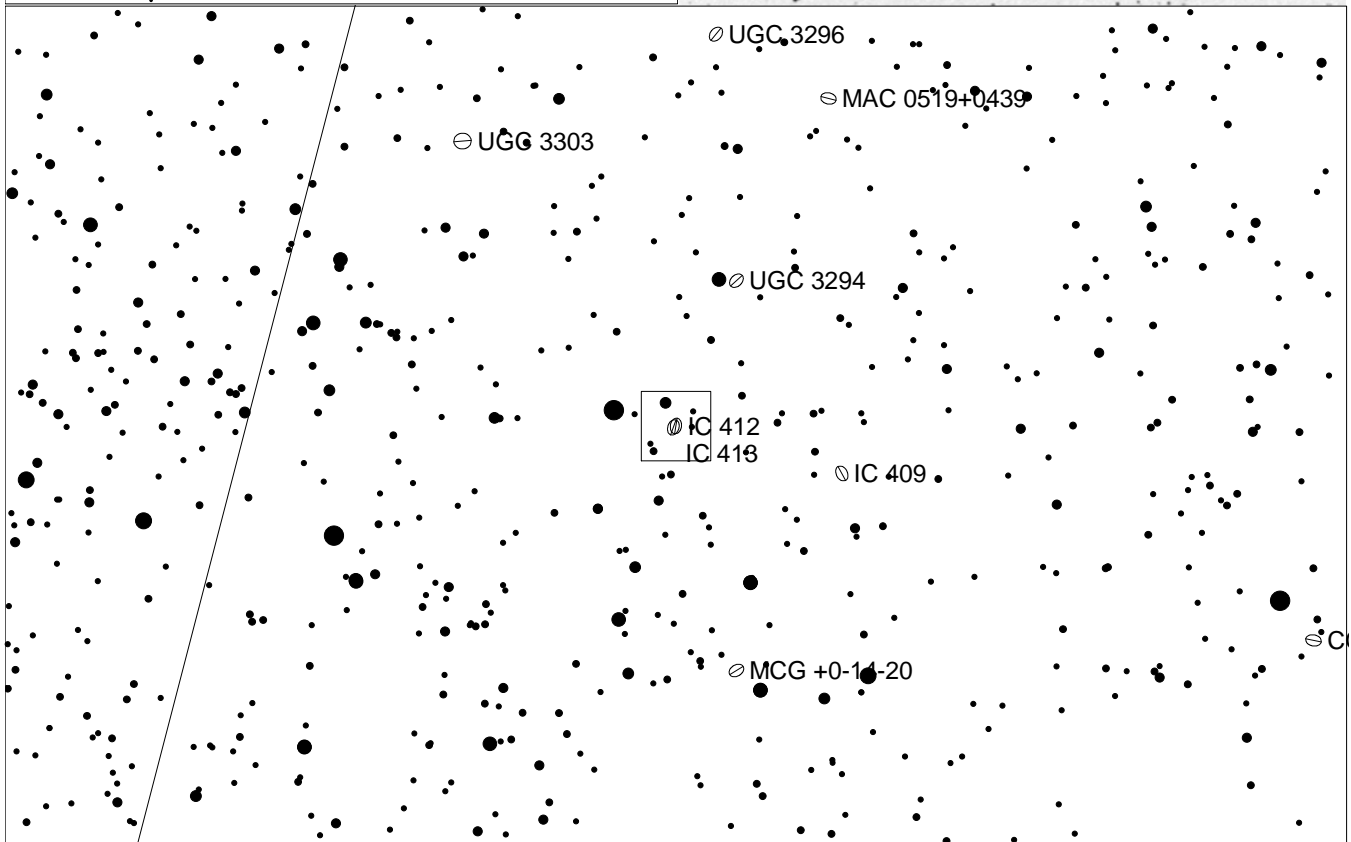
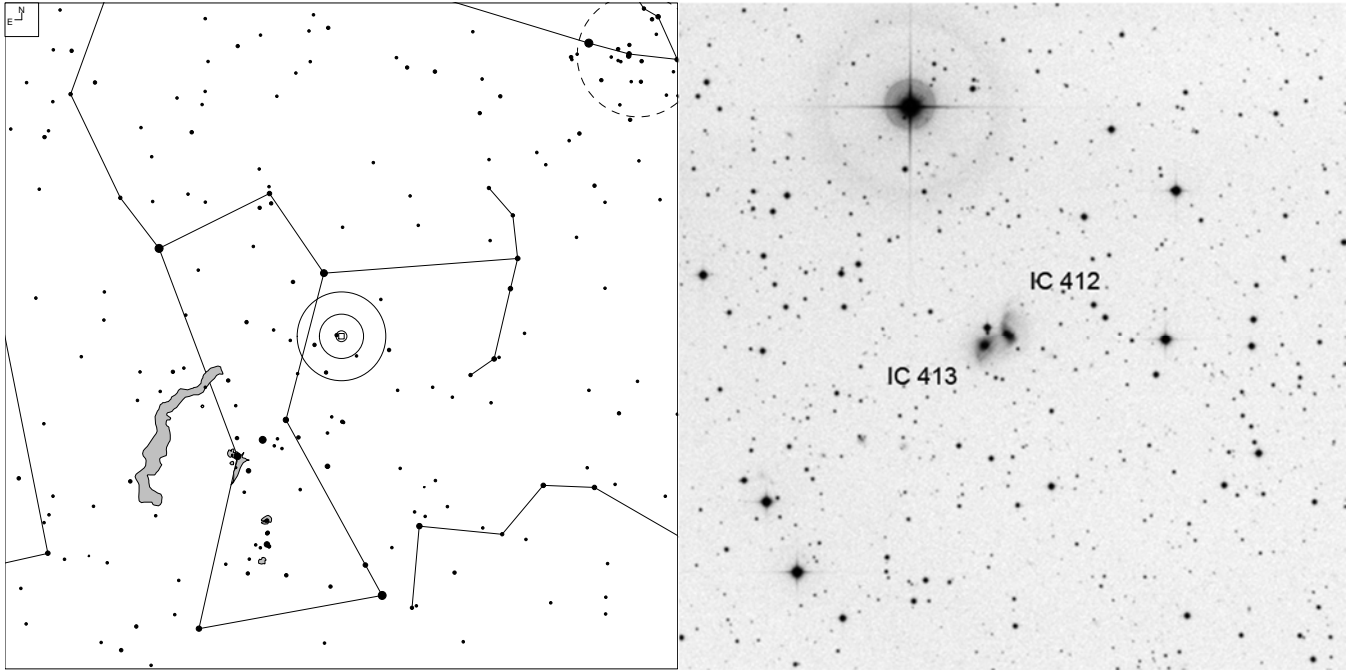
Alvin Huey

22" f/4.1 reflector @ 184, 305, 327 and 458x
UGC 2812 – Low surface brightness round halo with diffuse edges. In the center is a bar-like bright core at PA = 80° and 45" long. Halo is also 45" across. Adjacent loops not detected.

MAC 0339-0207 (PGC 200217 reference by Steve) required 458x to be seen as an extremely faint round even surface brightness patch. Sits 45" SE from the center of UGC 2812.



VV 225 (Orion)



Object	RA	Dec	Mag	Size
IC 412 = VV 225a	05 21 56	+03 29 15	14.6p	1.5 x 0.7'
IC 413 = VV 225b	05 21 56	+03 29 15	14.7p	0.9 x 0.7'

VV 225 (Orion)

Alvin Huey

Type: Galaxy Pair

Size: IC 412: 1.5 x 0.7', IC 413: 0.9 x 0.7'

Mag: IC 412: 14.6p, IC 413: 14.7p

IC 412 = IC 2123 = Javelle 608 = VV 225a

IC 413 = IC 2124 = Javelle 609 = VV 225b

As a galaxy fan, especially interacting galaxies, I ran across this pair a while ago and one of the "few, relatively speaking, that is observable during the deep winter.

IC 412 and IC 413 was originally discovered by E.E. Barnard in 1888 and again a while later, hence why it has two IC numbers. Javelle discovered them independently in 1894. It wasn't realized until 50 years later when the CGCG catalogue came out, that IC 412/413 and IC 2123/2124 was the same pair and Corwin straightened it out in 2004.

This pair of galaxies lies about 3 degrees SSW from Bellatrix is a star rich region. With a medium to high power eyepiece, this pair is nearly embedded with a mag 12.2 star. The "trio" forms a tight 45 degree right triangle with sides about 25" long and the star at the right angle. Both members have a much brighter center cumulating in a nearly stellar center. IC 412 is slightly brighter. Otherwise both are featureless through my 22".

Bonus object nearby, IC 414, about 5.6' due south, also seen by Barnard when found the pair for the first time. I didn't look for it as I didn't know it was there. ☺



Looking at the image from the Sloan Digital Sky Survey (SDSS), it appears that IC 412 (the right one) has very faint spiral arms and IC 413 has a dust lane screaming across just south of the middle. Has anyone seen the spiral arms? Or the dust lane? Or even the interaction between the two galaxies.

Steve Gottlieb

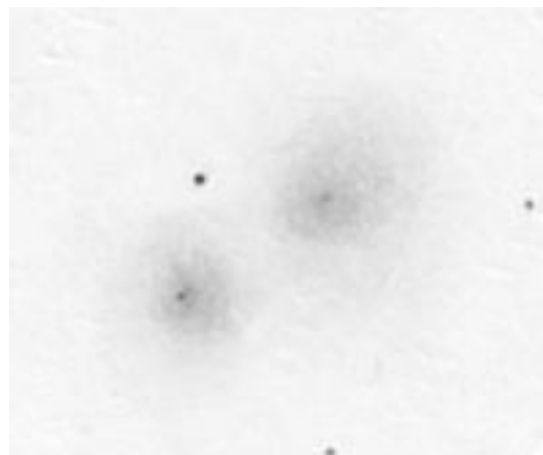
I happened to observe this pair a year ago with my 24", following up an observation 13 years back with my old 17.5". I didn't notice the spiral arms in IC 412 in either observation, but I'm curious if others have.

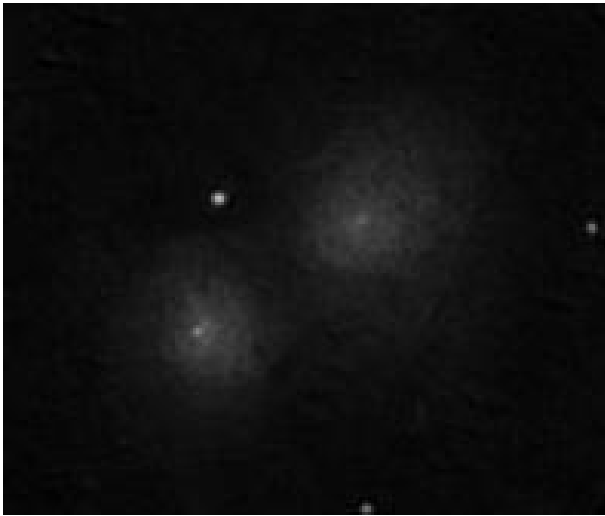
24" (1/12/13): both members of this interacting pair (VV 225) are fairly faint, small, roughly 20"-25" in size, and each contains small bright cores. IC 412, the northwest component, is larger and more elongated, roughly 5:3 SW-NE, 25"x15". IC 413 is just off the ESE side, 35" between centers, and appeared fairly faint, slightly elongated, ~22"x17", sharply concentrated with a very small, high surface brightness nucleus. A mag 12.3 star is just 25" N of center and a mag 16.2 star is 46" SSW. The stretched spiral arm or tidal tail to the north of IC 412 was not seen. The pair is 14' WSW of the bright double 23 Ori = STF 696 (5.0/7.2 at 32").

IC 414 (discovered by Sherbourne Burnham on 8 Nov 1891 with the 36" refractor at Lick) lies 8.5' S and was logged as fairly faint, small, slightly elongated NW-SE, 24"x18", weak concentration.

Howard Banich

I was able to observe IC 412 and 413 this past Saturday evening with my 28":



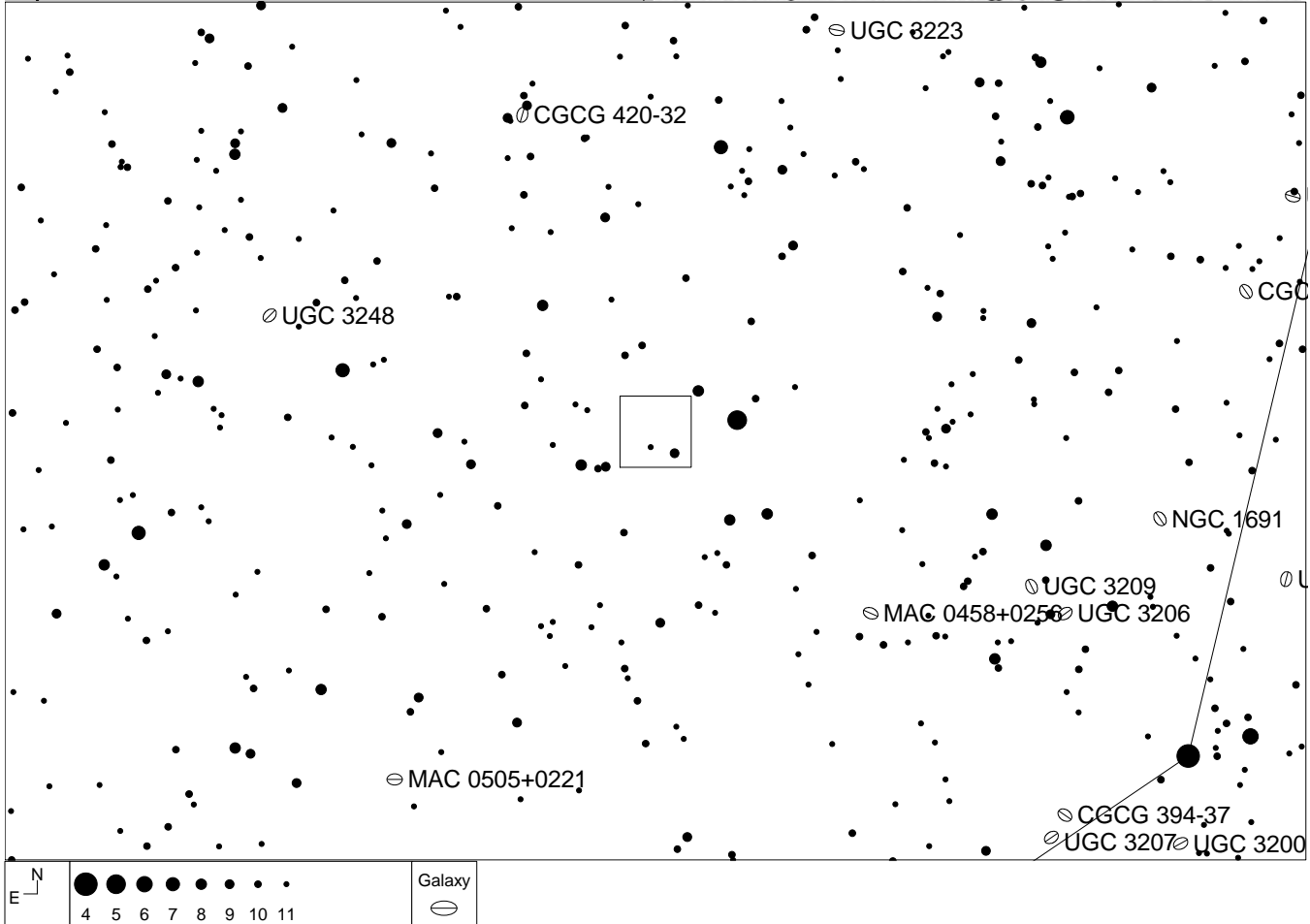
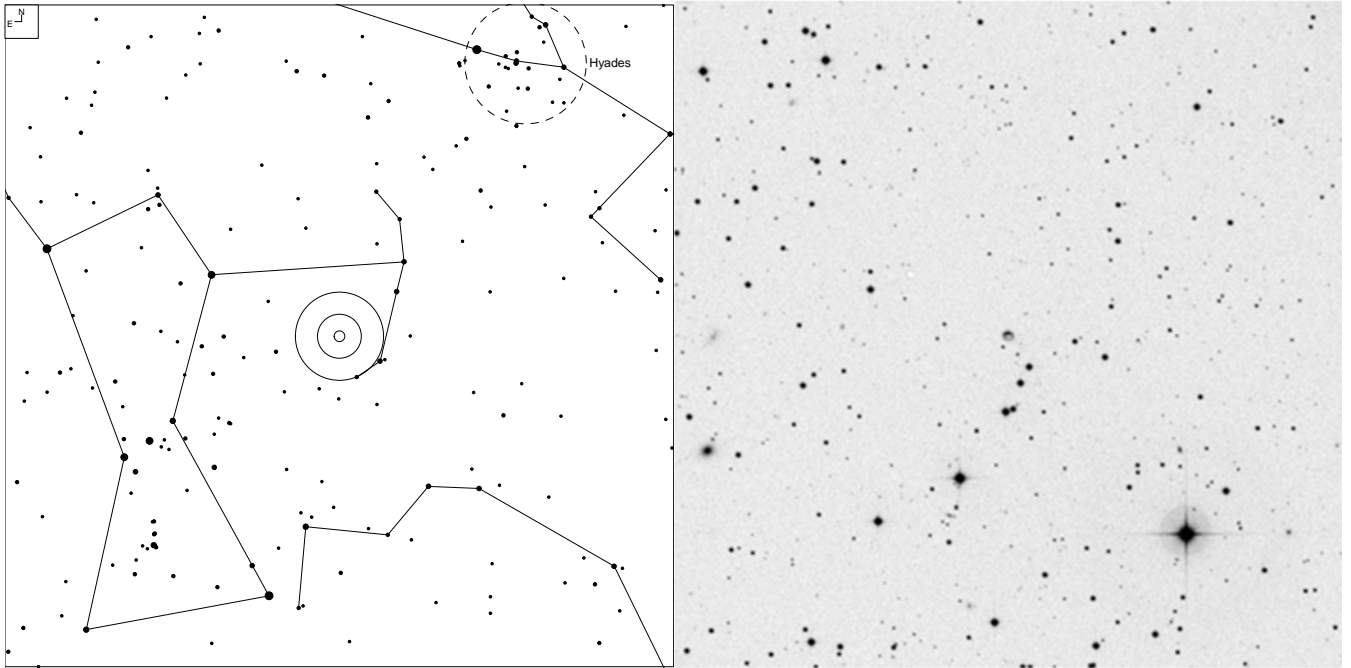


"The sketch shows IC 412 and 413 while IC 414 is a fainter smudge that would be several inches away at the scale of the sketch. The only detail I can make out in the 412/413 pair are the stellar cores (413's is brighter of the two) and a slight asymmetry to 412. 408x, 21.15 SQM."

No spiral arms or dust lanes even though I was looking for them, but then this wasn't the best night for seeing subtle features like this.

Selected “Off the Beaten Path” Objects

VV 790b – II Zw 28 – Orions Ring (Orion)



Object	RA	Dec	Mag	Size
VV 790b	05 01 42.0	+03 34 27	15.5b	0.3 x 0.2'

VV 790b – II Zw 28 – Orions Ring (Orion)

Jimi Lowrey

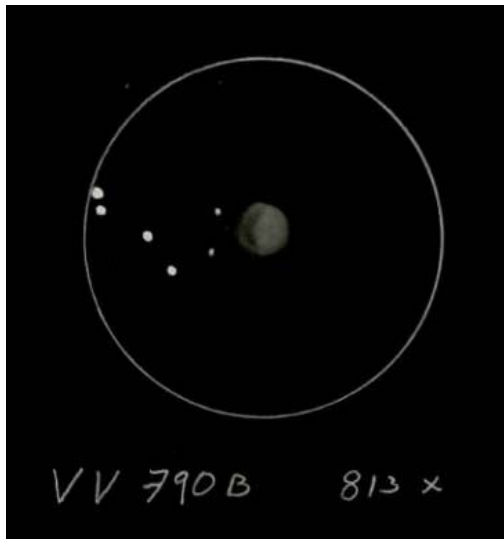
Early this morning I had the best view ever of the unusual ring galaxy VV 790b AKA II ZW 28. I have seen it many times over the years but this mornings view is something I will not soon forget!

VV 790 b is a collisional ring galaxy in Orion that is thought to be in the act of collision. I could see the brightening in the inner ring that is thought to be the colliding galaxy. I was using 697X and 813X and the stars were pin points. The brighter ring sections looked mottled in the eyepiece and faint smaller ring was direct vision and the void in the center was jet black. The galaxy looked to be much brighter on this night than the 15.5 MAG that it is listed at. (There is nothing like great seeing)

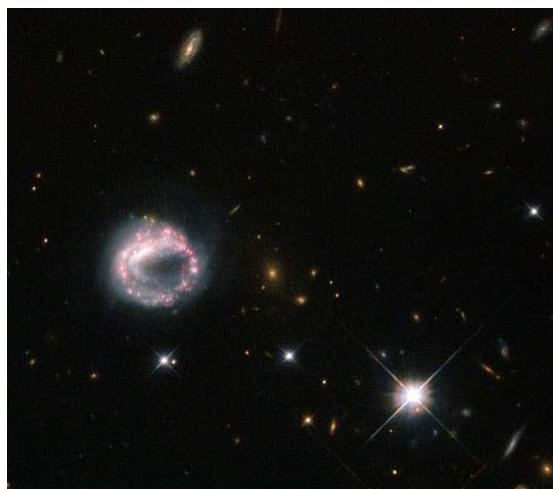
Steve Gottlieb

I observed II Zw 28 earlier this year (9 March) using my 24-inch. SQM-L readings that night were 21.5-21.6. I didn't use high power to see if any signs of the ring structure could be detected, but it was a fun object to look for. The PGC mentioned in my notes is listed in Megastar as MAC 0502+0331

At 282x this Ring galaxy appeared fairly faint, small, round, 20" diameter, broad concentration with no core or zones. Located 6' NE of HD 32191. A 24" pair of mag 13.3 stars is 1' S and a mag 12/14 pair (about half the separation) is 1.6' S. PGC 75258, a Seyfert 1 galaxy discovered in 1982 by the orbiting Einstein X-ray telescope, is located 7' ESE

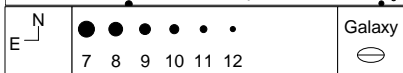
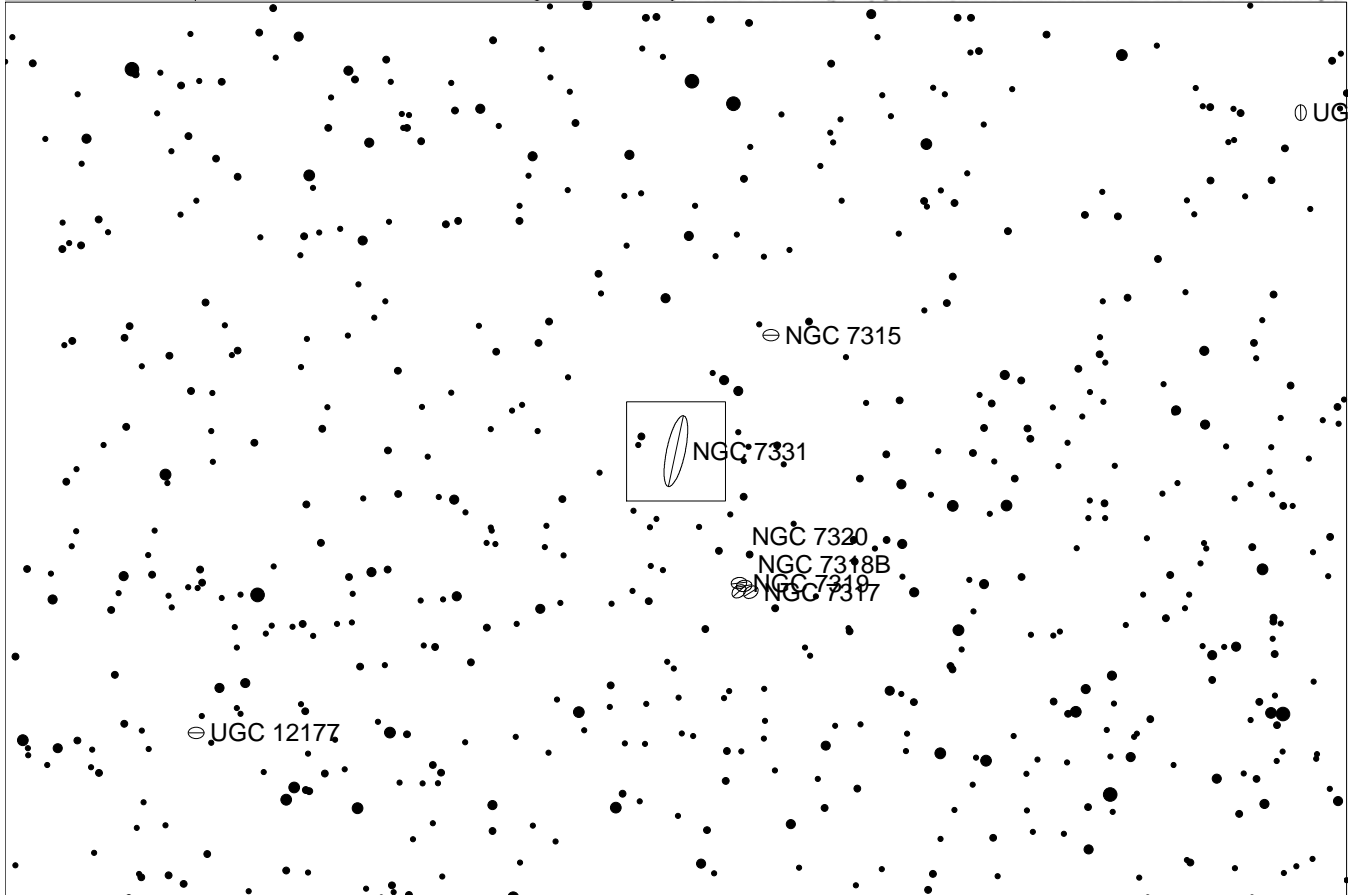
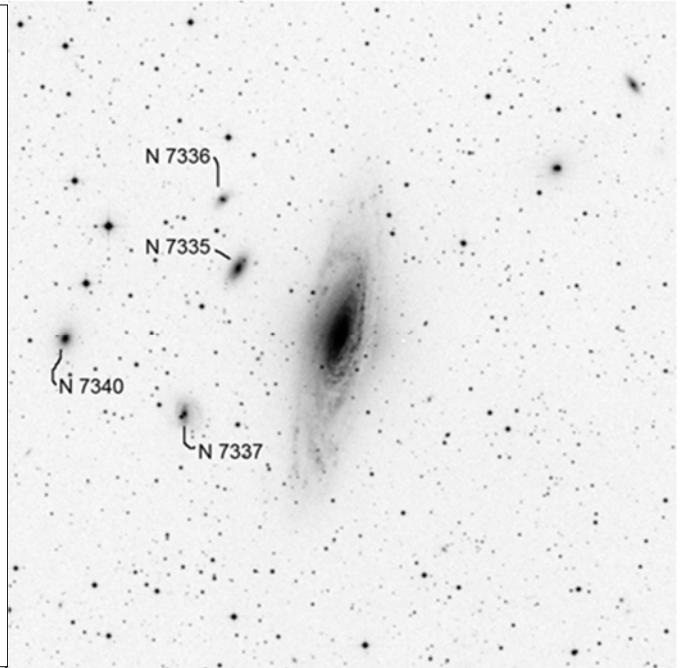
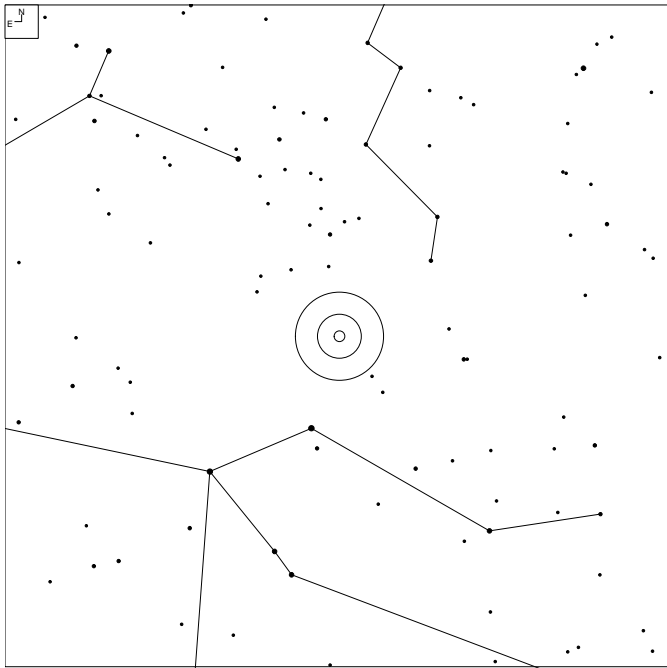


Eyepiece drawing



HST image

The NGC 7331 Gang (Pegasus)



Object	RA	Dec	Mag	Size
NGC 7331	22 37 04.5	+34 25 00	9.4v	14.5 x 3.7'
NGC 7335			14.4b	1.7 x 0.7'
NGC 7336			16.8	1.1 x 0.4'
NGC 7337			15.2p	1.3 x 0.9'
NGC 7340			14.7p	1.1 x 0.7'

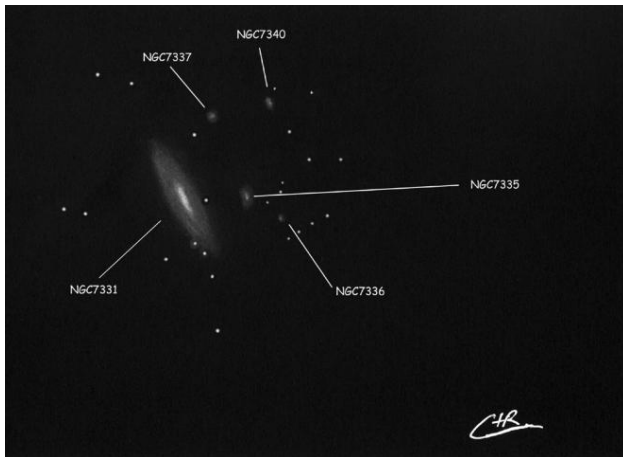
The NGC 7331 Gang (Pegasus)

Christian Rausch

NGC7331, also known as Cadwell 30, is a spiral galaxy about 40 million light-years away and located in the northern part of the constellation Pegasus.

With a brightness of 9,5mag it really isn't a difficult object and well known. However, there are a number of interesting, smaller and much fainter companions.

I observed the object with my 12" dobson under very good conditions in the Alps and was able to identify four members of the "7331 Gang", i.e. 7335, 7336 (the most difficult one), 7337 and 7340.



labeled sketch

As outlined above, there are more galaxies within the field around 7331 which may be reached with bigger aperture (or same/smaller one?).

I'd be interested in experiences, either the observation of additional field galaxies, or even internal structures of 7331.

Ivan Maly

see that you caught the most contrasty spiral segment SW of the NGC 7331 core. I am still working on the details in this galaxy. This is my latest sketch made with 16":



and the observation notes are [here](#). The striping N of the core is an artifact of the rough sketch; the other details are real. The sketched area actually does not include the farthest of the four main satellite (or "satellite") galaxies.

Uwe Glahn

Excellent observation Christian.

Your conditions had to be very good, not easy to pick up all four companions of NGC 7331 with a 12" telescope.

I got also all but with ~50% more light collecting area ([sketch with 14,5"](#))



Thomas Jensen

I've seen all four shown here with my 12" Meade Lightbridge and 9mm ES100 under good, rural skies. NGC 7331 showed vague hints of its dust band. There's a companion galaxy on the other side of the galaxy as well, that's also visible in a 12".

Marc Emde

I also like this Group very much and observed it quite often with different apertures over the last years.

Last year i used my old 10 inch GSO at Edelweisspitze in the alps and tried the Group again - with success.

All 4 companions were visible with a 6mm Ethos. Most challenging was NGC 7336, which i only could see for a few moments with indirect Vision. The other companions were quite easy to observe.

Akarsh Simha

Saw all four members with my 18" from Texas Astronomical Society's observing site near Atoka, OK. Skies were transparent, but there was considerable light pollution (maybe Bortle 3 ~ 4 or so).

One of the four was considerably more difficult than the other three. Observation made with 10mm Delos.

Mark Johnston

Certainly a favorite here too and always worth a visit to this group.

This group is a good group to judge conditions. The 4 members off to one side are often called 'The Fleas' because the whole group somehow got a name that stuck to it of 'The Deerlick Group'. The name has nothing to do with it's shape or anything but rather that was where some observers were that then started talking about it online so the name stuck. I think it was from Deerlick Astronomy forum and site is the way the name came about best I recall.

To see all 4 fleas in a 12" is quite an accomplishment indeed and well done. I have seen firsthand in the past that altitude (in this case the Alps) greatly decreases extinction and this sort of object would be possible. 'Altitude ... Accept no

Substitute'. From low ground to see this in a 12" would require a mighty clear and still night but Ngc7331 is certainly possible in much smaller than 12".

When I visit this group (many times a season as I use it for judging transparency) I most always cannot resist a swing down SSE by 30' to Stephan's Quintet or Hickson 92 (which contains Ngc7320 for chart readers). Last month I could only barely detect 7336 in my 18" so I knew it was an off night.

Victor van Wulfen

7331 is a great galaxy by itself. I rate it a 7/10. Its companions are a great challenge.

Two observations using a 12" SCT, both at 179x.

30 September 2011 under light polluted Dutch skies, SQM 20.08:

NGC7331 is the western galaxy, elongated NNW to SSE, large and brighter in an elongated central part. When not using AV the central part appears less elongated. The very bright nucleus is visible without AV.

1/4 FoV to the ENE is a flattened triangle of stars pointing west (mag. 10) with the base on the east side aligned north (mag. 11) to south (mag. 10.5). Directly SSE of the mag. 10.5 star in the base is a small, round patch (NGC7340). To its SW (to the SE of NGC7331) is another small, round patch (NGC7337). To the WSW of the triangle of stars are two mag. 12 stars aligned NNW to SSE, to the west thereof is a slightly north to south elongated galaxy (NGC7335). NGC7336 is not visible.

5 September 2013 under much better skies in northern France, SQM 21.12:

NGC7331, the large western galaxy is very bright, elongated NNW to SSE. Brighter to the east of the center and slightly flattened on the west side from NNW to SSE. Brighter in the central part that is slightly elongated in the same direction with a bright nucleus that is clearly visible without AV. Using AV the outer halo of the galaxy clearly stretches out from NNW to SSE. To the ENE is NGC7335, slightly elongated NW to SE, even in brightness without AV, using AV slightly brighter in a small, round central part. To the NE is NGC7336, sometimes jumps into view as a small, round patch, on the limit of visibility, the faintest galaxy of the group. NGC7340 is a small, faint, round patch to the SSE of a very flattened triangle of stars pointing WNW

(mag. 10).

NGC7337 is a small, faint, slightly north to south elongated patch, the second faintest galaxy of the group. On the SE edge is a mag. 12 star. To the east is a mag. 12.5 star, twice as far to the WSW is another mag. 12 star.

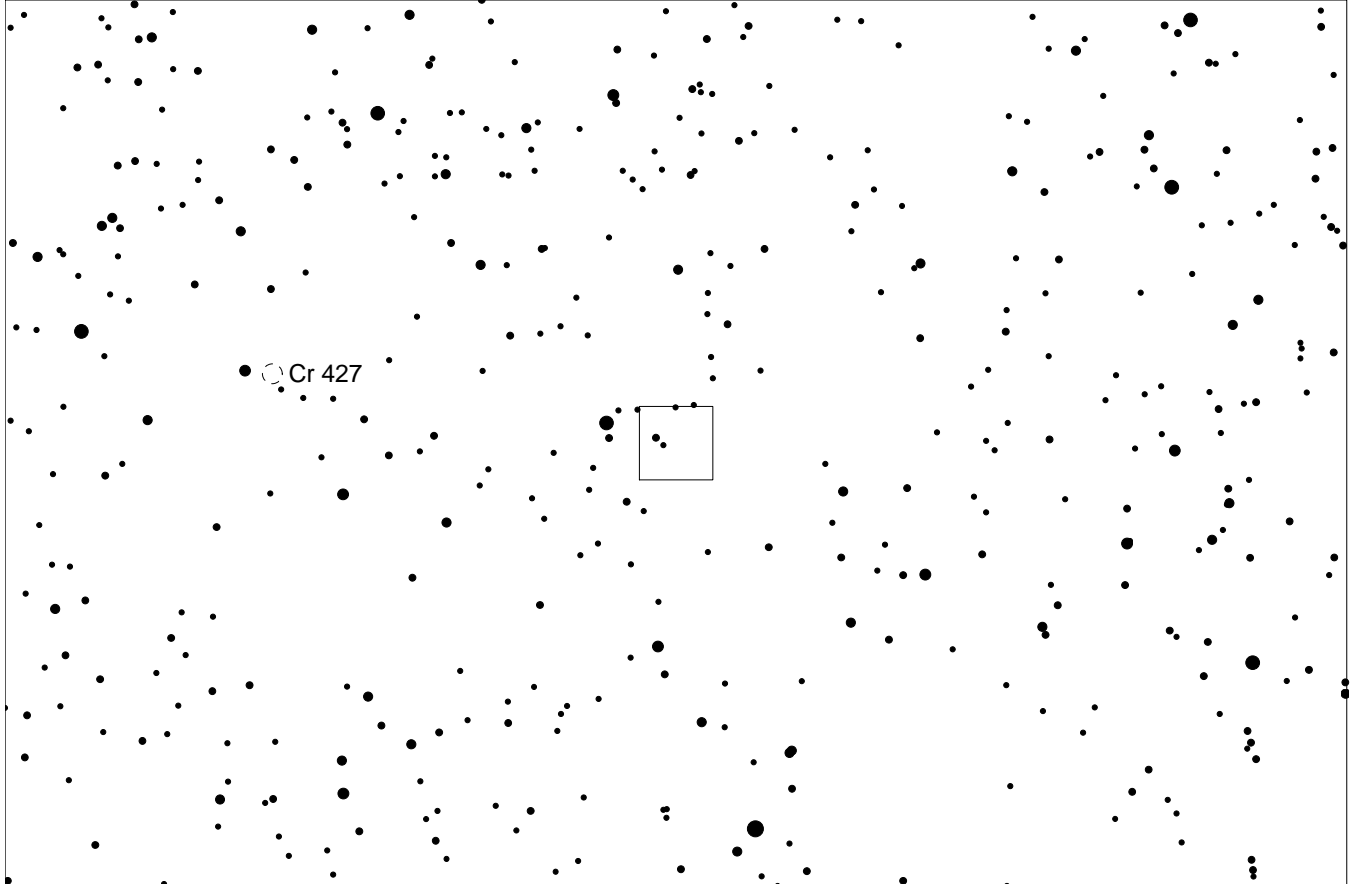
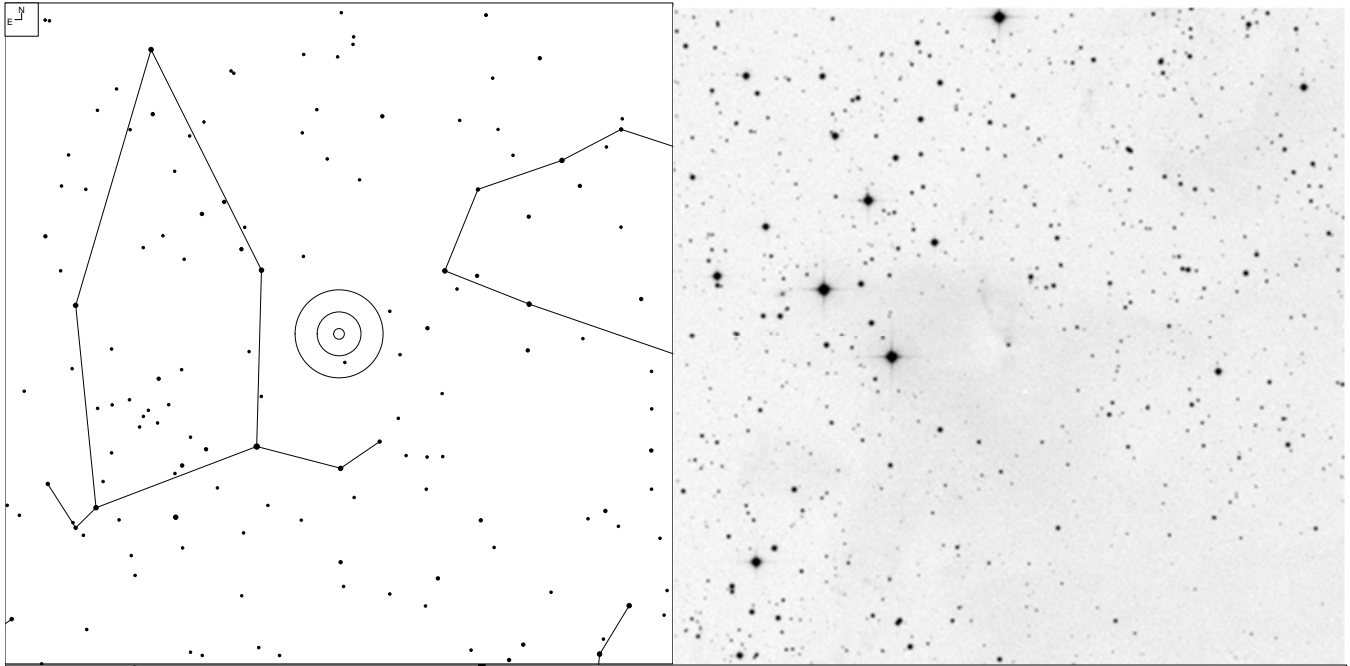
1/3 FoV to the NW is the galaxy NGC7326.

Akarsh

I'm in India for vacation now, and we were conducting a practical astronomy workshop under some reasonable skies last week.

A bunch of observers had a look at the Deerlick group. Unfortunately, conditions weren't the best (hazy skies), and we were able to see 3 members of the group with some difficulty in a 17.5" and two members in a 12" despite the low elevation of Pegasus during the evenings of the month. The observation was made from near Karada, Coorg district, Karnataka, India.

Considerable brightening of Gylbudhagian's Nebula (PV Cephei)



		Galaxy	Open Cl

Object	RA	Dec	Mag	Size
	20 45 54	+ 67 57 51		

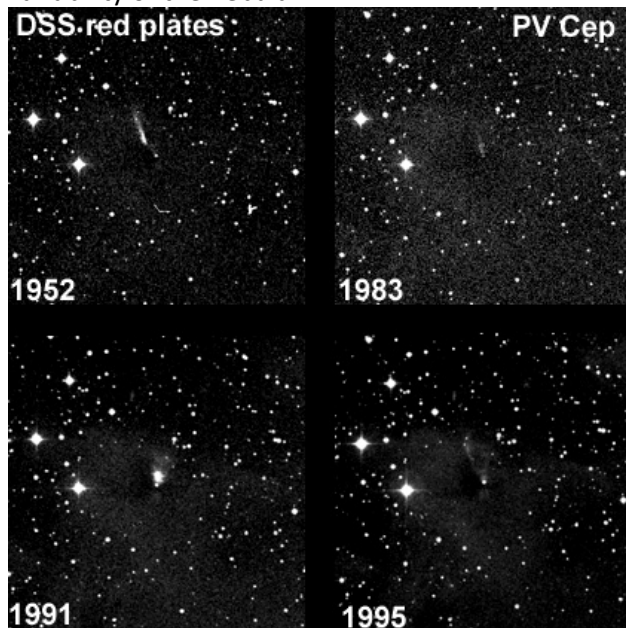
Considerable brightening of Gyulbudhagian's Nebula (PV Cephei)

Reiner Vogel

Gyulbudhagian's Nebula around the young star PV Cephei is an FU-Ori star, short Fuor, which have extreme outbursts of up to 6 mag. While Gyulbudhagian's Nebula was an easy target even for smaller scopes ten years ago, it became considerably more difficult later.



Here is a sample of DSS images showing the variability of the nebula



I have monitored PV Cep and the nebula (or better its visual non-existence :-)) over the past five years. My notes were as follows (with 22"):
09/2008: nothing visible, neither star nor nebula
07/2010: ditto
08/2010: star was suspected several times, doubtful
10/2010: indirectly, a small extended object was suspected, extremely difficult

10/2011: star very difficult, but with certainty. No nebula

08/2012: nothing.

Last week, an image was posted on Cloudy Nights, on which the nebula appeared to have brightened.

<http://www.cloudynights.com/ubbthrea...Number/5996754>

Note that the image is mirrored.

So I tried it Thursday night under alpine skies in the Austrian Alps. And surprise, the nebula was immediately visible without even locating its precise position. It appeared as an easy direct vision object, larger than expected (a bit less than 1') and fan-shaped (only one lobe is visible of this bipolar nebula, the other is obscured by the dust envelope around the star). The fan was of even surface brightness and PV Cephei could not be resolved at the tip of the fan.

Here is a finder chart of this Young Stellar Object http://www.reinervogel.net/pdf/PV_Cephei.pdf

More about this type of objects and Young Stellar Objects in general is on my website http://www.reinervogel.net/YSO/YSO_e.html

Uwe Glahn

Reiner,

perhaps you know my attempts to catch PV Cep ([German side](#)) In English:

05/2009 - 16", no sight

09/2009 - 16", extremely faint glow suspected

10/2009 - 16", two observer suspected faint glow

09/2011 - 27", small and faint plob with stellar peak at the S end, can hold it with averted vision

Thanks for the reminder, I have to try it again.

Reiner Vogel

I guess the sequence of many negative and two semi-positive observations in my list not only reflects the variability of PV Cep, but to a similar extent that of the observing conditions for a threshold object.

I observed it again last night at my nearby local observing spot trying to precisely see the edges, with the eastern edge being easier than the other side. Again, the star itself was not visible only the nebula.

Haju

Do you have special night at Thursday to Friday at the Bielerhöhe!! Very interesting observation of PV Cep!! The outburst is very impressive!! I hope for good observation-conditions in the next days!!

Uwe Glahn

Friedl and I tried the nebula with our 16" and 27" last night from a alpine place with very good transparency.

With 16" it was still faint, but the nebula could easily hold with averted vision. We could not detect any form, it remained as a diffuse glow. With 27" it was a direct vision object. Like you said it seems like a fan shaped nebula. I suspected a shorter but brighter W edge with a spot in it to the S. The star was not visible. All in all not easy to detect the correct form.

Howard Banich

I had a look last night (21.52 SQM, great transparency, terrible seeing) and was surprised how bright G's Nebula is now - I think it's the brightest I've ever seen it. Also, it seemed larger and rounder than I remember. No luck seeing PV Cephei though, but the seeing really was bad at the time.

Reiner Vogel

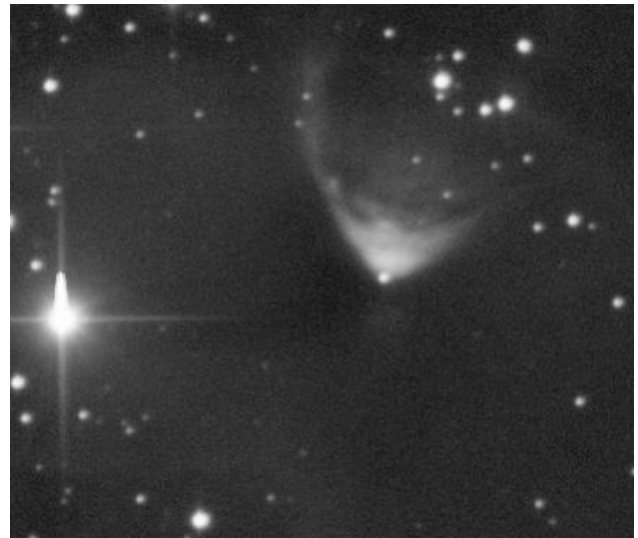
I have revisited PV Cephei several times in the past two months. As you, I was not able to see the star.



Here is a very recent image by Leo Bette, a friend of mine here in Freiburg. The image is just luminance and the star is distinguishable from the nebula.

Due to the dust, however, the star is likely to be much redder than the reflection nebula and hence more difficult to detect visually.

PS: Sorry, you can't see the star in the image due to compression by the forum software. Here is a crop of the center, where the star should be visible.



Howard Banich

Thanks for posting these images Reiner, I'll use them the next time I get a chance to observe. Hopefully I'll have steadier seeing and will have a better chance to see the star.

Steve Gottlieb

Here's another recent observation of G's nebula that I made in August from the northeast corner of California (SQM 21.6-21.7) with my 24-inch. As noted several times, PV Cep was not seen, but the nebula is relatively easy these days.

Gyulbudaghian's Nebula was immediately picked up at 200x as a faint, elongated glow, fanning somewhat (though not as much as I remember from 2003) and extending NNE for ~25". There was slight brightening at the SSW tip, which contains the obscured Herbig Ae pre-main sequence star PV Cep, but as opposed to the earlier observation, PV Cep was not visible. A box or parallelogram asterism consisting of 4 mag 10-13 star is directly east, including a mag 10.5 star 2.4' ESE.

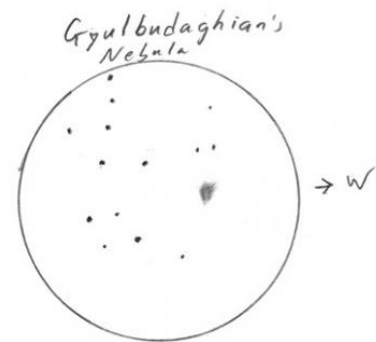
Bill Weir

Oct 8 I finally remembered to have a go at Gyulbudaghian's Nebula with my 20". Years ago from a high altitude site under excellent conditions I made a very iffy observation of the nebula with my 12.5". It was probably about 10 years ago. This time it was at essentially sea level and the SQM reading was only 20.85 as it has been raining lately and there was moisture in the air. On the other hand the seeing was (as it often is here on the southern tip of Vancouver Island) very good. I was at the school observatory a few km down the road from my house.

Once on the field at 180X the nebula was picked up fairly easily. Despite the previous reports I was still

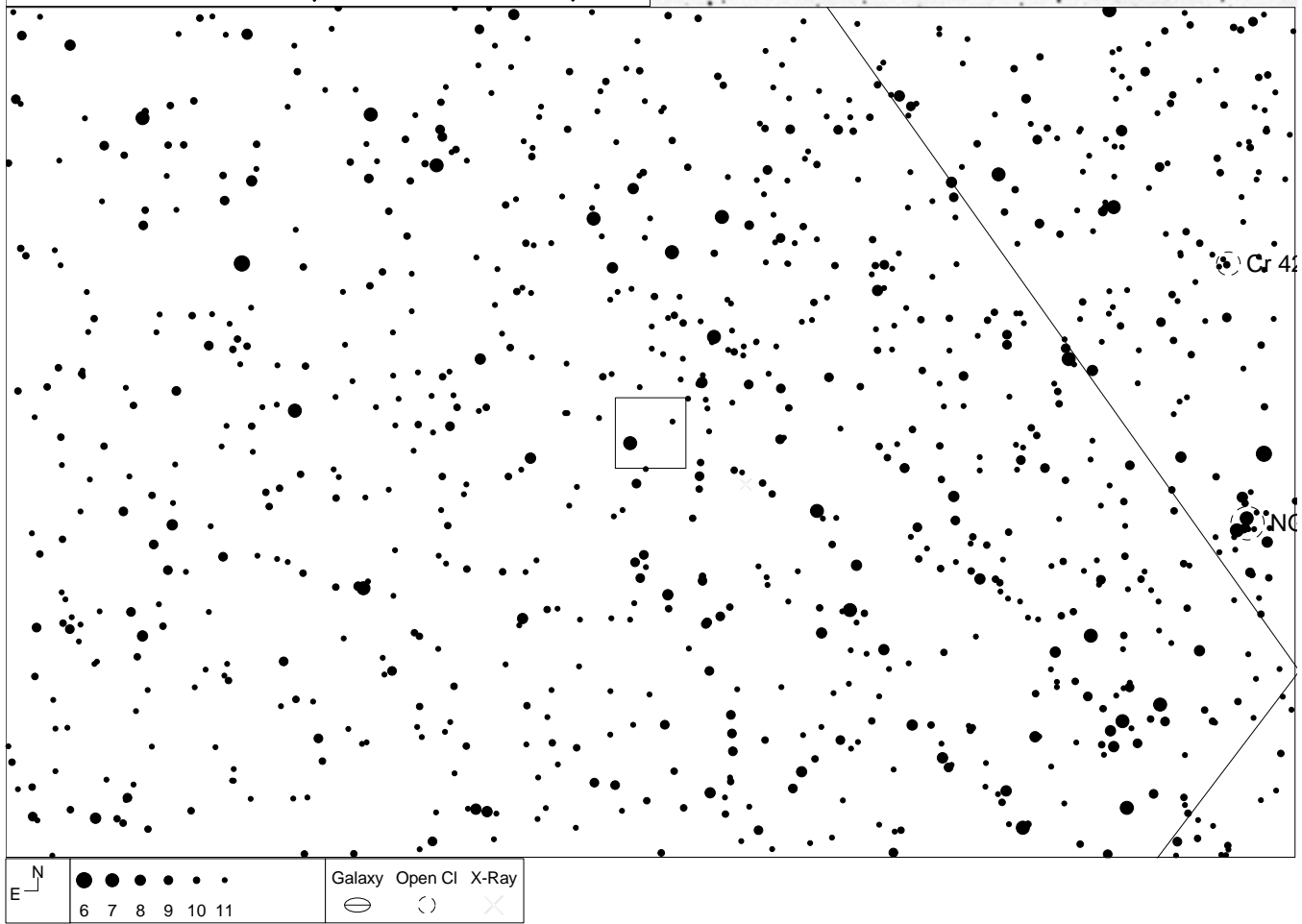
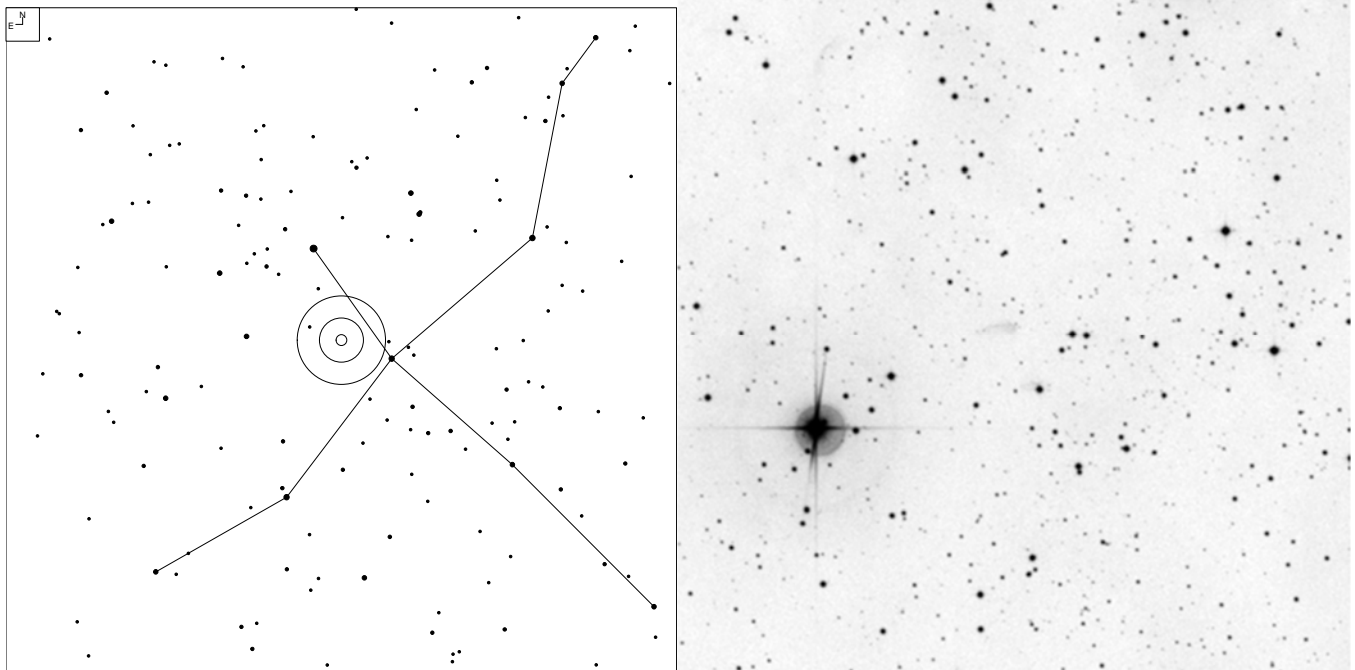
quite surprised at how easy it was. The image held as I increased magnification to 320X. Definite fan shape with the tip pointed south. The eastern edge of the fan appeared brighter and slightly cleaner edged. PV Cep was not seen.

I did a very rough sketch on the lined note paper I had with me and then transferred it to some cleaner paper. My sketching skills are a bit unpracticed so the redone sketch remains rather rough. I apologies at the front end for what I'm attaching.



Oct 8, 2013

IRAS 20324+4057 The Caterpillar or Tadpole (Cygnus)

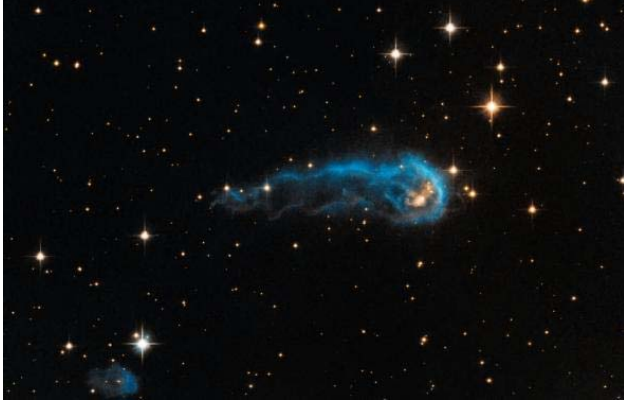


Object	RA	Dec	Mag	Size
IRAS 20324+4057	20 34 13	+41 08 06		

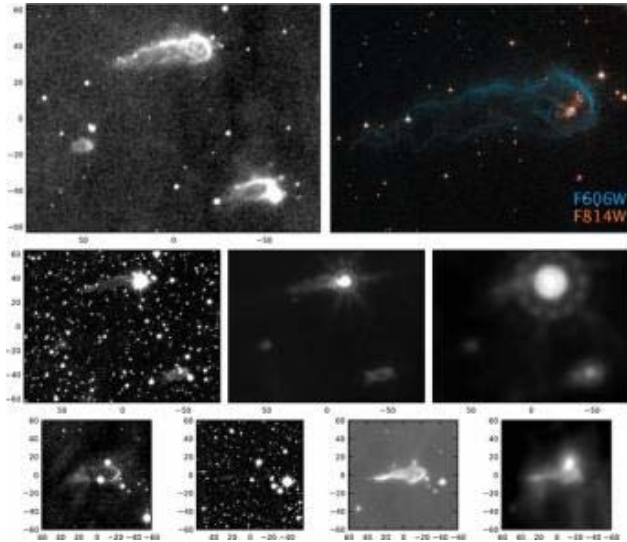
IRAS 20324+4057 The Caterpillar or Tadpole (Cygnus)

Jimi Lowrey

This object seems to have two nick names from the professional papers "The Caterpillar" from the Hubble staff and I have also see it listed as "The Tadpole" in another paper.



The above image was recently released from the HST. I wondered if this YSO that was being stripped of its gas would be able to be seen in my scope? There are three components to this object the Tadpole, Goldfish (lower right in the top left image), and Small Blob. You can see them in the image below.



I tried for these objects over the last few nights and must say that they are really tough to see! The Tadpole or Caterpillar was very tough to see I could only catch it a small percentage of the time with averted vision only @ 813X. I was surprised that the Goldfish nebula by the bright star was a lot easier to see. I could see it with direct vision all the time. The "Small Blob" was not seen! I tried the usual filters NPB, OIII and H beta and got no response as I expected. I will try these objects again and if I get different results I will report what I find.

Johnnes

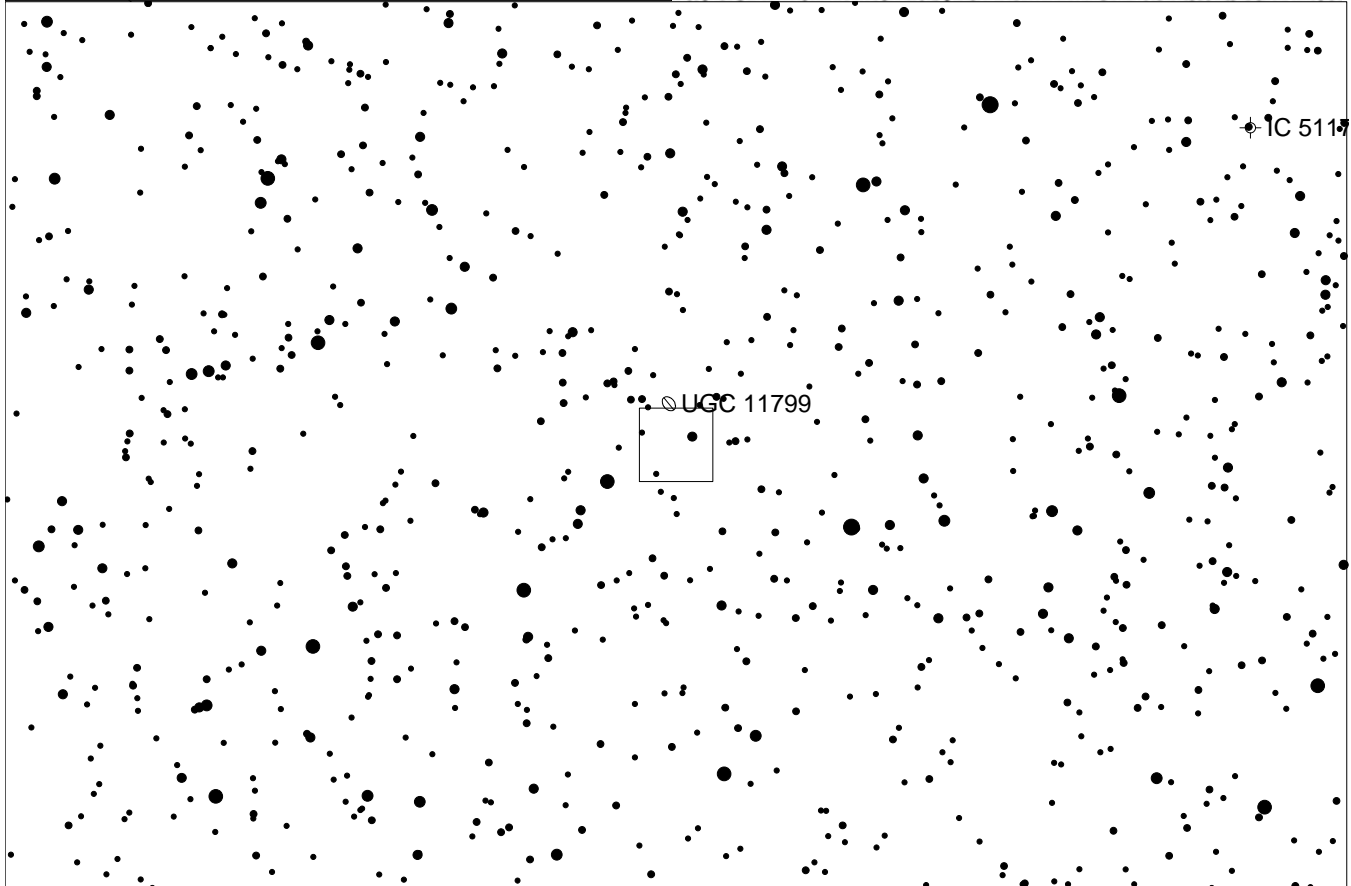
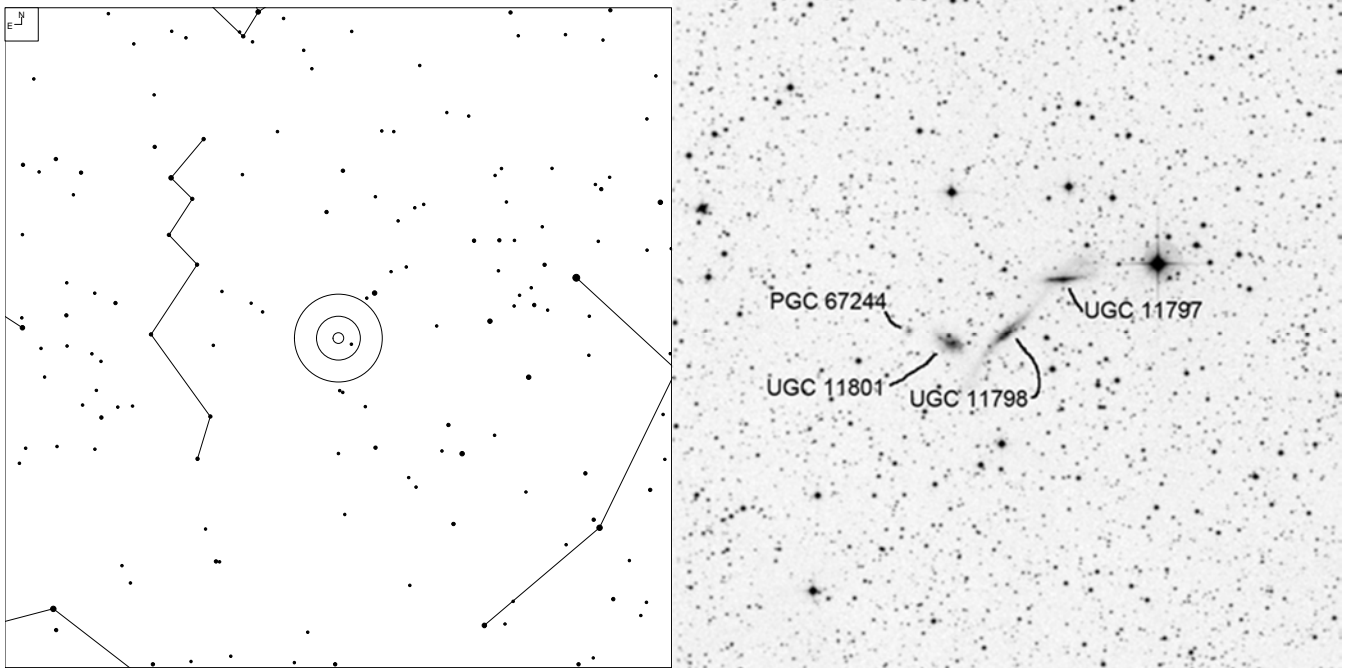
Very interesting observation of IRAS 20324+4057, which is also known as GLMP 1000. I am a bit surprised you could make out anything at all, given the fact that the HST image is a composite of IR, H Alpha and green light. The green part seems to be strong enough for visual observing - with 48".

Reiner Vogel

At first sight, this appears to be a much dimmer version of the tadpole globules in IC 410. Those do, however, respond quite well to filters.

On the DSS they appear to be mainly red and are not visible on the blue plates. Looks *very* challenging :-)

UGC 11798 – Cygnus



Object	RA	Dec	Mag	Size
UGC 11798			14.8	1.6 x 0.3'
UGC 11797	21 43 27.0	+43 33 17	15.2	1.1 x 0.2'
UGC 11801			15.3	0.7 x 0.5'
PGC 67244			15.3	0.1 x 0.1'

UGC 11798 – Cygnus

Dragan Nikin

Ok. To get this forum off to a good start I thought this would be a good object. Now I do realize Cygnus isn't in a prime location this time of year but its not every day you get to talk about a galaxy group in the heart of the Milky Way! We needed to get Off the Beaten Path!

I've known about this object for quite some time and always loved seeing it. Its always been a favorite to show others this faint grouping thats so deep in the Milky Way. My most recent observation came on the night of Aug 02/03 of last years Nebraska Star Party. I hadn't seen it in quite some time up that point so it was nice to revisit. Having been the first time they have ever seen it, it definitely impressed some of the others, Tom Miller, John Spack, and Dave Knisely to name a few.

The best view was with 393x using a 8 Ortho. The three brightest components UGC 11798, 11797, 11801 were visible nearly 100% of the time. The fourth, PGC 67244 came and went very fleetingly making an appearance about a 1/3 of the time. . Using a 6 Ortho gave me 525x but it proved to be too much for the conditions.

As a side, UGC 11799 a 14th mag galaxy is located an easy 10' north of 11798 group.

Imagine that! 5 galaxies within 1/2 degree of each other smack dab in the middle of the Milky Way!

Cool! 😎



Mark Johnson

That is a definite fun group to check out this summer. Very Hicksonesque and within grasp of my scope except maybe the tiny one on the east. The out of frame UGC11799 that you mention all together form what I like to call a pendulum grouping where UGC11799 holds the 'string'. Doubt I'll see the faint SB of UGC11799 but worth a try. I enjoy this sort of group quite a bit. Thanks for the target.

Jimi Lowrey

The little galaxy to the east PGC 67244 is listed in NED at MAG 15.3 that should be easy from a dark sky site in your 18. I sure would like to hear how you do when it rolls around.

Mark Johnson

Good point Jimi, MegaStar shows the same as 15.3. So that is within reach for summer dry skies, should have checked mag. I had not gotten back to this thread but while looking for other pendulum tight groups in my observations I found that Hickson 10 is of that type and it's tiny member is Ngc542 coming in at mag 15.7 which my notes had described only briefly as follows:

NGC 542 And MltG 01 26 30.8 +34 40 31 15.7b 1.0x 0.3'

07/20/09 02:30 LassenBH 338x 5mmTakLE 18SmF3.7

Hick10D: Most difficult of the 4 but averted is a definite show.

I had not noted it was elongated but that is not unusual being near my limits

In any case I look forward to catching the Ugc 17798 group this summer. Thanks.

Jimi Lowrey

The next time you look at Hickson 10 be sure to try MAC 0125+3434 just north of NGC 529 the Sloan (SDSS) gives it a V MAG of 15.8. Be sure to turn up the power and I bet you can catch that one too. 😊

Steve Gottlieb

Well, that little galaxy to the east of UGC 11801 (at 21 43 39.0 +43 33 16) went unseen in my 24" a couple of nights ago, though admittedly the seeing wasn't that good. Still, this was from a dark site with a SQM-L reading of 21.65 and elevation 1400 meters.

I took a closer look at the magnitude after I was home and found Megastar states 15.3, but what is the source and if that magnitude is accurate why did I miss it?

The galaxy is listed in NED as [2MASX J21433900+4333157](#), but there is no magnitude given.

It's listed in HyperLeda as [PGC 67244](#), and they give a B mag = 17.91 with a possible error of +/- 0.5. Finally, I checked the original MCG listing for +7-44-5, and the rough photographic mag is given as 18. Neither of these magnitude may be that accurate but in any case I'm pretty sure Megastar is in error and the magnitude may be closer to 17 or fainter.

If anyone else takes a look at the trio of UGCs, I'd like to hear your results on this 4th galaxy just east.

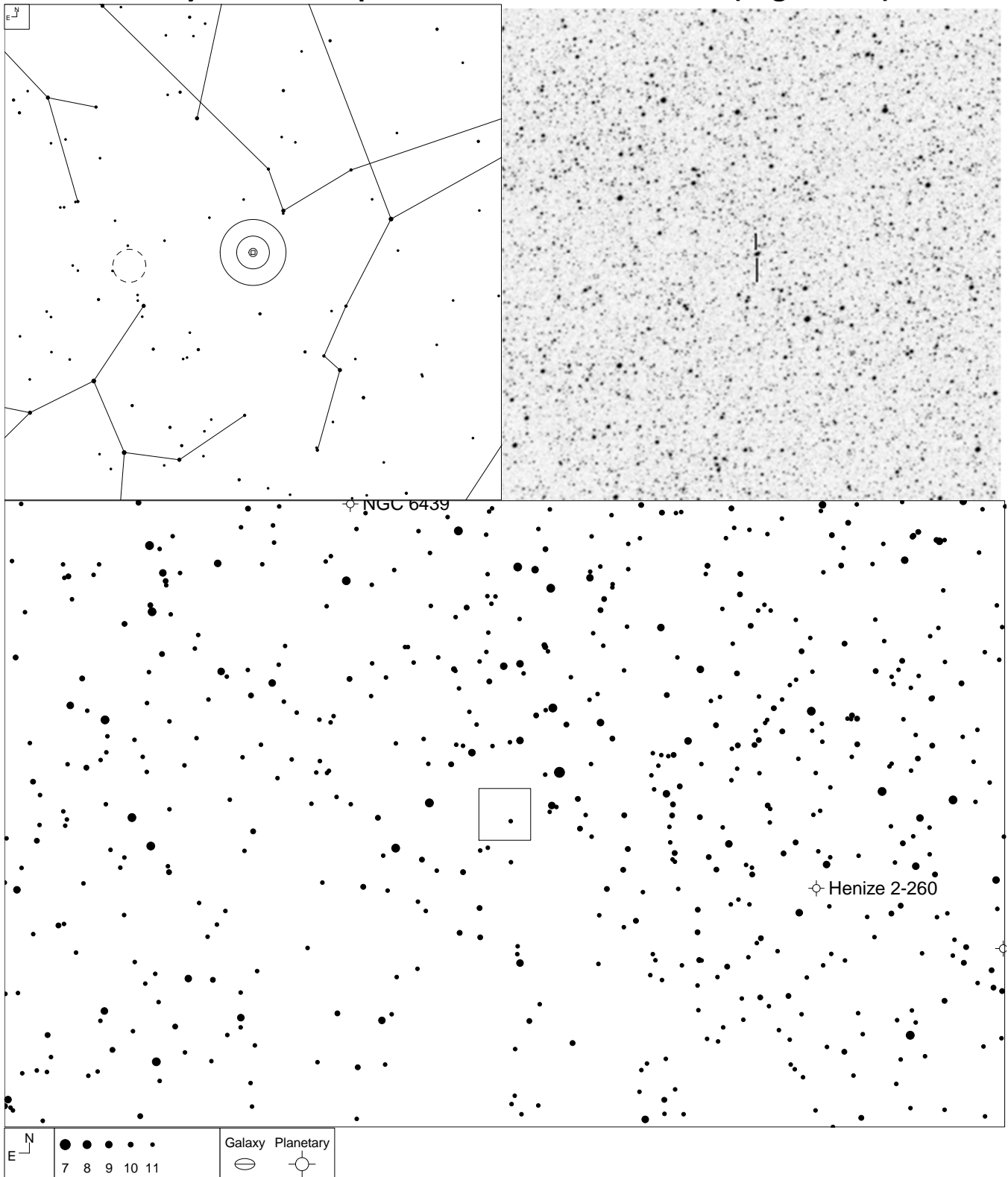
Uwe Glahn

I tried the group last summer and the 4th galaxy was only tough to see with my 27". 15,3mag has to be wrong, 17,9mag seems to fit very good in my mag estimation.



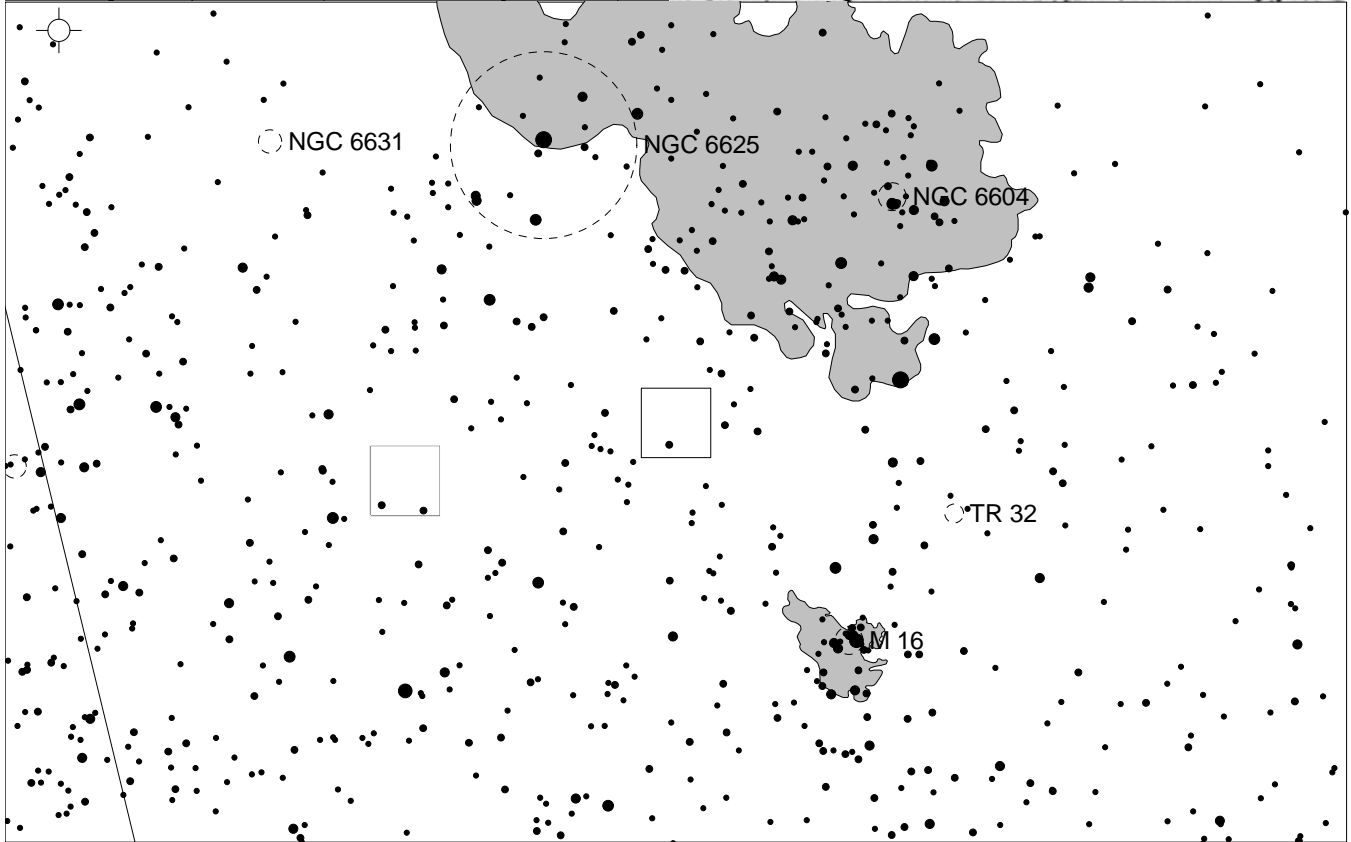
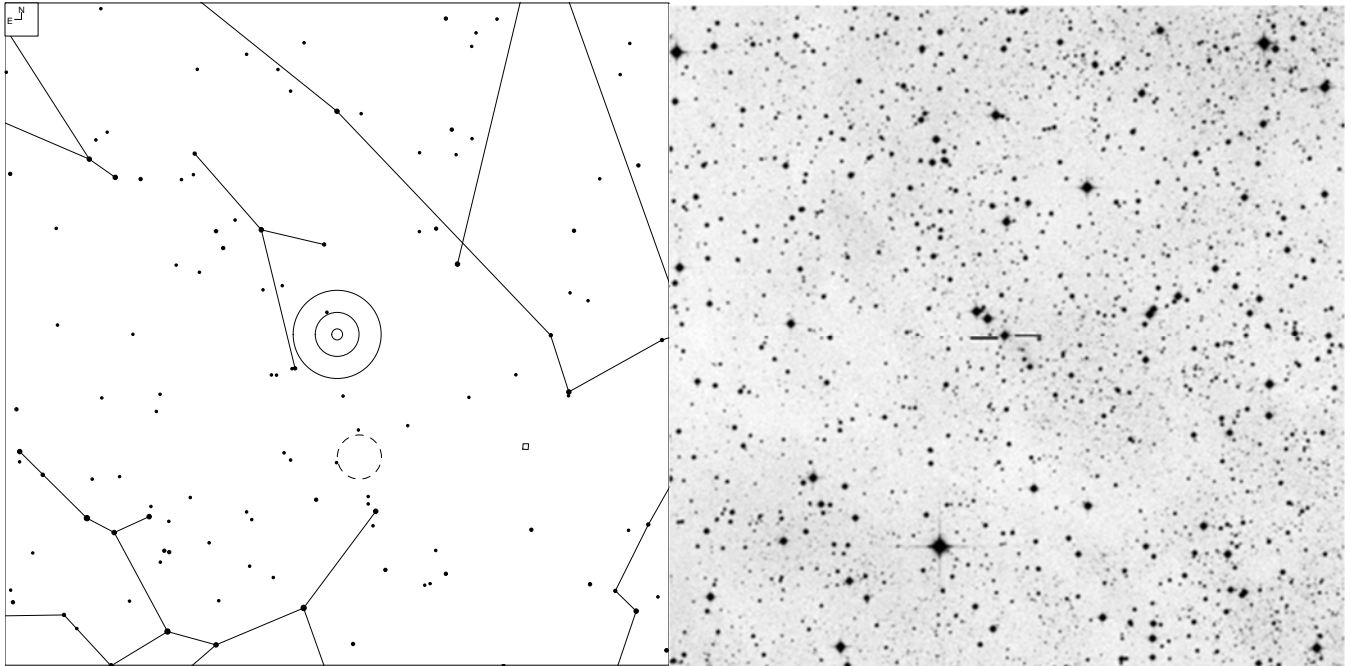
27", 293x, NELM 6m5+, Seeing V

4 very small Protoplanetaries - Henize 3-1475 (Sagittarius)



Object	RA	Dec	Mag	Size
Henize 3-1475	17 45 15	-17 56 46		

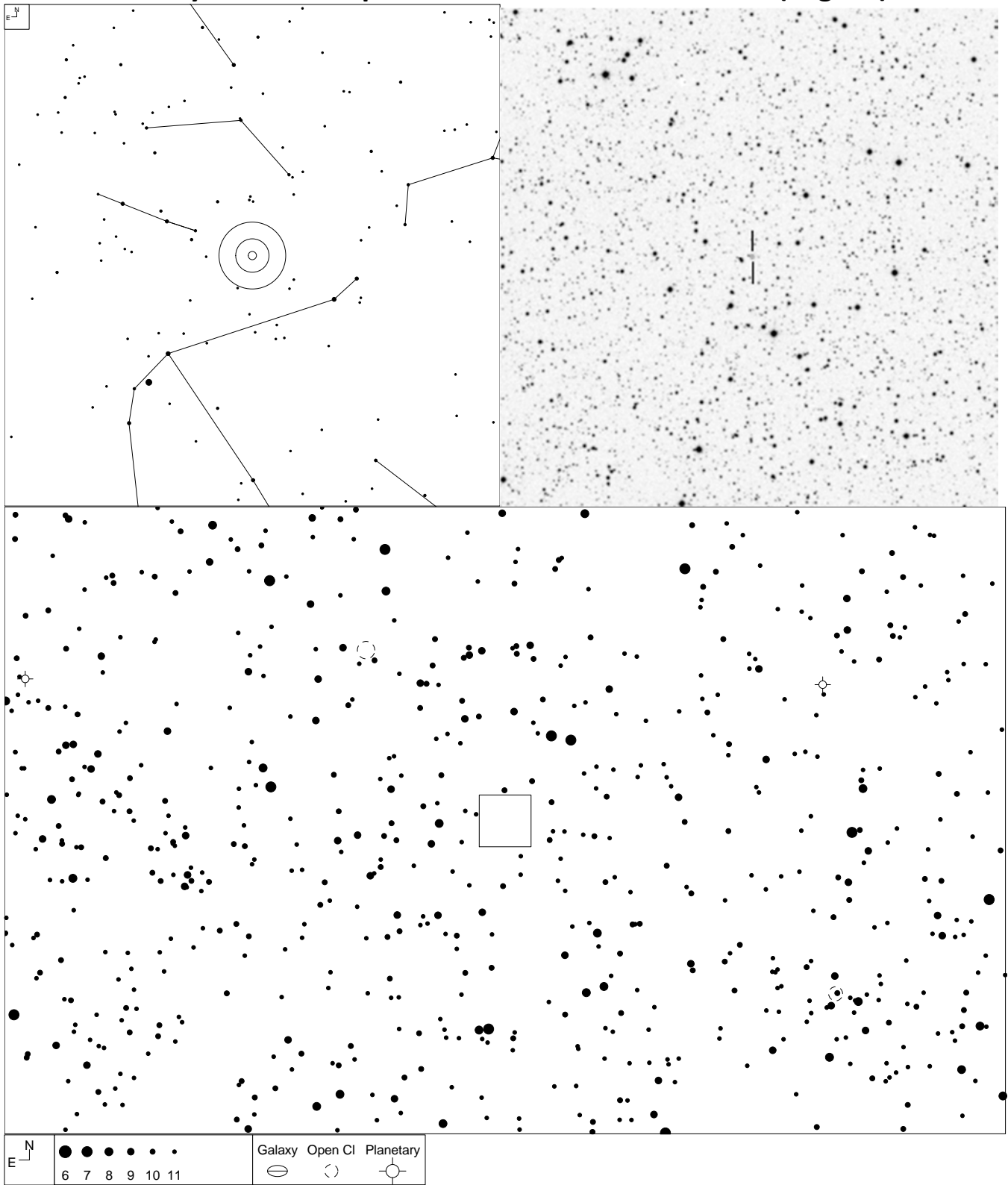
4 very small Protoplanetaries - MWC 922 (Serpens)



E ↙ N ↑	●	●	●	●	●	Galaxy	Open Cl	Planetary	Brt Neb
	6	7	8	9	10	11	☉	☾	☼

Object	RA	Dec	Mag	Size
MWC 922	18 21 15.9	-13 01 27		

4 very small Protoplanetaries - IRAS 19234+1627 (Sagitta)



Object	RA	Dec	Mag	Size
IRAS 19234+1627	19 25 41	+16 33 04		

4 very small Protoplanetaries

Johannes Brachtendorf

With the beginning of this year 2013 I have started to observe protoplanetary nebulae from the list by Reiner Vogel:

<http://www.reinervogel.net/index.html>

I studied the brighter ones like Frosty Leo, Minkowski 1-92, Minkowski 2-9 and the Egg Nebula earlier this year, and have now turned to the fainter and smaller objects. After ruling out those nebulae that are too faint or lower than Dec. -25 (I observe from 48 N), I ended up with four objects: Henize 3-1475 (Garden Sprinkler) in Ophiuchus, MWC 922 (Red Square Nebula) in Serpens (not to be confused with the Red Rectangle in Monoceros), IRAS 19024+0044 in Aquila, and IRAS 19234+1627 in Sagitta. These are experimental observations. I was just curious to find out what is possible regarding these very small objects for us amateurs.

1. Henize 3-1475 (Garden Sprinkler)

17 45 15

-17 56 46

Theory:

The Garden Sprinkler is the brightest, largest and best known of these three objects. There is a spectacular Hubble photo that also explains its nickname:



The Garden Sprinkler is listed with a blue magnitude of 13.8. Thus it is well within the range of medium sized telescopes. Its overall length is 10'' and its maximum width is 2.5''. There is a very nice comparison of Minkowski 1-92 (Minkowski's Footprint) and Henize 3-1475 in an article by M. Manteiga et al., published in the *Astronomical Journal* 141 (2011). Please follow this link, scroll down to Figure 5 and click for "High Resolution Image":

<http://iopscience.iop.org/1538-3881/141/3/80/fulltext/>

As you see here, both objects have the same bi-lobal structure and are equal in length. But the fainter half of Minkowski's Footprint is much brighter than that of the Garden Sprinkler. Also the brighter half of the Garden Sprinkler is much narrower (ca. 2.5'') than that of Minkowski 1-92, but not much fainter. Its length is ca. 4'' measured from the southeastern rim of the bright blob to the first bright knot in the Northwest. It is not implausible to count the first knot in, considering that the photo in the article was taken through Hubble's Filter F555W which has its FWHM between 480 and 600 nm.

At the eyepiece:

The Garden Sprinkler is readily visible as a tiny, but clearly elongated object. The elongation (NW-SE) makes it distinguishable from several other 14m stars in the area. I used powers of 500x, 720x and 1000x to see more details. Filters were of no avail. I assume that not only the central part of the brighter lobe contributes to the image, but also the NW knot #1. Otherwise the image would not be elongated but just round. The main problem is the smallness of the object and the limited seeing at its low position in the sky. The size of the bright part (2''-3'') equals the range of my normal seeing conditions, which makes it very hard to discern any structure within the moving speckles. There are three features that I suspected. First, in rare moments the innermost part of the fainter lobe seemed to become visible as a very small nebulosity. Second, the bright part repeatedly separated in two points of light aligned NW- SE. If this was not just dividing speckles but a real detail, it could be the central part of the bright lobe plus the NW knot #1. Third, at times the SE point of light

seemed to be somewhat extended and roundish towards its SE end, where the dust torus is located.

Although these phenomena appeared repeatedly, I cannot exclude that they were merely caused by poor seeing. Therefore, I would be very interested to hear about other observations, possibly from more southern localities.

2. MWC 922 Red Square Nebula

18 21 15.9
-13 01 27

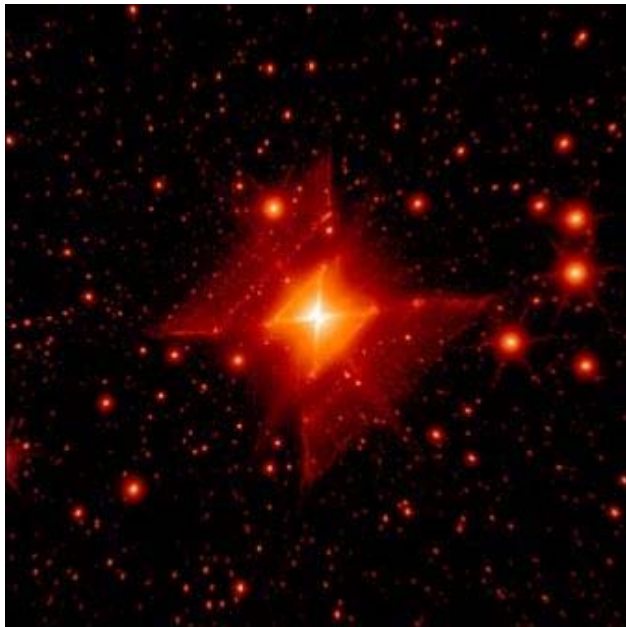


Image courtesy W.M.Keck Observatory

Theory:

With ca. 14 mag. this object is bright enough for observation even in medium size telescopes. There is a nice presentation of MWC 922 by P. Tuthill, which also explains the striking rectangular shape:

<http://www.physics.usyd.edu.au/~gekko/redsquare.html>

The sides of the bright inner square measure 3". This would be large enough for visual observation. However, the problem is that this photo was taken in near infrared at 1.6 micron. In this Hubble photo, taken in the visual range of light, the object has a side length of even 20".

At the eyepiece:

MWC 922 is a little fainter than Henize 3-1475, but still easily visible as a starlike object. Does it appear as a square? Even after three nights of observation,

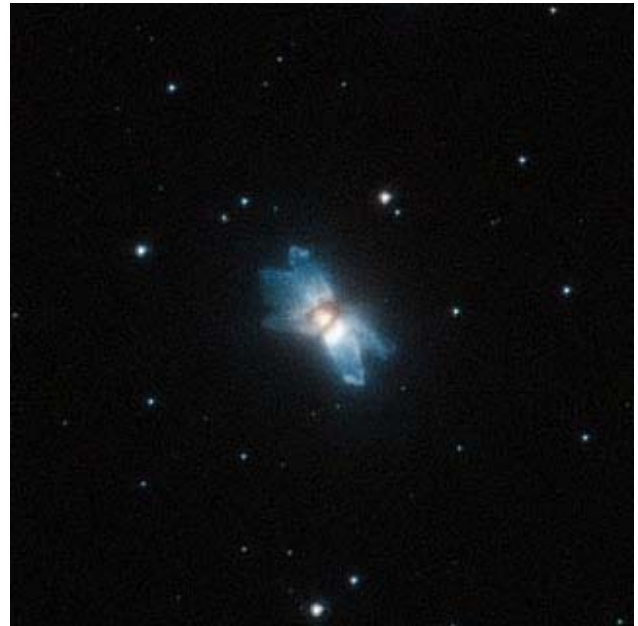
I am not sure. I used powers of 500x, 720x and 1000x, but the side length of 3" is still close to limiting seeing conditions, so there was much instability in the image. At moments the object did appear more like a truly two-dimensional plane than like a smeared out point source. At these moments it also seemed to have straight sides instead of a circular shape like the stars next to it. But these impressions were too vague to support strong claims.

Are there other observations supporting or falsifying my impressions?

3. IRAS 19024+0044 in Aquila

19 05 02
+00 48 51

There is a Hubble photo taken in orange light and in infrared:

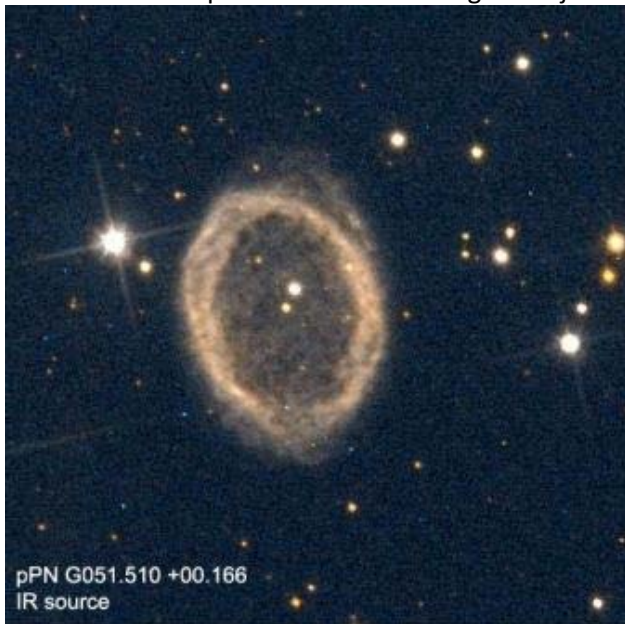


Due to its 5 lobes this object is sometimes called "starfish", but to me it looks more like a bluish moth flying in the night sky. I did see the moth visually, but only as a very faint star shining up occasionally in averted vision. It was way too faint to search for any structures.

4. IRAS 19234+1627

19 25 41
+16 33 04

Here is a Hubble photo of this small ringlike object:

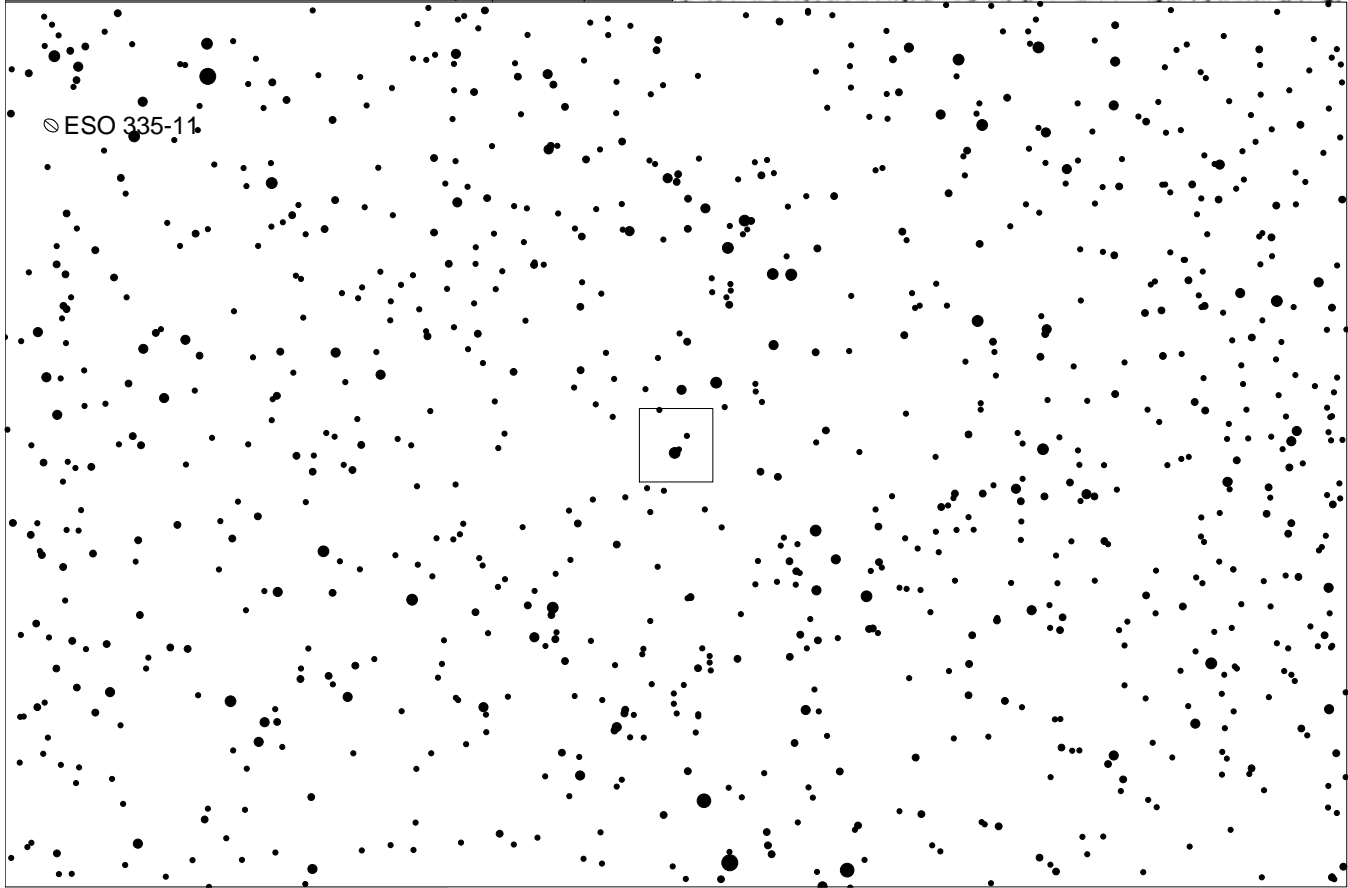
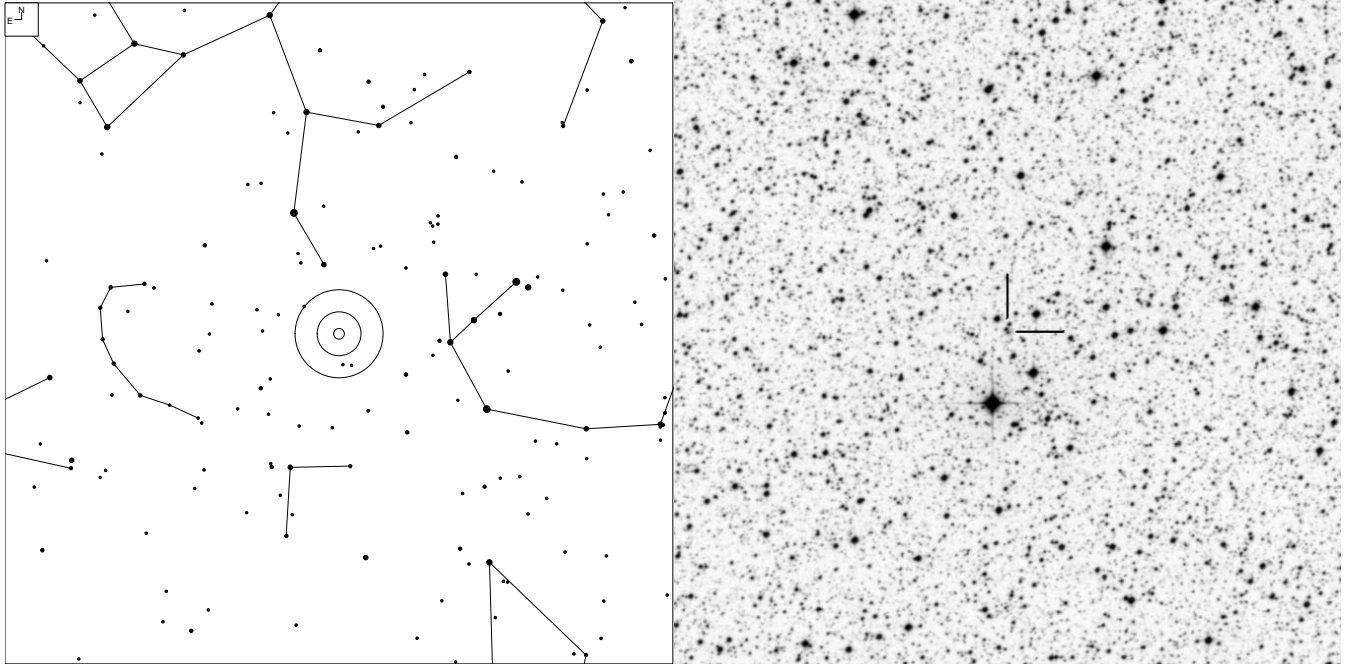


pPN G051.510 +00.166
IR source

IRAS 19234+1627
19 25 40.9 +16 33 04 (2000), FOV=25.6", R:G:B = F814W:comb:F606W
ACS/WFC, credit PI:SAHAI GO9463 NASA/ESA/STScI, Hubble Archives

This object is not visible on the blue POSS II plates, but it clearly shows up on the red ones. So I hoped to see it through a UHC-S filter. The story of my observations is quickly told. Although I could not precisely identify the position, I could not see anything at this place, neither with nor without filter. Its light is probably too red.

New PN? KN J1814-3955 (Corona Australis)



		Galaxy
	5 6 7 8 9 10 11	

Object	RA	Dec	Mag	Size
KN J1814-3955	18 14 11	-39 55 23		

New PN? KN J1814-3955 (Corona Australis)

Jimi Lowrey

Two nights ago I had a positive observation of KN J1814-3955. I am not sure if it has been confirmed to be a PN or not.

I found the field pretty easy at 375X the object looked like a fuzzy star. I bumped up the power to 488X and had the same view just larger. I then put on a NPB filter and went back to 375X and to my surprise got a good response to the filter the object had doubled in size and looked to be a small round diffuse direct vision glow. It was a easy observation and I would think it could be seen in much smaller aperture.

I will draw the field soon and post my sketch.

Thanks for the heads up on this cool object Uwe.

Matthias

Thanks for letting us know about the positive observation of this object; and congratulations also from my side for your first known visual sighting!

I tried this one in March during my four-nights stay at Atacama Lodge in Chile with 18" and 24" and [OIII]. With 18", there was nothing to see at all magnifications. With 24", an extremely faint brightening may have been visible at the position of the PN, but the view was too unsteady to call it an observation. I did not try the UHC-filter on this one, which, in retrospective, may have been an mistake. Also, the observation took place at 6 a.m. in the morning after a full night of observing which also might not have been beneficial

Concerning its status - it has not been confirmed _yet_ (hence the preliminary ID), although from the appearance on the DSS alone (disc + faint blue central star) it is very likely a PN. I hope to be able to tell more about the object in autumn as

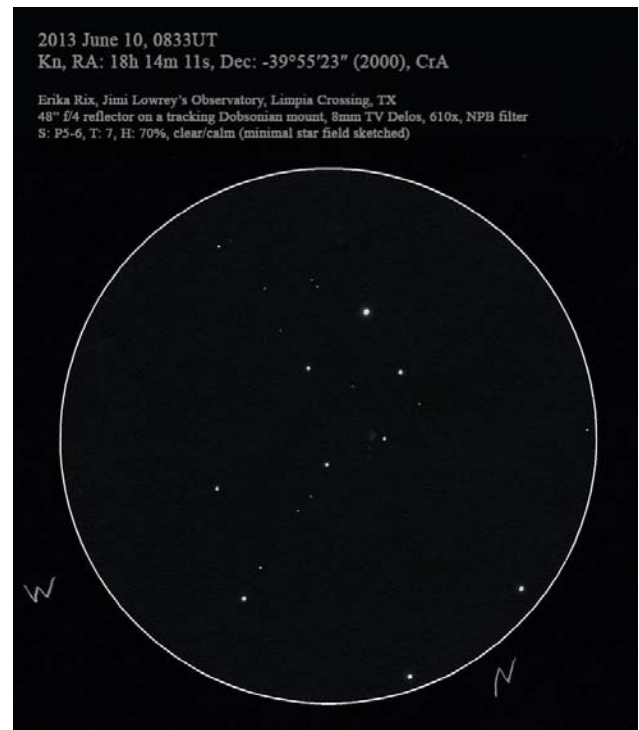
observations of this and other southern PN candidates at LCO are pending.

Did you find some other potential PN candidates recently on SDSS, BTW? We've got telescope time also at KPNO in June ...

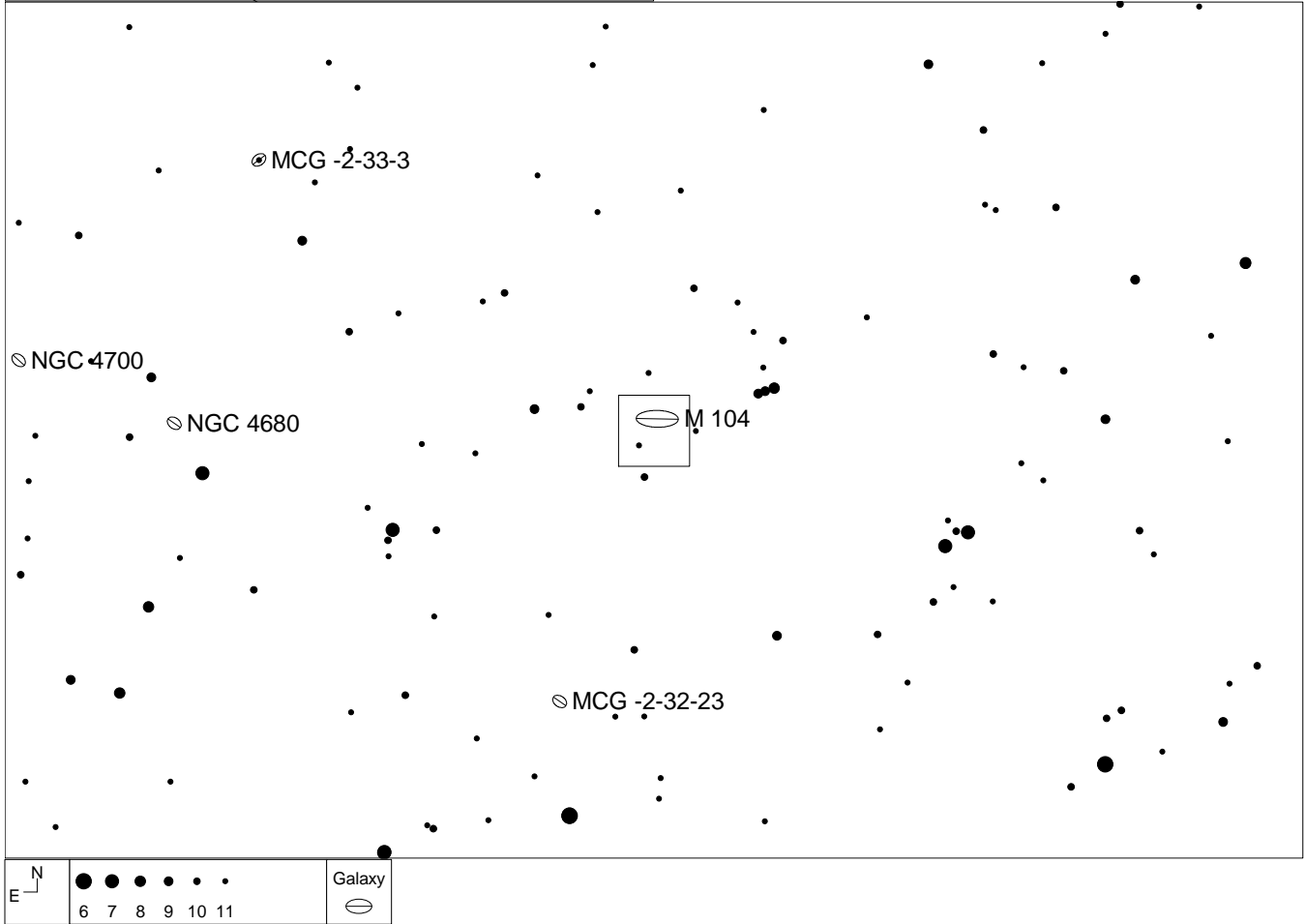
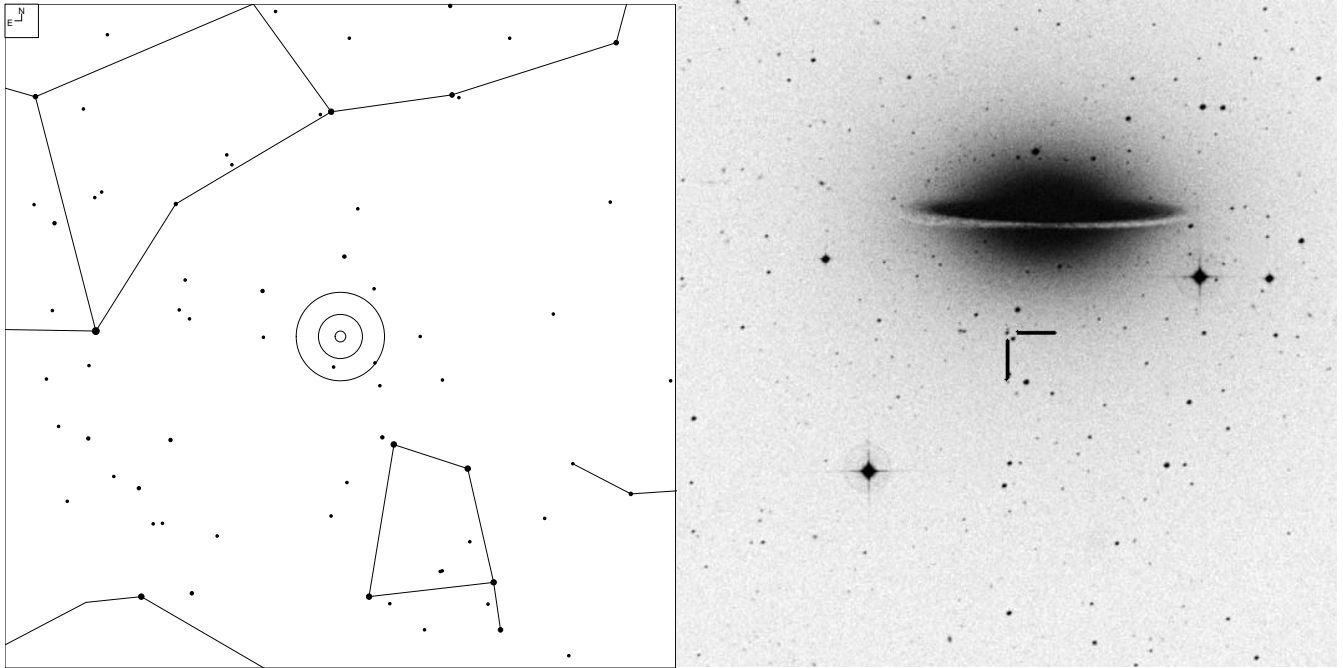
Jimi Lowrey

Early this AM Erika Rix and I were able to see this new PN candidate @ 813 X under excellent conditions here in West Texas. I tried a O III filter but it did not help it much. The best view was with the NPB filter, it really lights up this little object. Erica did a quick drawing at the eyepiece and I will post it later.

Here is Erika Rix's field drawing of this new PN suspect. I must say that it is a perfect match as to what I was seeing at the eyepiece.



SUCD 1 - Star cluster in M-104 (Corvus)



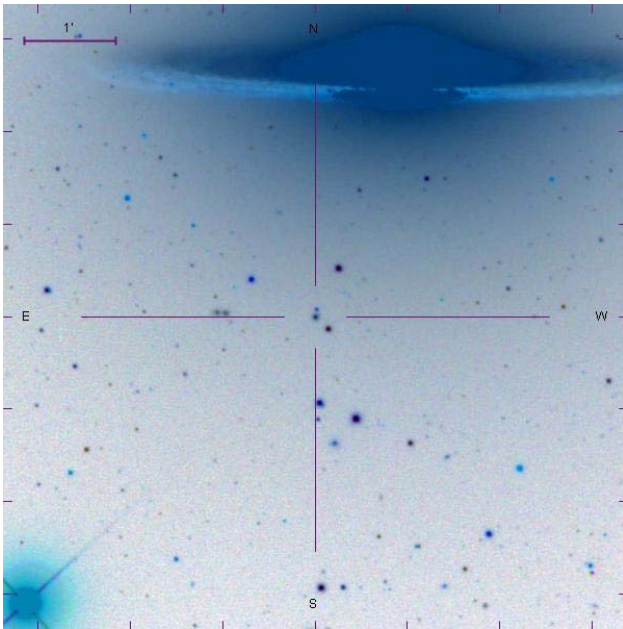
Object	RA	Dec	Mag	Size
SUCD 1	12 40 03	-11 40 04		

SUCD 1 - Star cluster in M-104 (Corvus)

Jimi Lowrey

Last week during the Texas star party. I observed SUCD 1(Sombrero Ultra Compact Dwarf) in M104.

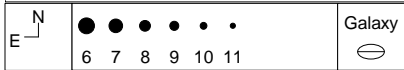
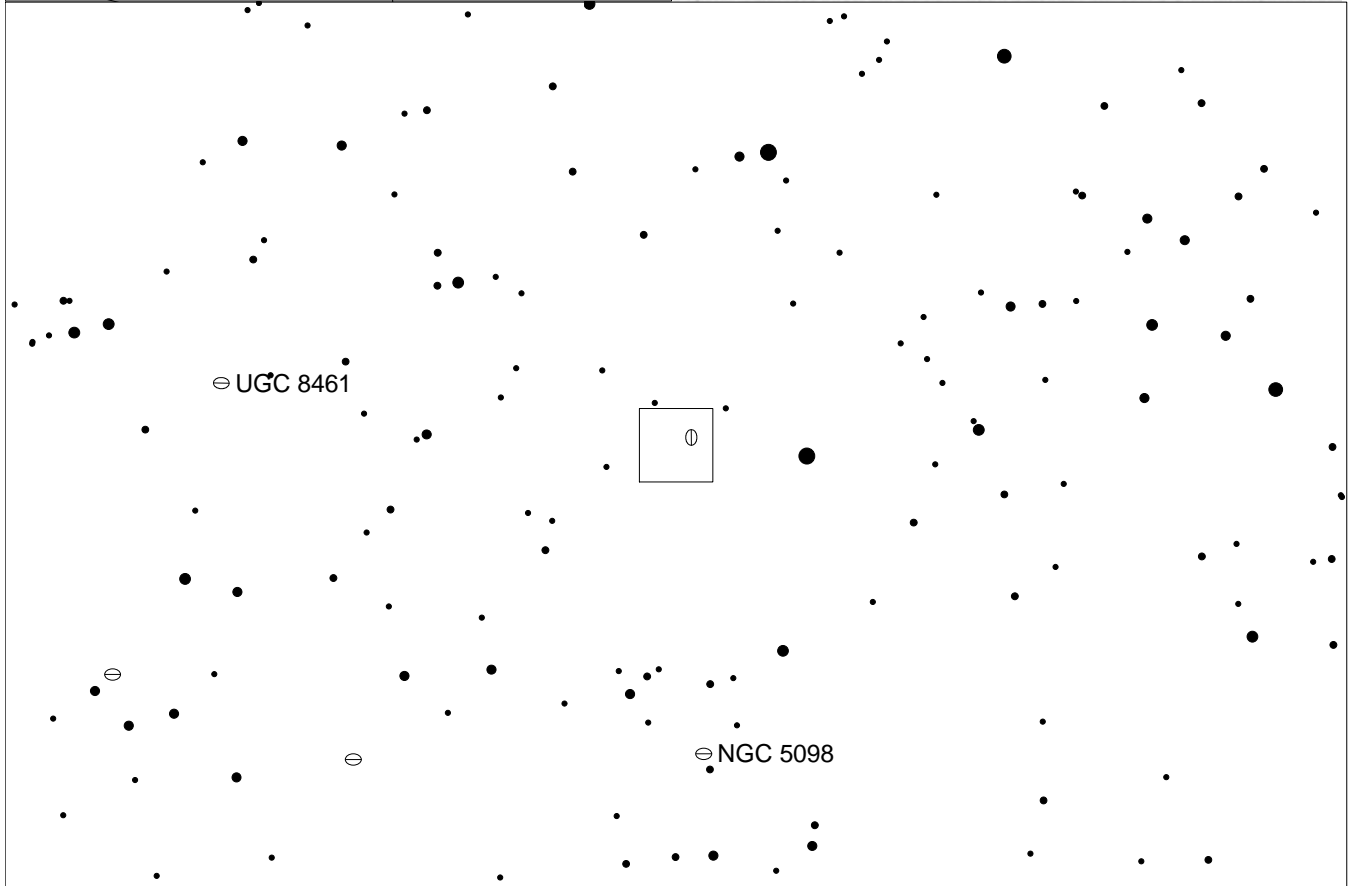
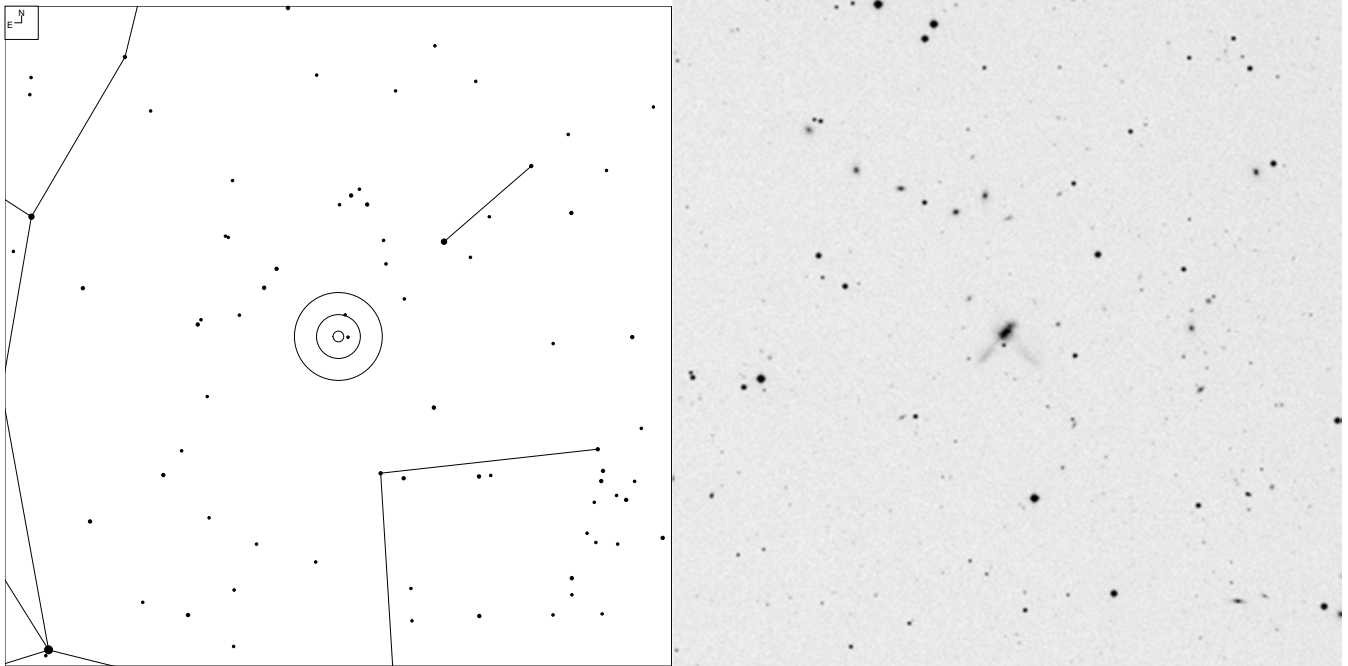
This is one of the brightest UCD's (Ultra Compact Dwarf) that I have found. It was easy direct vision object. I wonder what the smallest aperture is that can catch this star cluster?



Marc Emde

Jimi,
i remember well observing this interesting object with your telescope last week.
Uwe, Frank and i were very impressed of it and asked ourselves the same question: could we see it with Jerry Morris 30" scope?
So we tried it Thursday night at Jerrys observatory (a little window between the quite cloudy skies).
With success! But it was neither with direct vision nor easy visible. Quite difficult for me, but sure i saw it. Same with Uwe and Frank.
I will try it next new moon with my 24 incher, but have the impression it could be very hard to see with this aperture.
Clear skies
Marc

IC 883 (Arp 193) field - tidal tails and a galaxy chain (Canes Venetici)



Object	RA	Dec	Mag	Size
IC 883	13 20 36.2	+34 08 10	14.4p	1.6 x 0.6'

IC 883 (Arp 193) field - tidal tails and a galaxy chain (Canes Venetici)

Uwe Glahn

After years of disappointed attempts to catch the arms of IC 883 a finally was successful last new moon period.

With 27" and mean AP (1,6mm, 419x) a could see both arms for the first time as if they had never been away. First contact was the SE tail. Approx 40" SE of the center of IC 883 I first saw a stellar spot. Later it began to elongate a little bit but without contact to the main galaxy. This arm seemed to have brighter surface brightness. I could hold it steadily with averted vision. The SW tail was a little bit easier with a wider thickness. It was clearly bound with the galaxy itself.

3' NE I could find another interesting group - a galaxy chain out of five members. The members spread over 4' and there blue mags are between 17,2 and 17,4 - a target for telescopes 20"+.

I would be very interested if there is any experience and observations of the tidal tails, perhaps also with smaller aperture?



27",419x, Seeing II-III, NELM 6m5+

Any positive or negative observations of WDHS 1? (Orion)

Reiner Vogel

Last new moon, I tried to observe WDHS 1 (Weinberger, Dengel, Hartl, Sabaddin 1) or WeDe 1 in Orion, one of the largest known PNe (22'). This is a tough object and I had tried to observe it before with negative results. Coordinates are 05 59 24 +10 41 40, size is 22'x17'

Here is a DSS image of the PN



After some time at the eyepiece of my 22" with 7mm exit pupil and OIII (the red color is mostly NII), I suspected an extremely slight brightening at the location of the PN. At the northern edge, the faint glow appeared round, though there is one of these deceiving star chains that make you believe everything :-). I would have thought that this is mostly averted imagination, but the southern edge appeared to be straight at times, like an oval with a cut off end. The other day, I looked at a recent image by [Stephane Zoll](#), that showed a somewhat similar structure.

Andru, a co-observer, was quite unconvinced of seeing anything at the location, so I am quite uncertain about this observation. From my memory, I would put it in the same ballpark as PuWe 1, maybe a tad more difficult (skies were about 6m5 this night and a bit better when I observed PuWe1). Has anybody of you observed or tried to observe this large PN? Maybe someone can even compare it to one of the other large PNe?

Uwe Glahn

Negative Reiner.

I tried the PN 4 years ago under good to very good transparency with my 16" and 69x (AP 5,8mm) + [OIII]. I noticed: "difficult and rich star field full with dangerous chains and knots; PN definitely not seen".

Jen Bohle

I tried this one several years ago under 6mag skies @home- no success (the same negative result as PuWe 1). These stinkers require excellent transparency under true dark skies. Maybe next time under La Palma skies...

A buddy of mine (of us), Frank Richardsen, reported a positive observation using his 20" : a weak glow in rich starfield, arc suspected. See my website.

Reiner Vogel

I hoped for some direct comparison to PuWe1, as I had observed PuWe 1 with certainty last year together with Matthias Kronberger from Schauinsland mountain next to where I live. Thanks also for the mention of Frank's observation. I'll ask him

Akarsh

If it's any data point, my friend John showed me Sh2-216 (1.6 deg) a couple times through his 25". The brightest edge was visible. These objects are probably much fainter?

Reiner Vogel

Yes, WDHS 1 is much fainter than Sharpless 216. But that is only half the story.

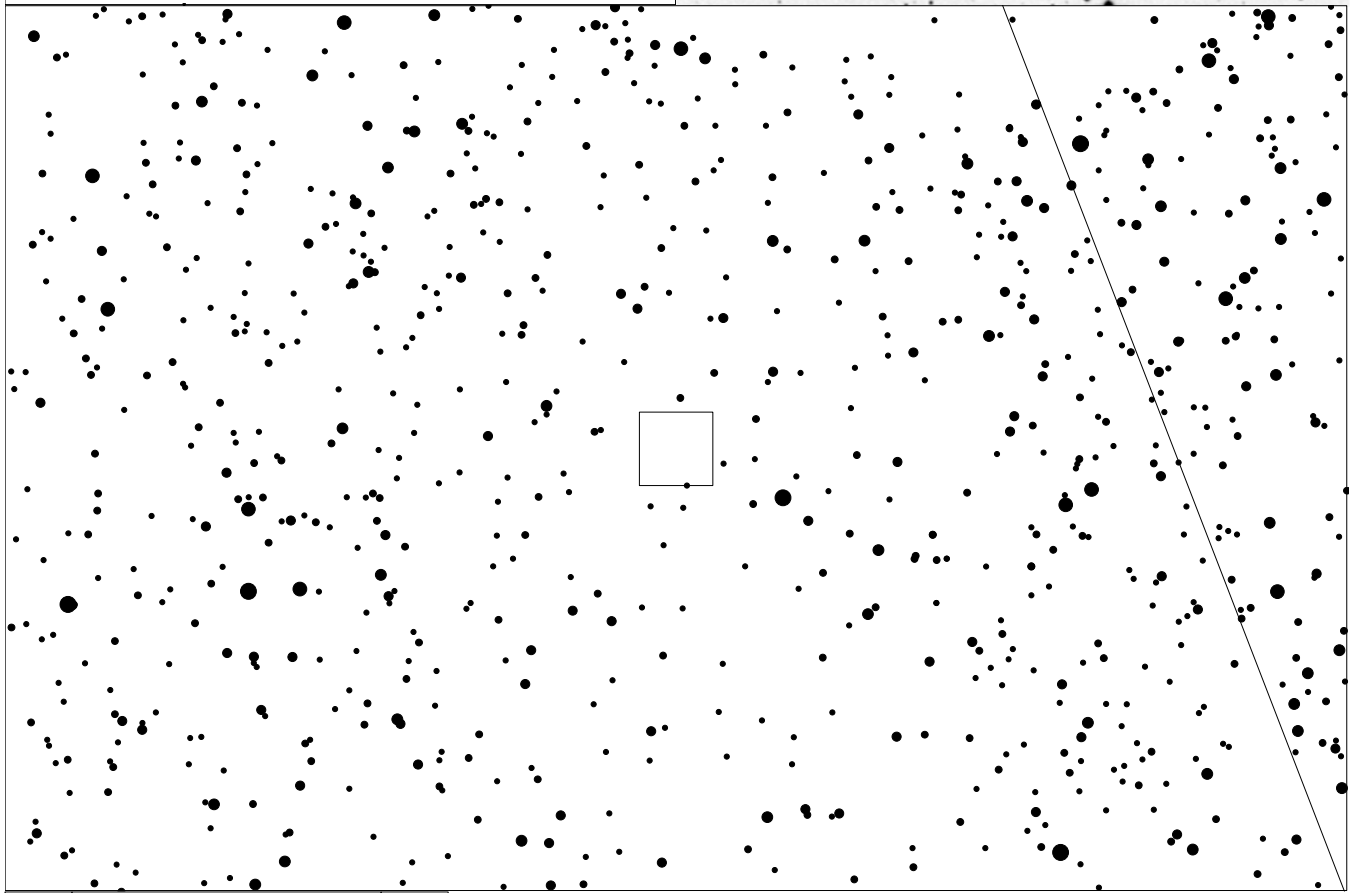
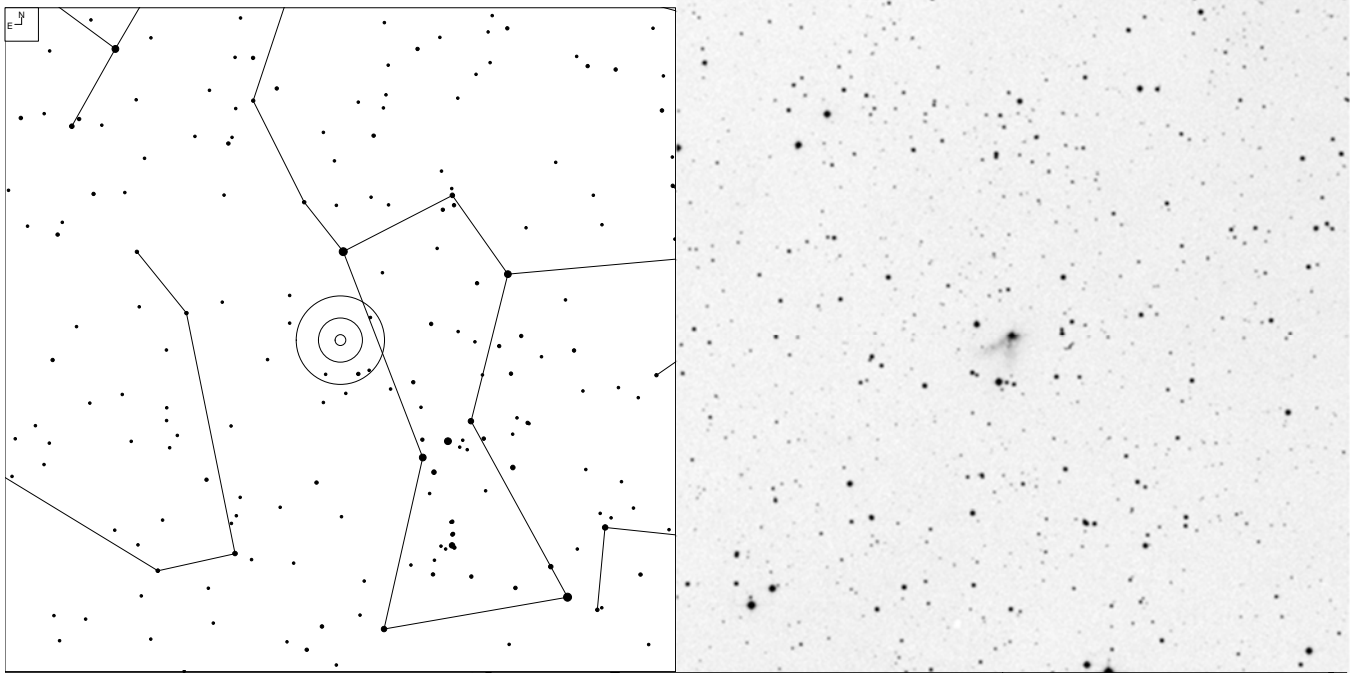
As you mentioned, Sharpless 216 has a diameter of well beyond 1 degree, which makes it a difficult target for large dobs (at least for me). I usually have a hard time seeing Sharpless 216 unambiguously with my 22" and often fail seeing it at all. With my 80 mm finder (equipped with filter), I found Sharpless 216 to be a faint, but visible object, better than with my large telescope. On the other hand, I would never bother trying to see WDHS 1 (or PuWe 1 or one of the other "semi-large" PN) with my little refractor.

Johannes

When I observed Abell 21, I also tried WDHS 1 (WeDe 1) - same night, same conditions. The observation was inconclusive. I would not dare say that I saw a very faint glow at the position with a

round shape. On the other hand, I would not rule it out either. For comparison: Later that night I also tried EGB 1, and in this case I definitely saw nothing. If WeDe 1 is fainter than EGB 1, then the weak glow was an illusion probably caused by star chains. I will try both objects again under better conditions.

II Zw 40 - the cometary galaxy with two tails (Orion)



E ↙ N ↘

 ● ● ● ● ● ● ● ●
 6 7 8 9 10 11 12

 Galaxy

Object	RA	Dec	Mag	Size
II Zw 40	05 55 42.6	+03 23 32	14.7	

II Zw 40 - the cometary galaxy with two tails (Orion)

Steve Gottlieb

I thought discussing a "cometary galaxy" might be a appropriate theme as I had my first view of PANSTARRS from the Berkeley hills today.

II Zw 40 = UGCA 116 is a very strange object. The UGCA calls it "intergalactic nebulosity?" It's been described as a prototypical H II galaxy or BCDG (Blue Compact Dwarf Galaxy) by Sargent & Searle in 1970. The nucleus of II Zw 40 is dominated by one large H II region and fans or tails extend to the south and southeast, suggesting the merger of two galaxies.

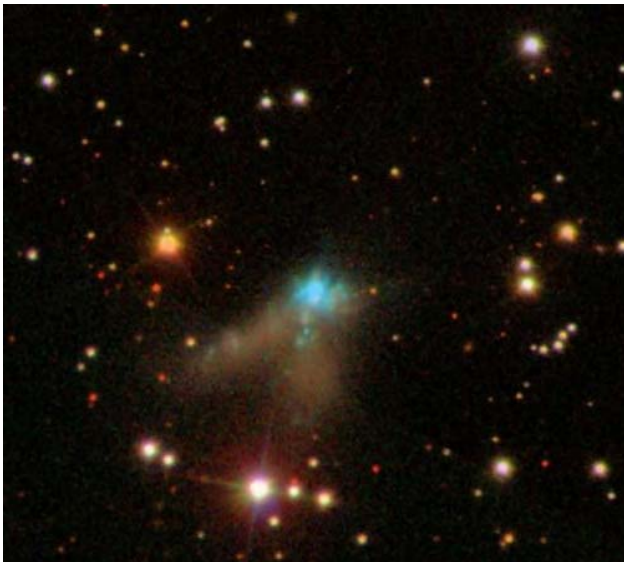
I took a look last Saturday night with my 24" and found a fairly faint, round glow, perhaps 18" diameter. A relatively bright stellar knot appeared to be at the northwest edge, though it was difficult to pinpoint the location. I didn't see any sign of the two tails and I'm guessing they would require more aperture.

Has anyone else observed this interesting galaxy? Check out the blue starburst nucleus on the SDSS image and the dual tails!

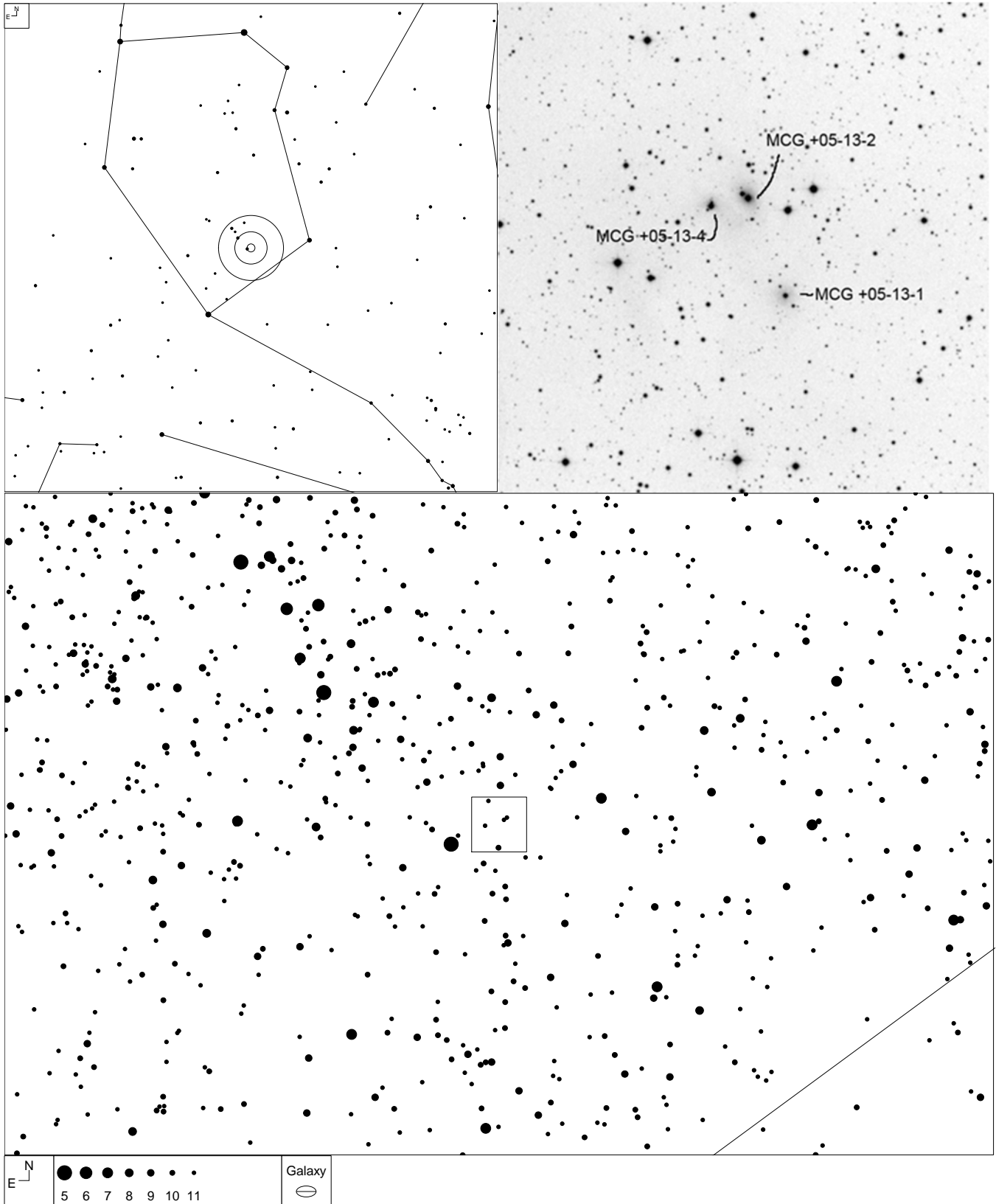
Jimi Lowrey

I revisited this small unusual galaxy last night the blue starburst nucleus looked like a fairly bright fuzzy star at 488X the brighter tail to the south was obvious and extended with AV the other tail was hard to see and only popped a couple of times in moments of good seeing.

This is a really cool galaxy.



MCG +05-13-1/2/3/4 - a misclassified group of reflection nebulae (Auriga)



Object	RA	Dec	Mag	Size
MCG +05-13-1	05 14 16.1	+32 45 19		0.8'
MCG +05-13-2/3	05 14 21.5	+32 48 17		0.5'
MCG +05-13-4	05 14 27.1	+32 48 02		0.2'

MCG +05-13-1/2/3/4 - a misclassified group of reflection nebulae (Auriga)

Steve Gottlieb

A couple of nights ago, I also looked at this group of very compact reflection nebulae, about 3.5° from the galactic equator in Auriga. HyperLeda still lists them as galaxies but NED has them reclassified as RN, except for MCG +05-13-1, which Weinberger lists as a galaxy in his catalogue of galaxies in the ZOA. Based on their location and similar appearance, they're probably all small reflection nebulae.

Speaking of location, these objects are found just $15'$ WNW of the bright triple star 14 Aur = $\Sigma 653$ ($5.2/8.9$ at $14''$), with a fainter third component. Although these are not very exciting visual objects, they are very easy to find and a nice challenge due to their small size and glare from the illuminating stars. Here are my notes at $375\times$

MCG +05-13-1 = PGC 16961

05 14 16.1 +32 45 19

Size $0.8'$

This compact reflection nebula appeared as a faint glow surrounding a mag 13.5 star, perhaps $20''$ diameter. In a group of misclassified RN with MCG +05-13-002/3 $3.2'$ NNE and MCG +05-13-004 $3.6'$ NE.

MCG +05-13-2/3 = PGC 16963 = PGC 16962

05 14 21.5 +32 48 17

Size $0.5'$

A small, faint halo, $\sim 18''$ diameter, was visible surrounding a $12''$ pair of mag 12/13 stars. Both components of the pair carry their own MCG/PGC numbers.

MCG +05-13-004 = Magakian 92 = GN 05.11.2 = PGC 16970

05 14 27.1 +32 48 02

Size $0.2'$

Very small, very faint halo surrounding a mag 12 star, $10''$ - $15''$ diameter. MCG +05-13-2/3 lies $1.1'$ W.



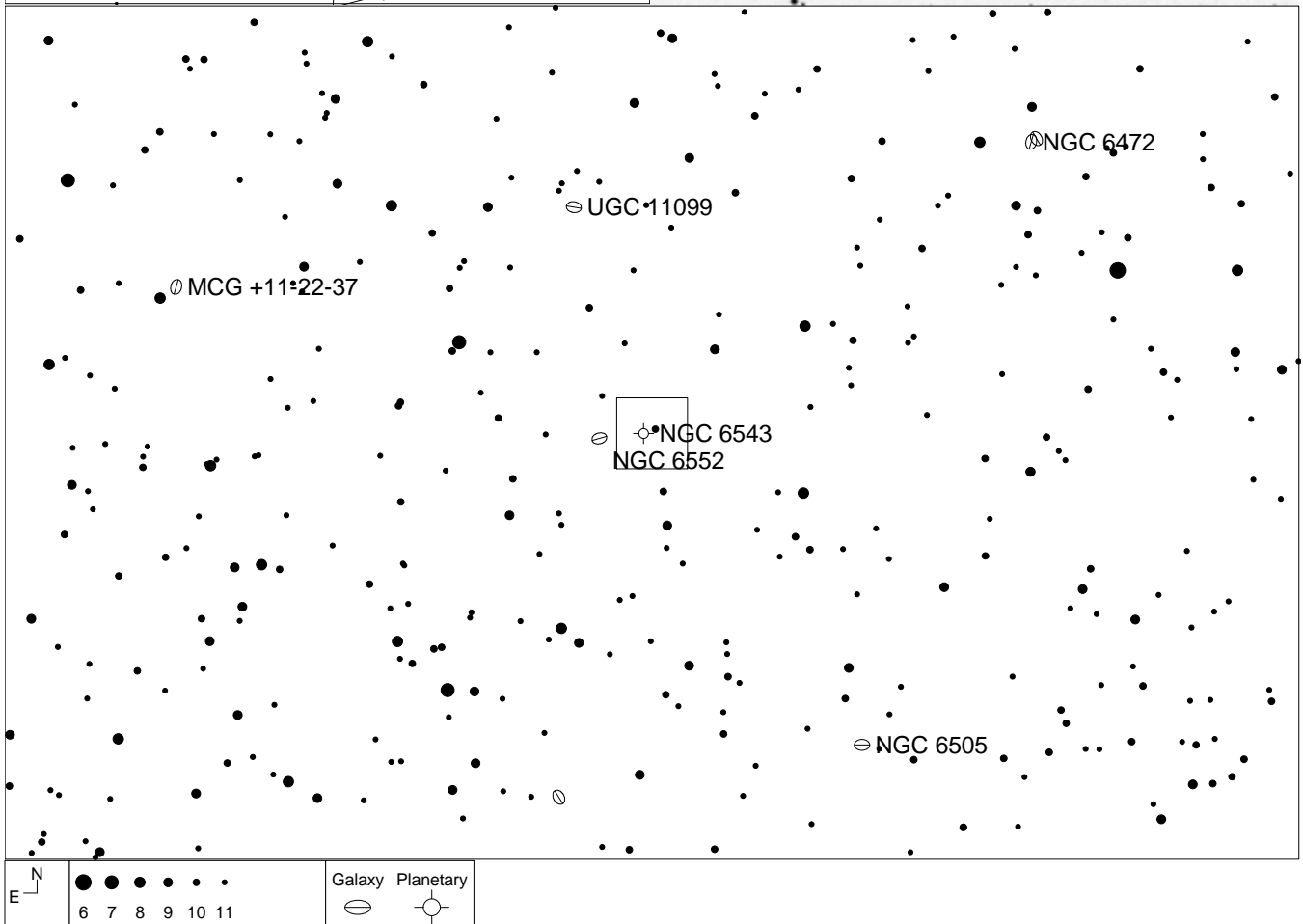
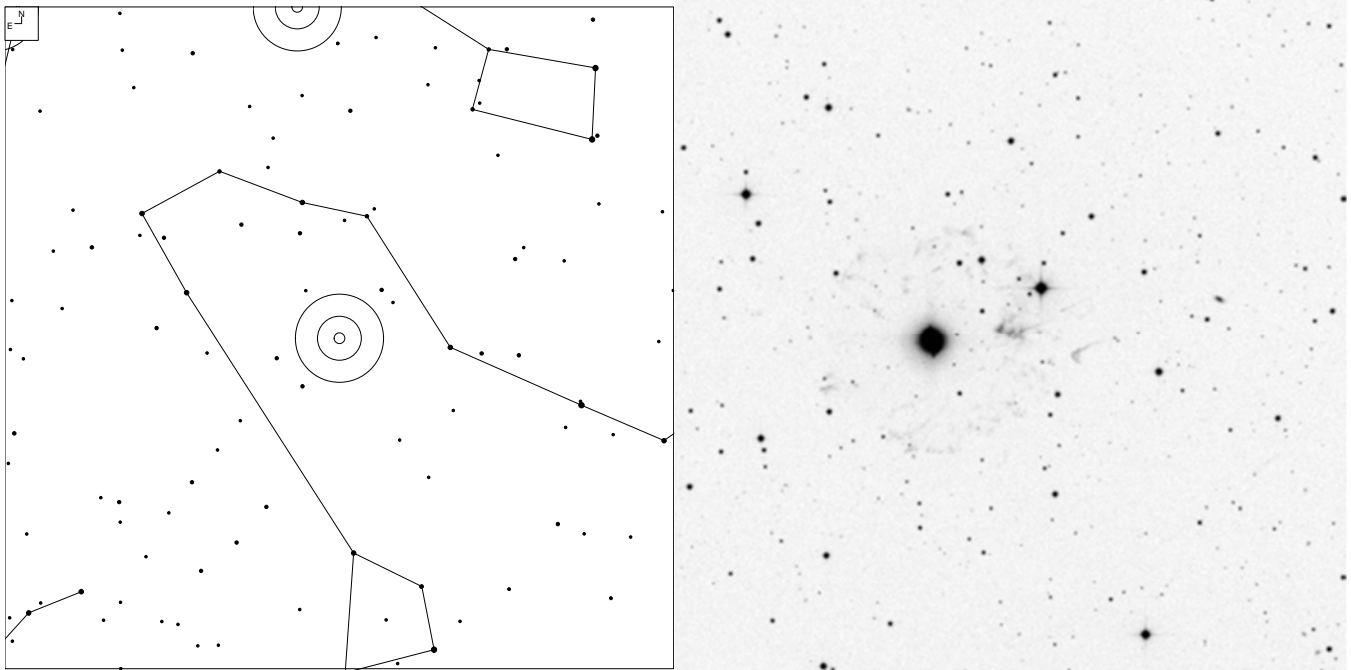
Ivan Maly

Interesting objects in an interesting location. I assume you viewed them with the $24''$. NED gives mag. 15 for PGC 16961, so it seems that at least the -62-63 pair also may be within reach of my $16''$ if I do it right.

Steve Gottlieb

Yep, the observations were with my $24''$. I previously had a negative observation with my $18''$, though sky conditions may have had a larger role.

IC 4677 a-f (Draco)

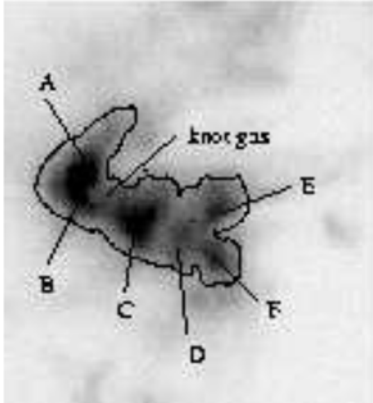


Object	RA	Dec	Mag	Size
IC 4677	17 58 15.79	+66 37 59.2		

IC 4677 a-f (Draco)

Jens Bohle

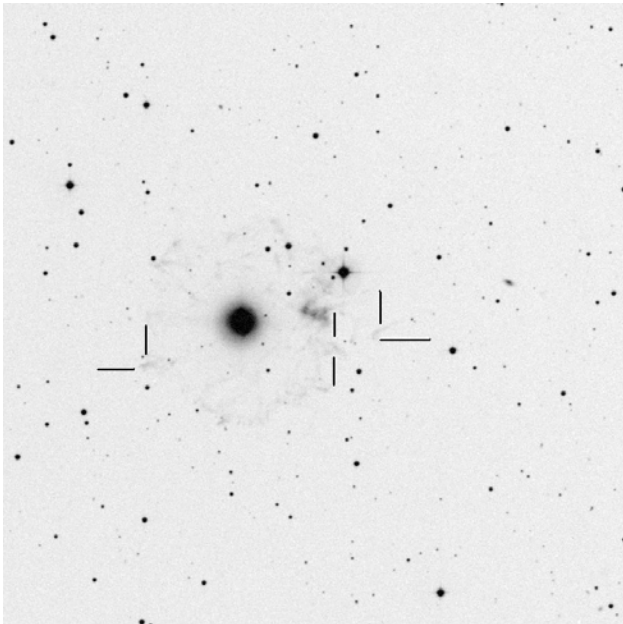
Has anybody out there observed the knots A-F in IC 4677 (the large bright condensation in the halo of Cat-Eye-nebula)?



Jimi Lowrey

I have not looked for the knots that you are asking about. I do not think that they would be difficult with a O III filter.

I have seen the parts that I marked on the image. Unfiltered.

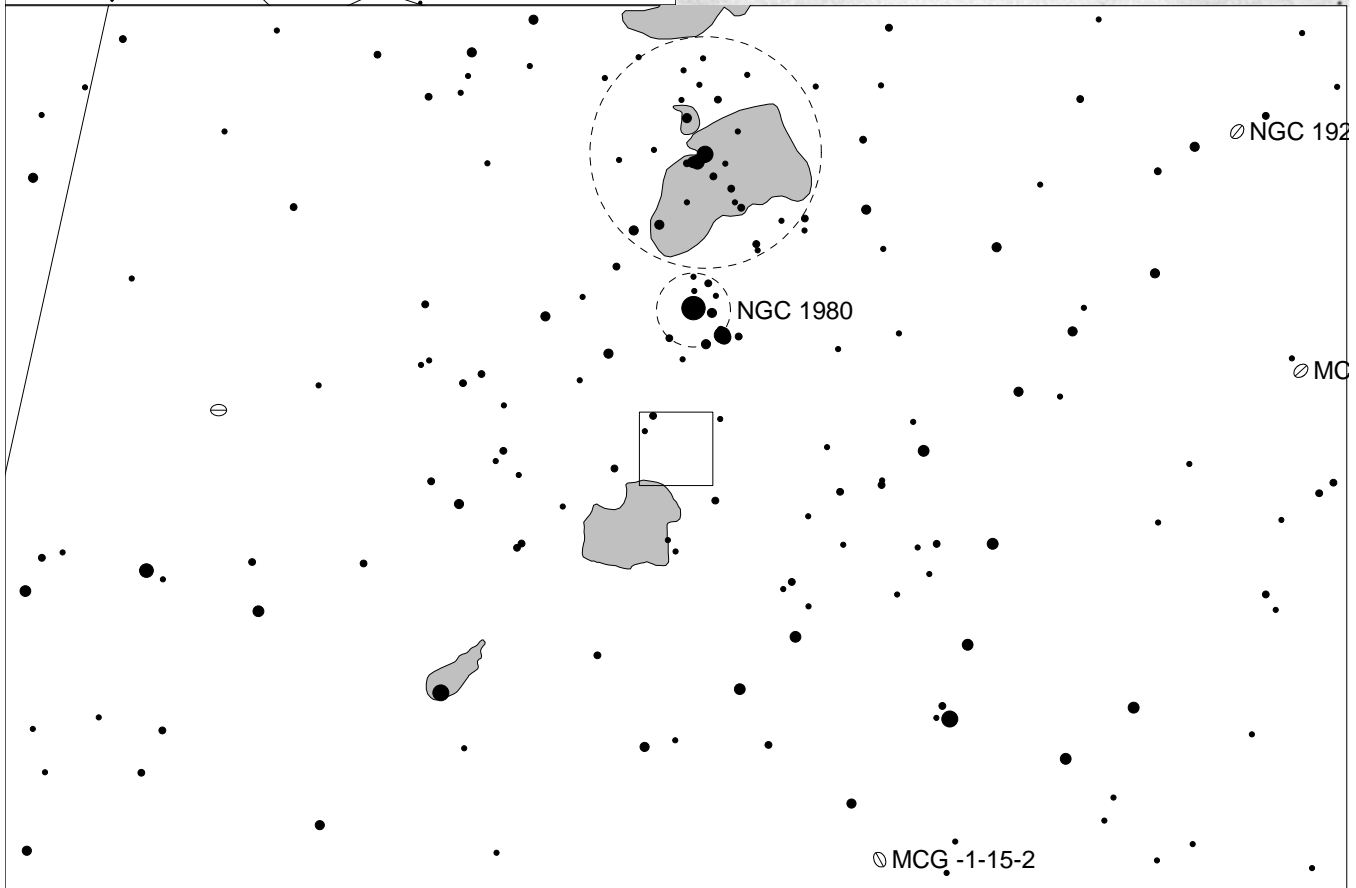
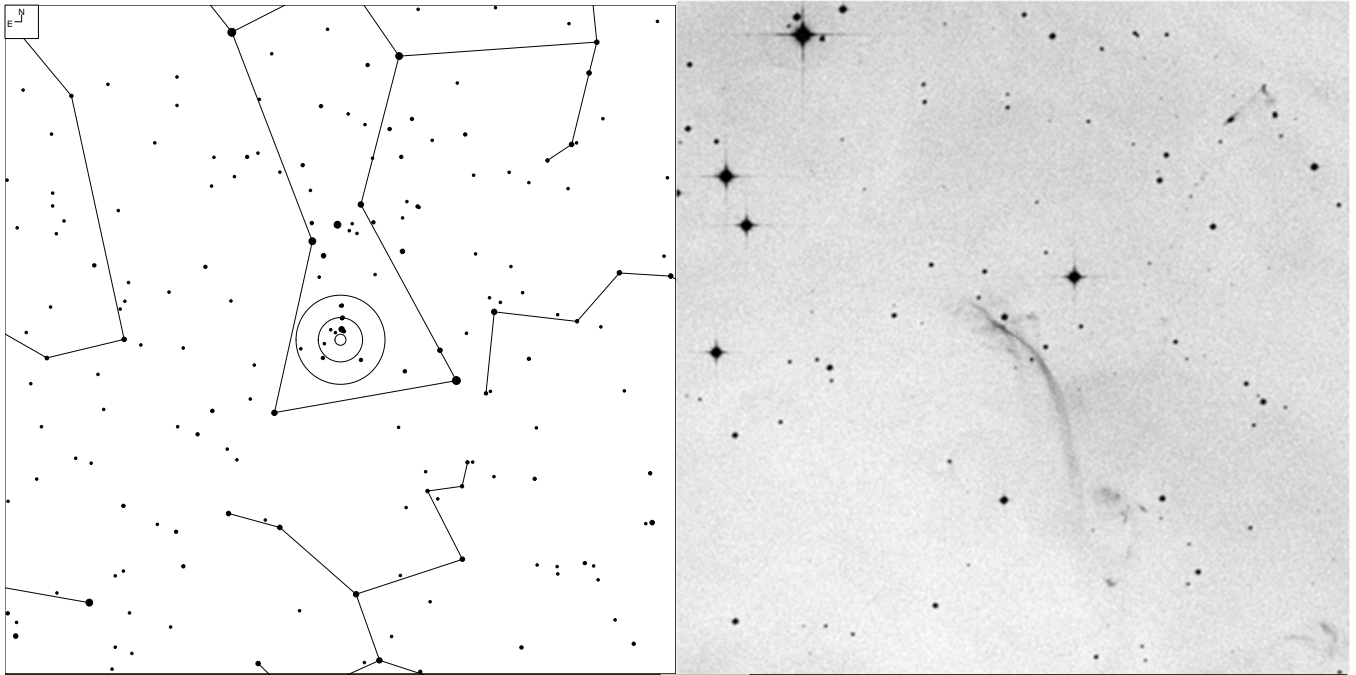


Howard Banich

I've clearly seen the entire outer halo around NGC 6543, which includes IC 4677, with the 2.2 meter Bok telescope on Kitt Peak a few years ago but I didn't look closely enough at 4677 itself to say if the A-F knots were visible. The seeing wasn't very steady while we observed 6543 but I think with a few minutes to observe and steady skies that they would have been seen. However, I did easily see the hexagon shape of the outer halo and that was really cool!

I've seen about half the outer halo with my 28 inch and 4677 is by far the brightest part but it's looked like a single object, not a collection of knots. Here too I haven't been looking for them so now next time I'll see what I can detect. Your finder chart will be really helpful, thanks.

HH 222 [Waterfall] (Orion)



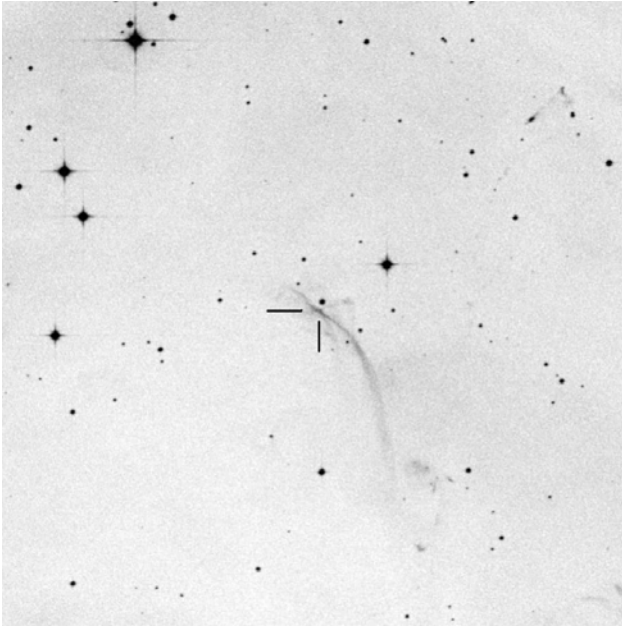
E ↙ N ↘	● ● ● ● ● ● ● ●	Galaxy	Open Cl	Brt Neb
	3 4 5 6 7 8 9 10	☉	○	□

Object	RA	Dec	Mag	Size
HH 222	05 35 40.3	-06 23 13		~1.8' long

HH 222 [Waterfall] (Orion)

Jimi Lowrey

I looked at HH 222 the waterfall last week after viewing NGC 1999. I must say this is a difficult object. The only part that I could see was the small brighter patch near the star that I have marked in the image below. It was seen as small extremely dim patch with AV only. I tried several filters and high and low power but it did not help it any. The best view that night was with a 10MM ZAO @ 488X unfiltered. The waterfall shape of this nebula was NOT seen.



Reiner Vogel

This one had been on my to-do list for some time, but I never made it to try to observe it (also in part due to the unfavorable weather here during the past new moon periods). Your report indicates that this is likely no object for the +/- 20" class Dobs. I had hoped it would react to filters... :-)

Did you try as well the small but possibly brighter bow shock of HH34 at the S end of HH 222?

<http://www.eso.org/public/images/eso9948c/>

Jimi Lowrey

I did not try HH34. I will try HH 222 again when the moon is out of the way and then try for HH34, it looks about the same brightness as the bright spot that I could see in HH222. I will report what I find then.

Steve Gottlieb

To add to the number of comments about the visibility -- and difficulty -- of HH 222, here are a couple of positive sightings and a negative report from four very experienced observers back in October 2000 on amastro.

Jay McNeil (16-inch): I observed HH 222 back in December of last year from a very dark site located in rural Mississippi (NELM at Z ~7.0). It was pretty chilly that night (~29F -- hey, don't laugh, 'cause that's pretty darn cold for us southerners), and the seeing was surprisingly good despite the recent cold front passing through. This object was included in a rather extensive list of Herbig-Haro objects located in the L1641 region of Orion that I had set forth to observe. HH 222 was extremely difficult to detect and required 586x (7mm +2x Barlow on my 16-inch f/5.1). My notes recall a very difficult object (averted vision only -- less than 50% of the time) resembling a very small but apparently elongated edge-on galaxy less than 1' in length and oriented in a NE-SW direction. A faint but obvious star of ~16th magnitude could be glimpsed lying just to the NW of the object in nearly the same direction as the brighter 10th magnitude star designated as GSC 4778:1107.

In order to reference how good of a night it was, the previous observation in my notes reveal HH 1 and HH 2 with the same scope and power to both be fairly easy direct vision objects that appeared conspicuously nonstellar during moments of good seeing. Unfortunately, the only other positive HH object observation of the area was a "highly suspected" sighting of HH 130. Put simply, these things are an absolute thrill to hunt down, but they often require very high powers and really good conditions in order to detect at all. Hope this helps.....and I would truly love to hear of anyone's success in detecting these guys...

Dave Riddle (18-inch): Nope, I couldn't see the "Waterfall" nebula with an 18" reflector earlier this year at the Winter Star Party. For us designation freaks, the filament is the Herbig-Haro object HH 222 and is frequently referred to to as the the "Orion Streamer". The catalogued dimensions are 10" x 300". Like they say in baseball (and especially if you are an Atlanta Braves fan) there's always next year. Maybe more aperture, more transparent,

darker skies, higher magnification, blah, blah, blah will reveal this object.

Rich Jakiel (24-inch): After a few hours of general sight-seeing [at Cheifland, Fla], I finally got a chance to use the Atlanta Astronomy Club's 24-inch for more difficult objects. Perhaps the most unusual and difficult observation was of the Herbig-Haro object #222 sometimes known as the "Waterfall". After studying the reflection nebula NGC 1999 (and its stunning Bok globule) and pegging HH 1 and HH2, I proceeded nearly due north to the HH 222 field. At 304x (9mm Nagler), I was most surprised to see a mildly curved, very diffuse/faint band running south of an 8th mag field star (no filter). The band was ~ 4' x 1', with a slightly sharper inner "edge". I called over Art Russell to confirm my observations. We conducted a series of observations with a variety of filters:

O III : total washout; nothing visible H-Beta: only a few traces visible Broadband "Deepsky": darkened the field, most of the band remained visible. It would appear that most of the light is via reflection, though some may be low-excitation emission.

Art Russell (24-inch): Yes, we saw HH222. However, "saw" would certainly be an understatement. I've not done my notes yet, but would say that it is an EXTREMELY DIFFICULT object. Finding the field is no problem as it is conveniently located a scant 19'

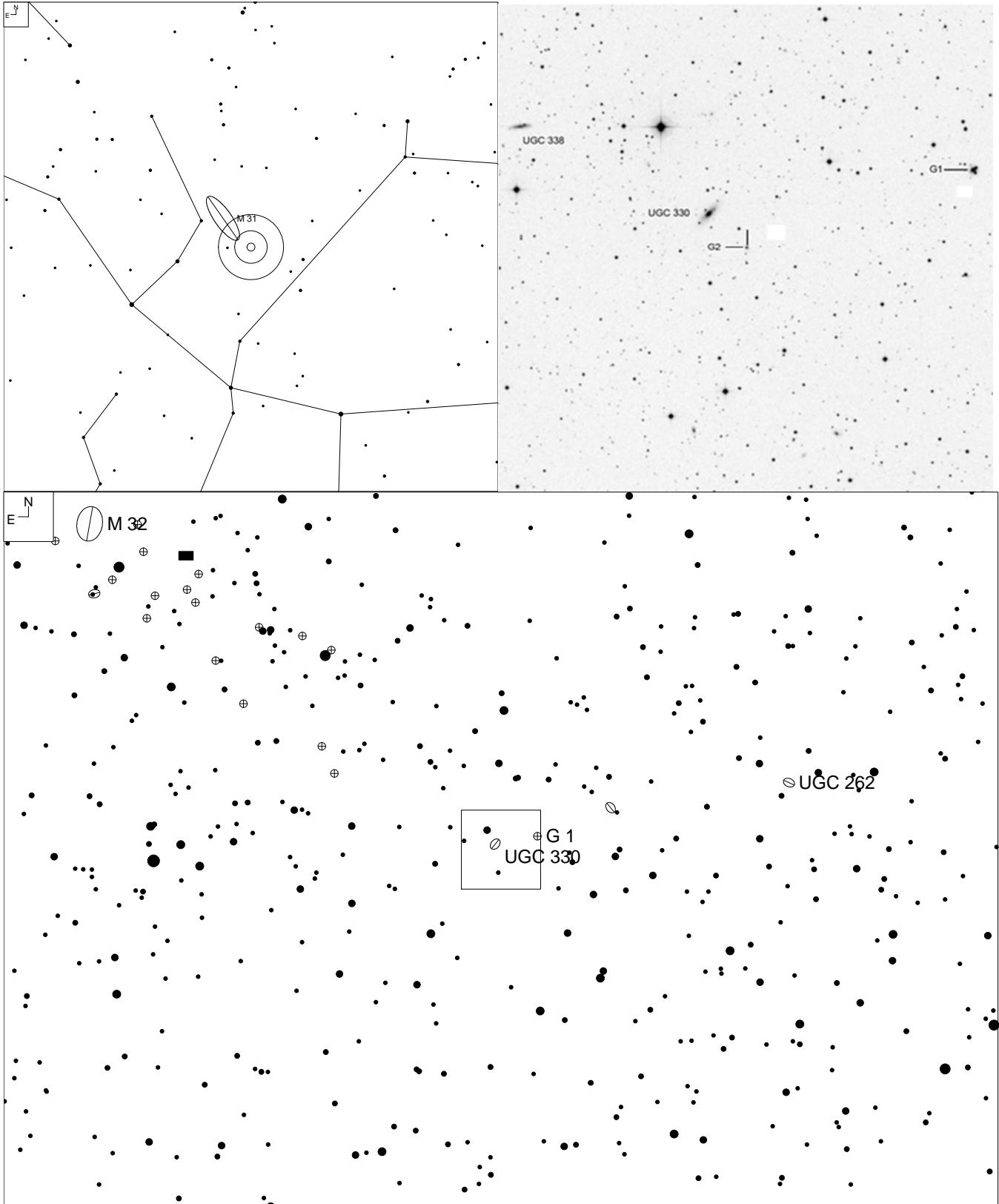
northwest of NGC1999. Observed at 304X in a 9mm Nagler, the object was extremely faint and did not present the appearance of a water-fall. Rather, it exhibited a very weak general brightening between the two marker stars which delineate its location, GSC 4778:1107 and GSC 4778:1091. At best it was an extremely subtle feature best revealed in averted vision and when gently shaking the scope. We also tried a number of filters but found that no filtration seemed to improve the object's visibility, with a Lumicon Deep-sky filter offering a distance compromise of least bothersome as compared to the OIII which completely blacked the field, and the H-Beta filter ranking somewhere between the OIII and Deep-sky filter.

Reiner Vogel

I tried it last night, but was not successful with my 22". Transparency was quite good, but the seeing was less than average. I also tried HH34, but couldn't see it either (this one could benefit from better seeing).

No filters, as the seeing was far from perfect, I spend more time on HH222 and not on the much smaller HH34.

G2 Globular of M31 (Andromeda)



Object	RA	Dec	Mag	Size
Mayall III	00 33 34	+39 31 19	15.8	

G2 Globular of M31 (Andromeda)

Preston Pendergraft

Came across this object in the nice object packed (if short) article in S&T that I finally got the chance to go through today. Was wondering if anyone has gotten to observe this object? I got the impression it was pretty faint but not just for large scopes. The article had it listed after G1 but at the same time mentioned large scopes and is two magnitudes fainter than G1 so that would put it much fainter than G1, which isn't exactly easy with a 10in scope under the skies that I have easy access to. I may have access to a 14in dob with tracking, so was wondering if this could be a possible target for it? Using the ole Google doesn't pull up much on the object.

Steve Gottlieb

Here are my notes with an 18-inch at 300x: visible as a very faint mag 15.5-15.8 "star (perhaps slightly easier than listed V mag of 15.8). Located just 2' SW of UGC 330 and 10' ESE of M31-G1.

It may be visible in a 14-inch (depending on your sky conditions), but there are dozens of brighter globulars in M31. Why not track some of these down? [This page](#) on Adventures in Deep Space has a link for an Excel spreadsheet of the 75 brightest globulars in M31. You'll see that G2 is way down the list (around 50). I also have notes on several dozen globulars and a few clusters/associations on the same page.

If you do take a look with a 14-inch, close to G2 are the galaxies UGC 330, 338 and 344 (the latter two pretty faint). Midway between UGC 338 and 344 is G4, which is actually a misclassified galaxy with a redshift of $z = 0.19$. Instead of being a member of

the M31 system, it lies at a distance comparable to the Perseus galaxy cluster!

Marc Emde

I observed G2 some years ago with my 15 inch Obsession under good (but not perfect) conditions in the austrian alps.

G2 was visible, but not more than a very faint "star"; averted vision was necessary to detect it.

As Steve said: there are some more - and a bit less challenging - GC in M31.

Btw: Steve's List was the reason I got interested in extragalactic globular clusters some years ago.

Mark Johnson

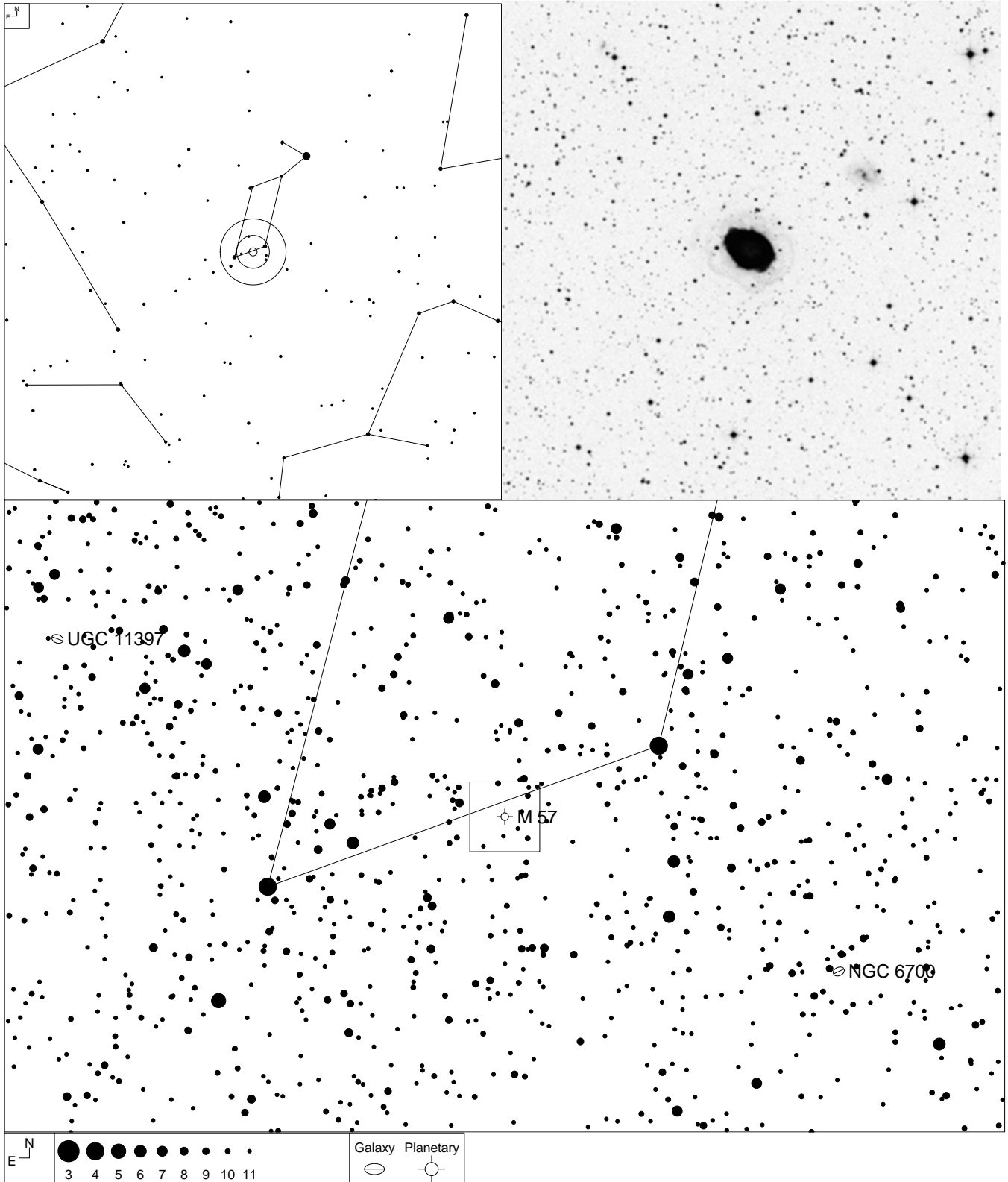
I'll ditto the comment that glob/cluster/association hunting in M31 is a great project for 16" and above scopes. I'm at 30 objects in that field although 3 are the UGC galaxies that have apparent position of being in the area of G1 and G2 (G1 and G2 are quite separated from the core of M31). Be sure to note the interesting 3-stellar appearance of G2 and two foreground stars and also note the nice 5-star arc of stars that lies more or less halfway between G1 and G2

Glob season in M31 is officially open these new moons and I plan on hunting down more this season as well.

Al Lamperti

I glimpsed it 7 years ago with a 20" under conditions not as pristine as California or Arizona. My notes : "Used UGC-330 as a stepping stone. Quite faint."

The stars inside M-57 (Lyra)

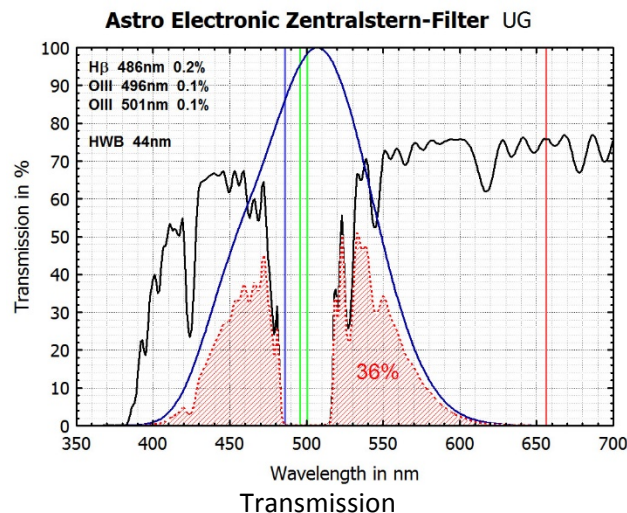
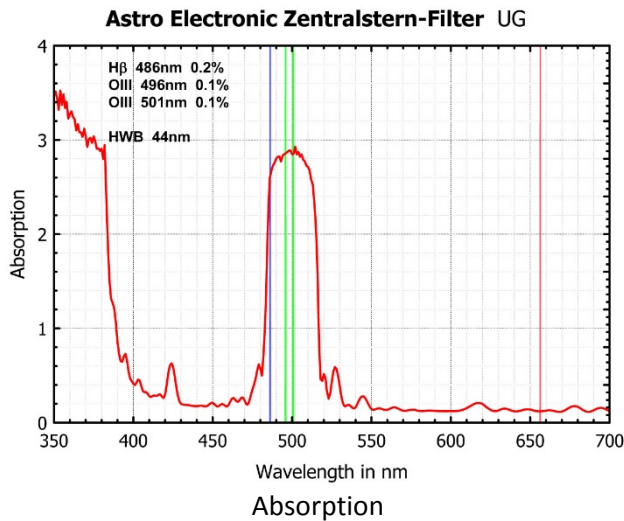


The stars inside M-57 (Lyra)

Uwe Glahn

Last month I had the opportunity to use the powerful 2400 square inches of Jimi's Barbella, thanks Jimi for this "cosmic adventure" 😊

One of the target was the famous Ringnebulosa Messier 57 but not with a "normal" filter to enhance the emissions of the nebula itself. We use a "central star filter" which works opposing all these famous filters. Reiner Vogel measured some spectra of this filter (see below) The goal is to disable the nebula which outshines faint stars. Famous target is for example the PN NGC 6210.



Without the filter both central stars were visible easily and with direct vision. Magnification was around 814x (Jimi correct me when my memory is wrong), Seeing was average. When we put the filter in, the filter effect on the two central stars was not

prominent. But at the outer ring areas the filter showed a very good response. The nebula was visible just very faint and some stars glimpsed out very well. I tried to sketch the roughly positions of the stars (see sketch below) at the few minutes on the ladder and detected 7 stars. All stars but the star at 11.30 (CS middle, north/up 12.00) were easily visible. I don't noticed which was direct/averted vision. Some more stars should be visible when the seeing is better and you more time on the ladder.

My reworking and investigations were much harder than I expected. Perhaps we were the first observers how saw this stars visually. To bring out the exact position was also very hard, even on the HST images some stars were totally out-shined. I tried to compile some very good images. But it is nearly impossible to get the visual positions and relative magnitudes because of the different spectra sensitivities. I think an photographer or a Mallincam with a CS filter has to imagine the PN to get a good card of these stars.

It would be a very exciting project to get these stars, not only within M57 and not only with 2400 square inches



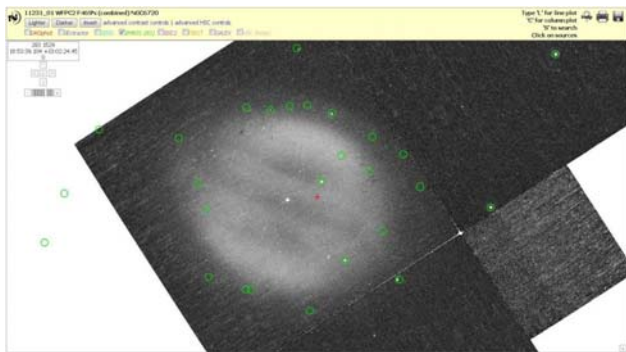
sketch: 48", 814x, CS filter, seeing III, NELM 7m+



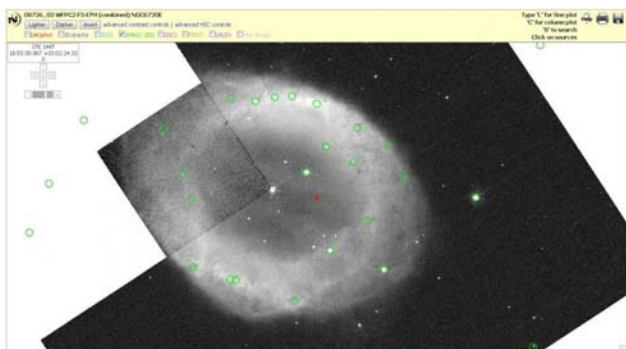
HST color image
 - stars seen are labeled with solid line
 - stars which could be in reach with broken line



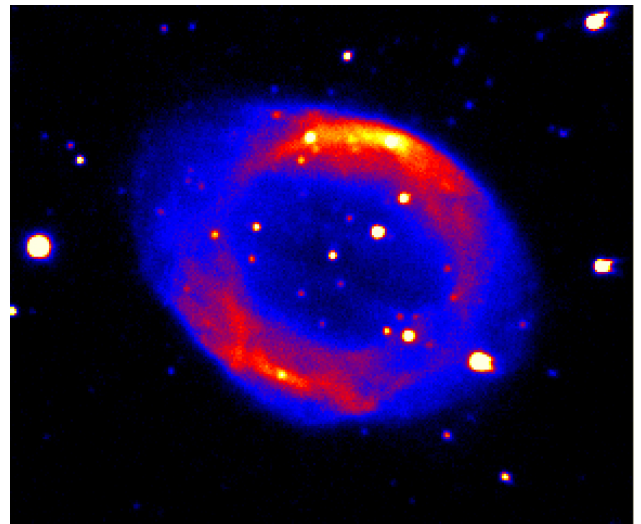
amateur image - Spiegelteam - Capella
 Observatory/Crete
 24"; LRGB (Ha/[OIII]/[OIII]), Wendel, Binnewies,
 Pöpsel



HST WFPC2 with 469N (He II) filter (2MASS on)



HST WFPC2 with 547M (strömgen y) filter (2MASS on)



UCLA Infrared Laboratory

Mark Johnson

Interesting project. I would be concerned that the filter takes out quite a bit more than required in an area close to max human perception just above the O3 lines. I also notice as a smaller point that no Ha is removed and even though the human eye is very poor at Ha/NII area there is some eye response. I bet like many PNs it is mostly OIII but could have Ha and/or NII. I attach a chart found in link stated at the top and I don't know if 0.1 scale to the left is significant for detection. This is simply mentioned

here as our perception is what this thread is all about in the limiting cases such as this project.

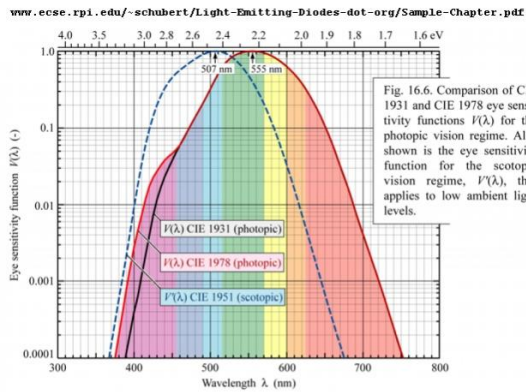


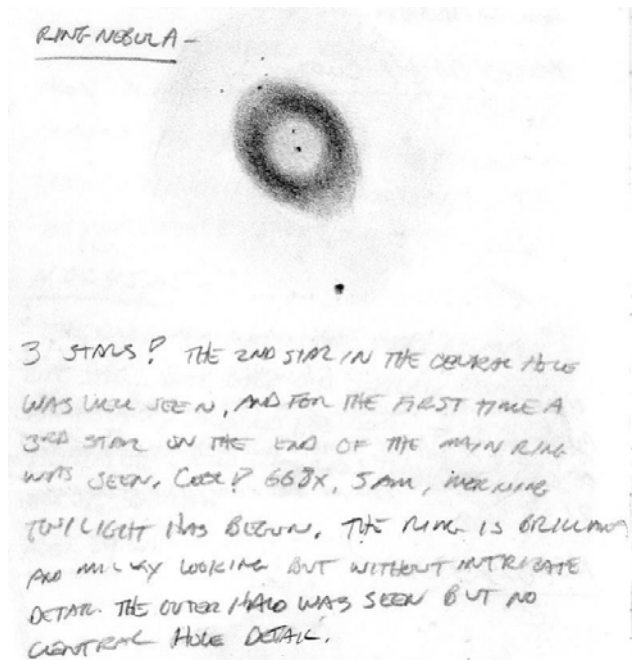
Fig. 16.6. Comparison of CIE 1931 and CIE 1978 eye sensitivity functions $V(\lambda)$ for the photopic vision regime. Also shown is the eye sensitivity function for the scotopic vision regime, $V(\lambda)$, that applies to low ambient light levels.

The CIE 1931 $V(\lambda)$ function and the CIE 1978 $V(\lambda)$ function are shown in Fig. 16.6. The photopic eye sensitivity function has maximum sensitivity in the green spectral range at 555 nm, where $V(\lambda)$ has a value of unity, i.e. $V(555 \text{ nm}) = 1$. Inspection of the figure also reveals that the CIE 1931 $V(\lambda)$ function underestimated the eye sensitivity in the blue spectral range ($\lambda < 460 \text{ nm}$). Numerical values of the CIE 1931 and CIE 1978 $V(\lambda)$ function are tabulated in Appendix 16.1.

At one point I was excited about just managing the central star (no filter) in an 18" after many attempts on assorted nights till a great night of seeing way up on the meridian. Then I seem to recall somebody told me the REAL central star is not the more obvious one highlighted in your color pic with a central star shown. Can somebody comment on if the 'real' central star is indeed the brightest star visible dead center in the ring? Thanks.

Howard Banich

The best I've done with my 28 is to see the two brighter stars inside M57 during excellent seeing, and the second star was still pretty tough to see well. Through the Bok 90 inch on Kitt Peak I've seen these two stars, the one that's seen through/superimposed on the end of the ring and three fainter one's just outside the ring on the same end. The outer halo was seen quite well too, but my biggest surprise was that there weren't more stars visible inside the Ring through such a large scope. The ring itself was extremely bright, had an exceedingly smooth, milky texture and didn't show any hints of finer detail, which was also somewhat of a surprise. But then this was at the very beginning of morning twilight so a darker sky may have revealed more. Still the brightness of the Ring probably hid the fainter stars Uwe shows in his sketch.



Are central star filters available for purchase somewhere or is this a one-off item?

Uwe Glahn

@Marko

I would be concerned that the filter takes out quite a bit more than required in an area close to max human perception just above the O3 lines. Exactly. The filter only helps to black bright emissions out - like here the brighter parts of the ring for the stars within the ring. For the stars within the middle of the (both "central stars") it brings no advantage. The emission has to be a minimum brightness for a positive effect of the filter. Can somebody comment on if the 'real' central star is indeed the brightest star visible dead center in the ring?

Yes it is. Several, also modern paper refer the central star as the star in the middle. In my understanding the central star has always to be in the middle, when the structure around the star is regular or more precisely symmetrical.

@Howard

Thanks for posting your sketch. My experience with seeing the central star is pretty the same. An interesting fact is, that the third star is also visible with 16". When I sketched the Nebula years ago from one of the best seeing places in Europe - the "Edelweisspitze" I noticed after 2 hours of observing a stellar knot at the SW end of the ring. Of course it was not a knot but the third star, which position I doesn't know during the observation.



16", 720x, Seeing I-II, NELM 7m+

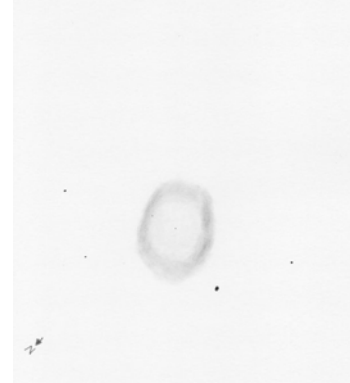
Are central star filters available for purchase somewhere or is this a one-off item?

Michael Koch, a German retailer produced a small number of filters in the past. The filters are now out of stock but with enough inquiries he made a new charge of filters.

Lg Hajü

Fine sketches and observations with 48"!! A dream has come true!!

It's a small cluster in M 57 🤔



Key Authors of OOTW

Each observer listed below are the authors of the exciting Object of the Week for DeepSkyForum.com in alphabetical order. I have asked each observer to basically answer several questions so we all get a flavor of what they bring to the table.

I apologize in advance for those that weren't included as we focused on those who is part of a rotation schedule to start a OOTW. If you are interested in being part of the rotation, contact Dragan Nikin or Jimi Lowrey.

Paul N. Alsing, California



B.S. in Astronomy from San Diego State University in 1969

My first 'beginner' telescope was a 4" refractor, a birthday gift in 1956, it had a cardboard tube, a plastic lens, and was difficult to aim. I saw Saturn & Jupiter, over and over again... I bought a Celestron C-8 in 1974, and observed my first several thousand objects (or so) with this guy... a great telescope!

My current primary telescope is an Obsession 25" f/5 Classic (the famous Randy Rogers stolen

telescope), acquired in 2004, another great instrument.

My primary observing location is Little Blair Valley, in San Diego County's Anza-Borrego desert. I attend organized star parties as often as I can, and enjoy them very much.

My observing style might be best described as casual. I almost never log my observations. In the early days it never occurred to me to do so, and I never did get into the habit, unless I was using an extraordinary instrument or the conditions were unusual. In retrospect, perhaps I should have done so more often. In any case, I have no regrets, except that I can't share most of my thousands and thousands of observations with friends, unless I remember the details. I like to tell fellow observers that I subscribe to the Alzheimer's method of observing, that is, new friends every night! I spend a lot of time on each observation, trying to see as much detail as possible, and would like to think that my old eyes are still good enough to see pretty much everything there is to see... although, at 67 years old, this is probably not the case ;>. I almost always have an inverted DSS photo of my targets that I use at the eyepiece; I know that some observers feel that this a form of cheating and might lead to detecting things that you might not otherwise see, but I do not worry about that and will not make a claim unless I am positive I saw it. This hobby, after all, is not a competition...

My love for this hobby is extensive, and I really enjoy explaining the wonders of the universe to anyone who will listen :>)

Howard Banich, Oregon



I have 47 years of observing experience. My primary instrument is a home built 28 inch f4 alt-az Newtonian with a Sidereal Technology drive. Prior to that I had a 20 inch f5 Obsession on a homemade equatorial platform. Before that I had a 12.5 inch f8 homemade Dob, along with a homemade 8 inch f4 Newtonian that I still use occasionally. Most of my observing is done from the Coast Range mountains due west of Portland Oregon at Chuck and Judy Dethloff's place, which is at 600 feet altitude. The skies there range from 21.00 to 21.5 SQM and are typically very transparent. I also attend the Golden State Star Party (21.4 to 21.7 SQM, 4500 feet altitude) and the Oregon Star Party (21.4 to 21.85 SQM, 5000 feet altitude) every summer. Weather permitting, I attempt an observing trip to Steens Mountain (21.5 to 21.95 SQM, 7400 feet altitude) in the Fall. My observing style has evolved to concentrating on making composite drawings of my favorite deep sky objects with the goal of recording every possible visual detail within my reach. I think of this process as high definition

visual observing but I also enjoy making quick sketches of Arp peculiar galaxies, Abell planetaries and galaxy clusters, and observing whatever interesting object comes up in the Deep Sky Forum. In addition, I enjoy planetary and lunar observing when the opportunity arises, and find nothing more relaxing, and centering, than soaking in the beauty of a starry sky with just my eyes.

Rolandos Constantinides, Cyprus



Years of experience - About 15 years
Primary Instrument used - Obsession Classic 18" f4.5, complemented by 4" and 6" refractors.
Primary Observing Location and typical sky conditions – My primary observing site is my home at Mosfiloti, Cyprus (SQM 21 skies) which I call the "Mosfilia Deep Sky Observatory". A few times each year I travel to mountain sites on Cyprus with SQMs of 21.5 to 21.7.
Observing Style - Usually observing solo or with one or two buddies in a 'relaxed' mode. I mainly observe and sketch the deep sky, especially galaxies and ancient planetaries, always pushing my scopes to their limits. Lately I have been getting more interested in tackling groups of galaxies and peculiar galaxies.

Mark Friedman, Ohio



Years of Experience: 25 years

Primary Instrument Used: Obsession 15" f/4.5 Classic with ServoCAT

Primary Observing Location and typical sky conditions: Burton Observatory near Amanda, OH with typical zenith SQMs in the 20.45 to 20.65 range

Observing Style: I enjoy any opportunity to get out under the sky to observe. My deep sky observing style varies depending on my available time, observing location, instrument, and sky conditions. On occasion I may casually revisit the brighter Messier and NGC objects, with planetaries and globulars being my favorites. On the flip side I thoroughly enjoy the challenge of pushing the limits to observe faint galaxies, with the Arp and ring galaxies being my favorites. At my suburban home location I typically observe multiple star systems with a Stellarvue 90mm Fluorite APO. Day light doesn't stop me from observing. During warmer weather my Ha scope is routinely setup for solar observing. My wife Marlene and I are umbraphiles. Along with our close friends Dragan and Anja Nikin we have chased solar eclipses all over the Earth, in places such as the Libyan Desert and off the coast of Iwo Jima in the Pacific Ocean.

Uwe Glahn, Germany



21 Years of experience

Primary Instrument used: A self-built 27" f/4.2 Dobson on an EQ platform, but in the past often a 16" f/4.5 Dobson

Primary Observing Location and typical sky conditions: My standard place is near my home in the Bavarian Alps at 4200ft with NELM between 6m5 and 7m0 but I also visit very often the Austrian High Alps up to 9500ft with NELM almost over 7m0 and very good seeing conditions

Observing Style: I would call me an all-rounder. I love to spend a lot of time while looking at bright and famous objects to try to see as much detail I can get and then to sketch it. But I also love to look at deep, faint and obscure objects off the beaten path. I have no favourite object types and the sketches are only my way to illustrate what I saw. The main thing is the beauty of the objects and the challenge to see the brighter or fainter details.

Steve Gottlieb, California



Years of Experience: 37 years with a telescope, 32 of which were with a 13" or larger scope.
Primary Telescopes: In the past, my primary telescopes have been a 13" f/4.5 (solid tube) and 17.5" f/4.5 (truss) and an 18" f/4.3 Starmaster (Zambuto). Currently I use a 24" f/3.7 Starstructure.

Primary Observing Location and typical sky conditions: Most of the year I use a couple of sites near the San Francisco bay area with SQM readings of 21.2-21.5. In the summer, I head to darker and higher sites in the Sierras, White Mountains and the Cascades with SQM readings of 21.5-21.7.

Observing Style: An overarching project I've worked on for several decades is completing the entire NGC visually, which I've nearly finished for objects north of -40 degrees declination. In the past I've worked on globular clusters (current total 137), planetary nebula (current total 564) but I enjoy observing all types of "challenge" objects. More recently, I've been focusing on interacting galaxies (V-V and Arp), small galaxy groups, rich clusters and superthin galaxies.

I'm a contributing editor to Sky & Tel magazine with a couple of dozen published articles on deep sky observing.

Alvin Huey, California



Years of Experience: About 42 years
Primary instrument used: Homebuilt 22" f/4 Pegasus mirror (built 2000), previously used a 16" f/4.5. Also have a 30" f/4.3 Starmaster and 6" Tak f/7.7 triplet.

Primary observing location and typical sky conditions: Shot Rock (NELM – 7.0+), Blue Canyon (NELM – 6.2+)

Observing Style: Observe with several other core observers (range from 18" to 25") and whoever shows up. I generally like to observe objects from my observing guides. In fact, the idea of the observing guides started its life as my personal observing list. My favorites are galaxy trios, compact groups, galaxy clusters, and VV galaxies. They are all galaxies! Some of my buddies call me "galaxy hound". If the night is very good, I push myself to the limit. As most of you, if not all, I also preach that low glass count eyepieces is the way to go to observe that last photon. So I use mostly orthos, if I have to go wide, I use Delos. See my website for more details.

Jimi Lowrey, Texas



Years of experience 41 years
Primary Instrument used 48" F/4 reflector
Primary Observing Location and typical sky conditions I live and observe at my observatory in Fort Davis Texas. It's at 5600 feet of elevation. The skies are very dark here!
Observing Style I like to go very deep and see the new and unusual!
I am mostly a galaxy hound but I like all kinds of deep sky objects. I observe most clear dark nights here and in West Texas usually that is a lot of nights a year. I am always looking for new objects to observe in the professional journals and very much enjoy reading a well written research paper. The last few years I have been re observing lots of object looking for fine detail and unusual features in objects. I find that if you look you can always find something new and exciting to observe and challenge yourself with!

Dragan Nikin, Illinois



24 years of general observing experience with 14 years of observing with apertures larger than 20".
Currently, my primary instrument is my 25" f/5 Obsession Classic which is fully goto now that I installed Argo Navis and Servocat several years ago.
Green River State Park in Western Illinois.
Typical zenith SQMs are ~21.30-45
I love all deepsky objects but have a preference towards compact galaxy groups, thin flat galaxies as well as planetaries. I like to push my limits and discern the faintest and finest detail of any object I'm observing. Utilizing Megastar with the DSS overlays at the telescope has been a huge aid in accomplishing just that. I also use high transmission low glass EP's with my observing hood every single observing session.

Reiner Vogel, Freiburg, Germany



I started observing in 1980 during high school, had a long stretch where I did not touch a telescope at all, and picked up observing again in 1996. My primary instrument is presently a 22" Dobson, designed as Lowrider, on EQ platform, where almost everything, including optics, was made by myself.

I usually observe from Schauinsland Mountain close to where I live in the southern Black Forest at an elevation of 1250m with fst of usually 6.0 to 6.5, and up to 7.0 on exceptionally transparent winter nights (unfortunately very rare). My main observing targets are objects with an interesting astrophysical background within our milky way and all these obscure objects related to the life cycles of stars, starting from faint and extended HII regions, star forming regions, and YSOs to remainders of stars, such as proto-PN, PN, WR or SNR shells. Sometimes I even observe other galaxies :-)