

309 Oriole Parkway
Toronto, Ontario
M5P 2H6
30 July 1999

National Secretary
Royal Astronomical Society of Canada
136 Dupont Street
Toronto, Ontario
M5R 1V2

Dear sir,

Attached is my application for the RASC's Messier Certificate. I also enclose two "exhibits" in support of my application.

The first one deals with my observations between 1957 and 1959, when I originally observed the 106 objects which then made up the official Messier catalog of the Montreal Centre. There is a page from the history of the Montreal Centre, in which I'm listed as the fourth person to graduate from the Centre's Messier Club; there is also a copy of my original Messier log from that time.

When I resumed my interest in astronomy in 1997, I discovered that 4 more Messiers had been added to the Montreal Centre's list. I undertook to re-observe all 110 objects in the current catalog. I'm still 8 objects shy of that goal, but a couple of weeks ago I bagged the last two of the objects missing from the original list, so feel that I've now completed the requirements for the certificate. I'm attaching my current Messier log, which gives my comments, mostly from my first observations, the apertures (in mm) and locations of the observations, the date of first observation, and a recent re-observation date. Obviously many objects have been observed repeatedly at many locations with many different instruments. The locations are coded as follows:

Corbeil	Corbeil, Ontario (near North Bay)
Lonsdale	48 Lonsdale Road, Toronto
Montreal	Mostly 636 Sydenham Avenue, though a few are from the Montreal Centre's Observatory
Morningside	Morningside Park, Toronto
Oriole	309 Oriole Parkway, Toronto
Prinyer	Prinyer's Cove, Ontario (near Picton)
Richmond	David Dunlap Observatory, Richmond Hill, Ontario
Robin	Camp Robin Hood, Toronto Centre dark site
Rustico	South Rustico, PEI

I hope these summaries are adequate to document my observations...the original observations cover hundreds of pages in my observing logs!

Sincerely,

Geoffrey Gaherty

Encl.

MESSIER AND FINEST NGC OBJECTS CERTIFICATES

APPLICATION FORM

I hereby apply for the RASC's

MESSIER CERTIFICATE

FINEST NGC OBJECTS CERTIFICATE

I have made the required observations between 30 September 1997 and 16 July, 1999.

using the following equipment: 108mm 150mm 203mm 254mm reflectors (among others)

The observations were made at: Montreal, Toronto, North Bay, South Peabrook

Applicant (print): GEOFFREY GAHERTY

Address: 309 ORIOLE PARKWAY

TORONTO ON

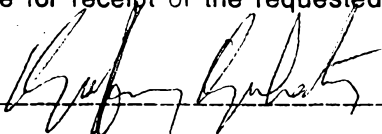
Postal Code: M5P 2H6

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Phone number: (416) 481-7581

Fax: (416) 482-4503

I hereby declare that I am familiar with and have made the observations in accordance with the requirements and am eligible for receipt of the requested certificate.

Signature of applicant:  Date 30 July, 1999.

Please submit your observational log book/records or have this declaration witnessed below.

Witness 1: _____

Witness 2: _____

Name _____

Address _____

Mail the completed form with supporting documents to:

National Secretary, RASC
136 Dupont St.,
Toronto, Ont., M5R 1V2

[Applications will be dealt with at the National Council meeting following receipt provided they are received 4 weeks prior to the Council meeting.]

The Ultimate Messier Log - Personal Viewing Notes

#	Constellation	Type	Name, if any	Comments	Aperture & Location	First Seen	Recent
M001	Taurus	Supernova remnant	Crab Nebula	Easy—brighter than I expected	108 Montreal 80 Prinyer 203 Oriole	1/12/58	12/23/98
M002	Aquarius	Globular Cluster	N/A	Small and bright	108 Montreal 203 Robin	8/4/58	9/17/98
M003	Canes Venatici	Globular Cluster	N/A	Not resolved with 8"	108 203 Montreal 80 Corbeil	6/4/58	5/17/98
M004	Scorpio	Globular Cluster	N/A	Large and of medium brightness	108 Montreal 203 Prinyer Corbeil	6/19/58	6/28/98
M005	Serpens Caput	Globular Cluster	N/A	Large bright and easy	110 203 Montreal 50 80 Corbeil	5/21/58	5/18/98
M006	Scorpius	Open Cluster	Butterfly Cluster	Bright but very low down	108 Montreal 203 Prinyer	6/19/58	7/6/97
M007	Scorpius	Open Cluster	Ptolemy's Cluster	Bright but very low down	108 Montreal 203 Prinyer Corbeil	6/19/58	6/28/98
M008	Sagittarius	Lagoon Nebula	Lagoon Nebula		108 203 Montreal Prinyer Corbeil	6/19/58	6/28/98
M009	Ophiucus	Globular Cluster	N/A	Easy in 6"	108 Montreal 150 Rustico	6/19/58	7/16/99
M010	Ophiucus	Globular Cluster	N/A		108 Montreal 50 203 Corbeil	6/4/58	7/2/98
M011	Scutum	Open Cluster	Wild Duck Cluster	Superb at 90x in 8", many fine chains of stars wound about	108 203 Montreal Prinyer Corbeil 80 Oriole	7/29/58	7/18/98
M012	Ophiucus	Globular Cluster	N/A		108 Montreal 50 203 Corbeil	6/4/58	7/2/98
M013	Hercules	Globular Cluster	N/A	Resolved in 8" with averted vision at 180x	50 203 Montreal 80 Corbeil Oriole 203 Prinyer Robin	5/12/58	10/3/98
M014	Ophiucus	Globular Cluster	N/A	Large and fairly bright	108 Montreal 150 Oriole	6/19/58	6/22/99
M015	Pegasus	Globular Cluster	N/A	Dim hazy spot	108 Montreal 203 Robin	12/22/57	9/17/98
M016	Serpens Cauda	Open Cluster	Eagle Nebula	Bright	108 Montreal 203 Prinyer	6/19/58	7/8/97
M017	Sagittarius	Diffuse Nebula	Omega, Swan,		108 Montreal 150 Rustico	6/19/58	7/16/99
M018	Sagittarius	Open Cluster	N/A	Bright	108 Montreal 150 Rustico	6/19/58	7/16/99
M019	Ophiucus	Globular Cluster	N/A	Easy in 6"	108 Montreal 150 Rustico	6/19/58	7/16/99
M020	Sagittarius	Trifid Nebula	N/A	"Bright"—oh yeah!	108 Montreal 203 Prinyer	8/4/58	7/6/97

The Ultimate Messier Log - Personal Viewing Notes

#	Constellation	Type	Name, if any	Comments	Aperture & Location	First Seen	Recent
M021	Sagittarius	Open Cluster	N/A	Very large with some condensations—bright	108 Montreal 203 Prinyer	6/19/58	7/6/97
M022	Sagittarius	Globular Cluster	N/A	Very bright	108 Montreal 50 203 Corbeil	8/1/58	7/2/98
M023	Sagittarius	Open Cluster	N/A	Extremely beautiful	108 Montreal 203 Prinyer	6/19/58	7/8/97
M024	Sagittarius	Star Cloud	Milky Way Patch	Very bright	108 Montreal 203 Prinyer	6/19/58	7/8/97
M025	Sagittarius	Open Cluster	N/A	Beautiful	108 Montreal 150 Rustico	8/1/58	7/16/99
M026	Scutum	Open Cluster	N/A	Small and faint	108 Montreal 150 Rustico	8/4/58	7/16/99
M027	Vulpecula	Planetary Nebula	Dumbbell Nebula	Bright and large—easy with 10x50s in Corbeil	108 Montreal 203 Prinyer Corbeil Oriole Robin 50 Corbeil	8/1/58	10/24/98
M028	Sagittarius	Globular Cluster	N/A	Easy in 6"	108 Montreal 150 Rustico	8/1/58	7/16/99
M029	Cygnus	Open Cluster	N/A	Small and arrow shaped	108 203 Montreal 80 Corbeil	6/7/58	12/23/98
M030	Capricornus	Globular Cluster	N/A	Large and bright	108 Montreal	8/22/58	
M031	Andromeda	Spiral Galaxy	Andromeda	Bright hazy patch of elliptical shape at 40x	108 Montreal 50 203 Corbeil 90 Lonsdale Morningside 80 203	9/30/57	11/18/98
M032	Andromeda	Elliptical Galaxy	Satellite of M31	Used averted vision	108 Montreal 203 Corbeil Oriole Robin	11/24/57	10/24/98
M033	Triangulum	Spiral Galaxy	Triangulum (also	Extremely difficult due to low contrast, found by sweeping at 50x and detected by slight increase in field brightness	203 Montreal 50 203 Corbeil 80 Prinyer Robin Corbeil	9/7/59	11/18/98
M034	Perseus	Open Cluster	N/A	Very nice with 40x	108 Montreal 50 Corbeil	11/26/57	12/24/98
M035	Gemini	Open Cluster	N/A	Fills 40x field with thousands of stars	108 Montreal 80 Prinyer 203 Lonsdale Oriole	12/17/57	12/13/98
M036	Auriga	Open Cluster	N/A	Spherical shape	108 Montreal 203 Oriole	12/22/57	12/13/98
M037	Auriga	Open Cluster	N/A	Almost like a very coarse globular	108 Montreal 203 Oriole	12/22/57	12/13/98
M038	Auriga	Open Cluster	N/A	Like a cross	108 Montreal 203 Lonsdale Oriole	12/22/57	12/13/98
M039	Cygnus	Open Cluster	N/A		108 Montreal 203 Robin	8/2/58	9/17/98
M040	Ursa Major	Double Star	Winecke 4		203 Oriole	4/6/99	4/6/99

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#	Constellation	Type	Name, if any	Comments	Aperture & Location	First Seen	Recent
M041	Canis Major	Open Cluster	N/A	Composed of chains of stars	108 Montreal 80 Prinyer Lonsdale	12/22/57	2/26/98
M042	Orion	Diffuse Nebula	Great Orion	Extremely beautiful at 40x—wonderful	108 203 Montreal 90 Corbeil 80 Lonsdale Prinyer 254 Oriole	10/31/57	12/13/98
M043	Orion	Diffuse Nebula	de Mairan's	Separated from M42 by notch	108 203 Montreal 254 Oriole Corbeil	1/13/59	12/13/98
M044	Cancer	Open Cluster	Beehive Cluster	Needs power lower than 40x	30 108 203 Montreal 80 Prinyer Lonsdale Corbeil	12/22/57	5/17/98
M045	Taurus	Open Cluster	Pleiades, Subaru,	Breathtaking at 40x—better in finder	108 Montreal 80 90 203 Lonsdale Robin 254 Oriole	10/31/57	12/13/98
M046	Puppis	Open Cluster	N/A	Large and bright	108 Montreal 254 Robin	1/23/58	3/15/99
M047	Puppis	Open Cluster	N/A		108 Montreal 254 Robin	1/13/59	3/15/99
M048	Hydra	Open Cluster	N/A		108 Montreal	1/13/59	
M049	Virgo	Elliptical Galaxy	N/A	Small but bright at 50x	203 Montreal 150 Rustico	5/3/59	7/16/99
M050	Monocerus	Open Cluster	N/A	Large, widely scattered	108 Montreal	1/23/58	
M051	Ursa Major	Spiral Galaxy	Whirlpool Galaxy	Large and bright in 8"	203 Montreal Prinyer Corbeil 50 Corbeil 80	3/27/59	7/2/98
M052	Cassiopeia	Open Cluster	N/A	Compact group of faint stars	108 Montreal 254 Robin	8/22/58	3/15/99
M053	Coma	Globular Cluster	N/A	Big and bright compared to faint fuzzies nearby	108 Montreal 150 Robin	6/4/58	6/9/99
M054	Sagittarius	Globular Cluster	N/A	Easy in 6"	108 Montreal 150 Rustico	8/4/58	7/16/99
M055	Sagittarius	Globular Cluster	N/A	Harder to locate than the other globulars in S Sagittarius because it's far from any bright stars	108 Montreal 150 Rustico	8/4/58	7/16/99
M056	Lyra	Globular Cluster	N/A		108 Montreal 80 Corbeil	8/4/58	12/23/98
M057	Lyra	Planetary Nebula	Ring Nebula	Small faint blur in 4" Zeiss—annular shape at 90x with 8", marvelous at 180x, irregular smoke ring, no sign of star in centre	110 203 Montreal Prinyer Corbeil 80 150 203 Oriole 1880	5/14/58	10/24/98
M058	Virgo	Spiral Galaxy	N/A	Near star in Skalnate Pleso fairly bright 50x	203 Montreal 254 Robin	5/3/59	4/12/99
M059	Virgo	Elliptical Galaxy	N/A	Close to M60 but fainter 50x	203 Montreal 254 Robin	5/3/59	4/12/99
M060	Virgo	Elliptical Galaxy	N/A	Easy at 50x	203 Montreal 254 Robin	5/3/59	4/12/99

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#	Constellation	Type	Name, if any	Comments	Aperture & Location	First Seen	Recent
M061	Virgo	Spiral Galaxy	N/A	Faint but not difficult 50x	203 Montreal 150 Robin	5/3/59	6/9/99
M062	Ophiucus	Globular Cluster	N/A	Easy in 6"	108 Montreal 150 Rustico	6/19/58	7/16/99
M063	Canes Venatici	Spiral Galaxy	Sunflower Galaxy	Quite difficult in 8"	203 Montreal 150 Robin	3/27/59	6/9/99
M064	Coma	Spiral Galaxy	Blackeye Galaxy	Bright and easy in 8"	203 Montreal 150 Rustico	3/27/59	7/16/99
M065	Leo	Spiral Galaxy	N/A	Bright pair (with 66) in 8"	203 Montreal Oriole	3/2/59	4/6/99
M066	Leo	Spiral Galaxy	N/A	Bright pair (with 65) in 8"	203 Montreal Oriole	3/2/59	4/6/99
M067	Cancer	Open Cluster	N/A	"Fishhook" corona of bright stars with dim stars inside	108 Montreal 80 Corbeil	12/24/57	5/18/98
M068	Hydra	Globular Cluster	N/A	Quite bright, small cluster of about 6 stars at 50x and 90x	203 Montreal 150 Robin	5/3/59	6/9/99
M069	Sagittarius	Globular Cluster	N/A	Easy in 6"	108 Montreal 150 Rustico	8/4/58	7/16/99
M070	Sagittarius	Globular Cluster	N/A	Not too difficult when 1h 20m from meridian, but practically impossible farther than this, at laest in city	203 Montreal 150 Rustico	6/5/59	7/16/99
M071	Sagitta	Globular Cluster	N/A		108 Montreal 80 Corbeil	8/4/58	12/24/98
M072	Aquarius	Globular Cluster	N/A	Sharply defined irregular faint hazy area with 90x	203 Montreal 150 Rustico	6/30/59	7/16/99
M073	Aquarius	Group/Asterism	N/A	3 or 4 faint stars	203 Montreal 150 Rustico	8/3/59	7/16/99
M074	Pisces	Spiral Galaxy	N/A	Quite small and very faint, a difficult object at 90x	203 Montreal	9/7/59	
M075	Sagittarius	Globular Cluster	N/A	Very small, required 66x to show non-stellar	108 Montreal 150 Rustico	8/22/58	7/16/99
M076	Perseus	Planetary Nebula	Little Dumbell,	Very hard with 90x, faint region, ill defined hazy patch	203 Montreal 254 Robin	6/30/59	3/15/99
M077	Cetus	Spiral Galaxy	N/A	Small but bright at 80x, close to small star	165 Montreal	10/21/59	
M078	Orion	Diffuse Nebula	N/A	Dim difficult hazy spot in 4.25"—tiny and faint even in 8"	108 203 Montreal 80 Corbeil	1/12/58	12/24/98
M079	Lepus	Globular Cluster	N/A	Very difficult	108 Montreal 80 Prinyer	3/18/58	2/15/98
M080	Scorpius	Globular Cluster	N/A	Small and quite faint	108 Montreal 150 Oriole	6/19/58	6/5/99

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#	Constellation	Type	Name, if any	Comments	Aperture & Location	First Seen	Recent
M081	Ursa Major	Spiral Galaxy	Bode's Galaxy -	Bright in 8"	110 203 Montreal 80 203 Corbeil 254 Robin	4/12/59	6/28/98
M082	Ursa Major	Irregular Galaxy	Cigar Galaxy - 1/2	Bright, spindle shaped in 8"	110 203 Montreal 80 Corbeil 254 Robin	4/12/59	6/28/98
M083	Hydra	Spiral Galaxy	Small Pinwheel	Bright and small at 50x	203 Montreal	5/3/59	
M084	Virgo	Lenticular (S0)	N/A	Much easier than M98, 100, and 88, bright at 90x	203 Montreal 254 Robin	5/28/59	4/12/99
M085	Coma	Lenticular (S0)	N/A	Small and of medium brightness with 50x	203 Montreal 150 Robin	5/25/59	6/9/99
M086	Virgo	Lenticular (S0)	N/A	Fairly easy, but fainter than M84 with 90x	203 Montreal 254 Robin	5/28/59	4/12/99
M087	Virgo	Elliptical Galaxy	Virgo A	Fairly easy, about equal to M84, 90x	203 Montreal 254 Robin	5/28/59	4/12/99
M088	Coma	Spiral Galaxy	N/A	Very faint, invisible at 50x, needed 90x to show	203 Montreal 254 Robin	5/28/59	4/12/99
M089	Virgo	Elliptical Galaxy	N/A	Not too difficult at 90x	203 Montreal 254 Robin	5/28/59	4/12/99
M090	Virgo	Spiral Galaxy	N/A	Faint and difficult with 90x	203 Montreal 254 Robin	5/28/59	4/12/99
M091	Coma	Spiral Galaxy	N/A	Small and faint	150 Rustico	7/16/99	7/16/99
M092	Hercules	Globular Cluster	N/A	Small and bright in 4" Zeiss	110 Montreal	5/14/58	
M093	Puppis	Open Cluster	N/A	Compact and bright	108 Montreal	1/23/58	
M094	Canes Venatici	Spiral Galaxy	N/A	Bright and easy in 8"	203 Montreal 150 Robin	3/27/59	6/9/99
M095	Leo	Spiral Galaxy	N/A	Small and fairly bright in 8"	203 Montreal 254 Robin	3/27/59	4/12/99
M096	Leo	Spiral Galaxy	N/A	Small and bright in 8"	203 Montreal 254 Robin	3/2/59	4/12/99
M097	Ursa Major	Planetary Nebula	Owl Nebula	Quite large, faint in 8"	203 Montreal Corbeil	3/2/59	6/28/98
M098	Coma	Spiral Galaxy	N/A	Very faint, invisible at 50x, needed 90x to show	203 Montreal 150 Robin	5/28/59	6/9/99
M099	Coma	Spiral Galaxy	N/A	Faint, gave impression that larger scope would show as very large loose spiral 50x	203 Montreal 150 Robin	5/25/59	6/9/99
M100	Coma	Spiral Galaxy	N/A	Very faint, invisible at 50x, needed 90x to show	203 Montreal 150 Robin	5/28/59	6/9/99

The Ultimate Messier Log - Personal Viewing Notes

#	Constellation	Type	Name, if any	Comments	Aperture & Location	First Seen	Recent
M101	Ursa Major	Spiral Galaxy	Pinwheel Galaxy	Large and faint in 8"	203 Montreal Corbeil 50 Corbeil	4/12/59	7/2/98
M102	Draco	Lenticular (S0)	Spindle Galaxy	Small but quite easy	150 Rustico	7/16/99	7/16/99
M103	Cassiopeia	Open Cluster	N/A	Small and bright with 4" Zeiss	110 Montreal 80 Robin	2/5/58	11/18/98
M104	Virgo	Spiral Galaxy	Sombrero Galaxy	Small, bright and easy with 8"	203 Montreal 80 Corbeil	4/13/59	5/17/98
M105	Leo	Elliptical Galaxy	N/A	Medium bright in 8"	203 Montreal 254 Robin	3/2/59	4/12/99
M106	Canes Venatici	Spiral Galaxy	N/A	Moderately easy with 8"	203 Montreal 150 Rustico	3/27/59	7/16/99
M107	Ophiucus	Globular Cluster	N/A	Extremely difficult with 4.25"	108 Montreal 150 Rustico	8/4/58	7/16/99
M108	Ursa Major	Spiral Galaxy	N/A	Small and faint in 8"	203 Montreal Corbeil	3/2/59	6/28/98
M109	Ursa Major	Spiral Galaxy	N/A	Faint and hard because close to γ UMa	203 Montreal 254 Robin	4/12/59	4/12/99
M110	Andromeda	Elliptical Galaxy	Satellite of M31	Far from M31 and 32, and much fainter and more diffuse	203 Corbeil Robin	6/28/98	9/17/98

1-50	M	M	M	M	M
1	12/1/58	11 29/7/58	21 19/6/58	31 30/9/57	41 22/12/57
2	4/8/58	12 4/6/58	22 1/8/58	32 24/11/57	42 31/10/57
3	4/6/58	13 12/5/58	23 19/6/58	33 7/9/59	43 13/1/59
4	19/6/58	14 19/6/58	24 19/6/58	34 26/11/57	44 24/12/57
5	21/5/58	15 22/12/57	25 1/8/58	35 17/12/57	45 31/10/57
6	19/6/58	16 19/6/58	26 4/8/58	36 22/12/57	46 23/1/58
7	19/6/58	17 19/6/58	27 1/8/58	37 22/12/57	47 13/1/59
8	19/6/58	18 19/6/58	28 1/8/58	38 22/12/57	48 13/1/59
9	19/6/58	19 19/6/58	29 7/6/58	39 2/8/58	49 3/5/59
10	4/6/58	20 4/8/58	30 22/2/58	40	50 14/2/58

51-100	M	M	M	M	M
51	27/3/59	61 3/5/59	71 4/8/58	81 12/4/59	91
52	22/8/58	62 19/6/58	72 30/6/59	82 12/4/59	92 14/5/58
53	4/6/58	63 27/3/59	73 3/8/59	83 3/5/59	93 23/1/58
54	4/8/58	64 27/3/59	74 7/9/59	84 28/5/59	94 27/3/59
55	4/8/58	65 2/3/59	75 22/8/58	85 25/5/59	95 27/3/59
56	4/8/58	66 2/3/59	76 30/6/59	86 28/5/59	96 2/3/59
57	14/5/58	67 24/12/57	77 21/10/59	87 28/5/59	97 2/3/59
58	3/5/59	68 3/5/59	78 12/1/58	88 28/5/59	98 28/5/59
59	3/5/59	69 4/8/58	79 18/3/58	89 28/5/59	99 25/5/59
60	3/5/59	70 5/6/59	80 19/6/58	90 28/5/59	100 28/5/59

101	M
101	12/4/59
102	12/4/59
103	5/2/58
104	13/4/59
105	2/3/59
106	27/3/59
107	4/8/58
108	2/3/59
109	12/4/59

Geoffrey Gaherty, Jr.,
636, Sydenham Ave.,
Montreal 6, Que.

Messier's Catalogue
of
Clusters and Nebulae

Royal Astronomical Society of Canada
Montreal Centre

MESSIER'S CATALOGUE OF CLUSTERS AND NEBULAE

Messier	R. A. h m	Dec., °	Type of Object	Remarks
✓1	5 23.5	21 57	Diffuse nebula	Crab Nebula in Taurus <i>Easy Expected Brighter than 8</i>
✓2	21 23.7	-1 16	Globular cluster	<i>Small and bright</i>
✓3	13 37.6	28 53	Globular cluster	<i>Large and of moderate brightness</i>
✓4	16 17.5	-26 17	Globular cluster	<i>Large, bright and easy with 4" Zeiss. (Visible in 2" on Hγ & night)</i>
✓5	15 13.5	2 27	Globular cluster	
✓6	17 33.5	-32 9	Open cluster	} <i>Bright but very low down.</i>
✓7	17 47.3	-34 47	Open cluster	
✓8	17 57.6	-24 23	Diffuse nebula	Lagoon Nebula - very large
✓9	17 13.3	-18 25	Globular cluster	
✓10	16 51.9	-3 57	Globular cluster	
✓11	18 45.7	-6 23	Open cluster	
✓12	16 42.0	-1 46	Globular cluster	
✓13	16 38.1	36 39	Globular cluster	Hercules cluster - best w 2" ✓
✓14	17 32.4	-3 11	Globular cluster	<i>Large and fairly bright</i>
✓15	21 25.2	11 44	Globular cluster	<i>Dim hazy spot</i>
✓16	18 13.2	-13 49	Open cluster	<i>Bright</i>
✓17	18 15.0	-16 13	Diffuse nebula <i>NE64</i>	Horseshoe Nebula - bright
✓18	18 14.1	-17 10	Open cluster	<i>Bright</i>
✓19	16 56.4	-26 7	Globular cluster	
✓20	17 56.3	-23 2	Diffuse nebula	Trifid Nebula - <u>bright</u> <i>Oh Yeah!</i>
✓21	17 58.6	-22 30	Open cluster	<i>Very large with some concentrations. Bright.</i>
✓22	18 30.3	-23 59	Globular cluster	<i>Very bright</i>
✓23	17 51.0	-19 0	Open cluster	<i>Extremely beautiful</i>
✓24	18 12.6	-18 27	Open cluster	<i>Very bright</i>
✓25	18 25.9	-19 19	Open cluster	<i>Beautiful</i>
✓26	18 39.9	-9 30	Open cluster	<i>Small and faint</i>
✓27	19 55.3	22 27	Planetary nebula	Dumb-bell Nebula <i>Bright + large</i>
✓28	18 18.4	-24 55	Globular cluster	
✓29	20 20.3	38 12	Open cluster	<i>Small and sparsely shaped</i>
✓30	21 34.7	-23 38	Globular cluster	<i>Large + bright</i>
✓31	0 37.3	40 43	Spiral galaxy	Andromeda Nebula <i>Elliptical hazy spot</i>
✓32	0 37.2	40 19	Spiral galaxy	Very close to M31 - smaller <i>had expected vision</i>
✓33	1 28.2	30 9	Spiral galaxy	
✓34	2 35.6	42 21	Open cluster	<i>Very nice with 40x.</i>
✓35	6 2.7	24 21	Open cluster	<i>Fills 40x field with thousands of stars.</i>
✓36	5 29.5	34 4	Open cluster	<i>Spherical shape</i>
✓37	5 45.9	32 31	Open cluster	<i>Almost like a sp very coarse globular.</i>
✓38	5 22.0	35 45	Open cluster	<i>Like a cross.</i>
✓39	21 28.6	48 0	Open cluster	
40	12 17.4	58 40	Two faint stars mistaken for a nebula by Messier
✓41	6 42.7	-20 38	Open cluster	<i>Composed of chains of stars</i>
✓42	5 30.4	-5 27	Diffuse nebula	Orion Nebula <i>Wonderful</i>
✓43	5 30.6	-5 20	Diffuse nebula	<i>CLOSE TO M42</i>
✓44	8 34.3	20 20	Open cluster	<i>PROCEPERE</i> Beehive Cluster <i>Needs lower lower than 40x</i>
✓45	3 41.5	23 48	Open cluster	The Pleiades <i>Better in finder than 40x</i>

MESSIER'S CATALOGUE OF CLUSTERS AND NEBULAE cont'd.

Messier	R. A. h m	Dec. ° ' "	Type of Object	Remarks
✓46	7 37.2	-14 35	Open cluster	Large and bright <i>bro - this refers to 47</i>
✓47	7 50.2	-15 9	Open cluster	
✓48	8 9.0	-1 39	Open cluster	
✓49	12 24.7	8 33	Spiral galaxy	8" 50x
✓50	6 58.2	-8 12	Open cluster	Large, widely scattered
✓51	13 25.7	47 43	Spiral galaxy	Whirlpool Nebula <i>Large & bright in 8"</i>
✓52	23 19.8	61 3	Open cluster	<i>Compact group of faint stars</i>
✓53	13 9.0	18 42	Globular cluster	
✓54	18 48.7	-30 36	Globular cluster	
✓55	19 33.7	-31 10	Globular cluster	
✓56	19 12.7	30 0	Globular cluster	
✓57	18 49.9	32 54	Planetary nebula	Ring Nebula <i>Small faint blue in 4" lens ✓</i>
✓58	12 32.7	12 22	Spiral galaxy	8" 50x
✓59	12 37.0	12 12	Spiral galaxy	8" 50x
✓60	12 38.6	12 6	Spiral galaxy	8" 50x
✓61	12 16.8	5 2	Spiral galaxy	8" 50x
✓62	16 54.8	-29 58	Globular cluster	
✓63	13 11.3	42 34	Spiral galaxy	<i>Quite difficult in 8"</i>
✓64	12 51.8	22 13	Spiral nebula	<i>Bright & easy in 8"</i>
✓65	11 13.7	13 38	Spiral galaxy	<i>Bright pair in 8"</i>
✓66	11 15.0	13 32	Spiral galaxy	
✓67	8 45.8	12 11	Open cluster	<i>"Lil' hook' corona of bright stars or dim stars inside</i>
✓68	12 34.2	-26 12	Globular cluster	8" 50+90x
✓69	18 24.8	-32 25	Globular cluster	
✓70	18 36.7	-32 23	Globular cluster	
✓71	19 42.3	18 31	Open cluster	
✓72	20 49.0	-12 55	Globular cluster	
✓73	20 53.5	-13 1	Open cluster	
✓74	1 31.3	15 16	Spiral galaxy	
✓75	20 0.2	-22 12	Globular cluster	<i>Very small, required 66x to show non-oblate</i>
✓76	1 36.0	51 4	Planetary nebula	
✓77	2 37.6	-0 26	Spiral galaxy	
✓78	5 41.6	0 1	Diffuse nebula	<i>Very difficult</i>
✓79	5 20.1	-24 37	Globular cluster	
✓80	16 11.1	-22 44	Globular cluster	<i>Small and quite faint.</i>
✓81	9 47.3	69 32	Spiral galaxy	<i>Bright in 8"</i>
✓82	9 47.5	70 10	Spiral galaxy	<i>Bright, spindle shaped in 8"</i>
✓83	13 31.4	-29 21	Spiral galaxy	8" 50x
✓84	12 20.0	13 26	Spiral galaxy	
✓85	12 20.4	18 45	Spiral galaxy	
✓86	12 21.1	13 30	Spiral galaxy	
✓87	12 25.8	12 57	Spiral galaxy	
✓88	12 26.9	14 58	Spiral galaxy	
✓89	12 30.6	13 6	Spiral galaxy	
✓90	12 31.8	13 43	Spiral galaxy	

MESSIER'S CATALOGUE OF CLUSTERS AND NEBULAE cont'd.

Messier	R. A. h m	Dec. °	Type of Object	Remarks
91	12 36.0	13 50	Not confirmed - comet?
✓92	17 14.1	43 15	Globular cluster	Small + bright in 4" Zeiss
✓93	7 40.5	-23 38	Open cluster	Compact and bright
✓94	12 46.2	41 40	Spiral galaxy	Bright & easy in 8"
✓95	10 38.7	12 14	Spiral galaxy	Small + fairly bright in 8"
✓96	10 41.5	12 21	Spiral galaxy	Small + bright in 8"
✓97	11 9.0	55 34	Planetary nebula	Owl Nebula Quite large, faint in 8"
✓98	12 3.7	15 27	Spiral galaxy	
✓99	12 13.8	14 58	Spiral galaxy	
✓100	12 17.9	16 23	Spiral galaxy	
✓101	13 59.5	54 50	Spiral galaxy	Large + faint in 8"
?102	15 3.8	56 9	Spiral galaxy	ERROR - SAME AS 101
✓103	1 26.5	60 11	Open cluster	Small and bright in 4" Zeiss
✓104 x43'	12 37	-11 20	Spiral galaxy	Small, bright & easy in 8"
✓105 x17'	10 45	+12 51	Spiral galaxy	Medium bright in 8"
✓106 x43.5	12 17	47 35	Spiral galaxy	Moderately easy with 8"
✓107 x40.6	16 30	-12 57	Globular cluster	Extremely difficult in 4 1/4"
✓108 xx46.5	11 09	55 57	Spiral galaxy	Small & faint in 8"
✓109 xx-11	55	53 39	Spiral galaxy	Faint & hard because close to δ UMa (8")

x Added by Dr. Helen Sawyer Hogg
 xx Added by Owen Gingerich

The above classification is not that of Messier; it is the new classification based on modern knowledge of these objects. The clusters are classified as open clusters, which are loose irregular aggregates usually of a few scores of stars, or as globular clusters which are compact aggregates of probably hundreds of thousands of stars in spherical formation. The nebulae are classified as diffuse or planetary. The diffuse nebulae are great clouds of gas and "star dust" rendered luminous by nearby stars and the planetary nebulae are compact atmospheres of the same materials surrounding a single star. The spiral galaxies, on the other hand, are self-luminous and quite outside our stellar system.

✓104	H. I. 43.
105	H. I. 17 H. I. 17
106	H. V. 43
107	H. VI. 40.
108	H. V. 46
109	H. V. 45

MESSIER

-79 in LEPUS (Glob.) 7.9 F 6 3
 ✓93 in PUPPIS (Open) 6.0 E M 4
 ✓46 in PUPPIS (Open) 6.0 P 6
 CHECK ✓50 in MON (Open) 6.3 M 5
 48 in HYDRA (Open) — P 6 INO. SAYS NO

✓103 in CASS (Open) 7.3 E 6 1
 -33 in TRI (S.G.) 6.7 P 2

43

47 GINGO. SAYS NO.
 NOT PLOTTED IN NORTON.

151

0h { 31 ✓
 32 ✓
 103 ✓
 76 Junt 12.2 ✓
 33 ✓
 74 Junt 10.2 56.

1h { 34 ✓
 77 Junt 8.9 56.

2h { 45 ✓
 38 ✓
 38 ✓
 36 ✓
 37 ✓

3h { 1 ✓
 78 ✓
 82 ✓
 79 ✓

4h { 35 ✓
 41 ✓

5h { 50 ✓ CHECK
 46 ✓ ?
 43 ✓ ✓
 44 ✓
 67 ✓
 48 ✓ ?

75 60 8.0 8h
 73 00 -
 30 60 8.4
~~52 00~~

6.2
 10.5
 9.5
 BC

107 9.2 SC
 20 — DN Trifid
 28 7.3 GC
 69 8.9 GC
 25 — OC
 22 5.9 GC
 26 9.3 OC
 11 6.3 OC
 56 8.2 GC
 27 7.6 PM

3 }
 53 }
 10 }
 12 }
 29 }
 4 }
 80 }
 8 }
 21 }
 14 }

75
 73
 2
 30
 52

62 6.6 GC ✓
 19 6.6 GC ✓
 9 7.3 GC ✓
 6 5.3 GC ✓
 7 — OC ✓
 23 6.9 OC ✓
 Trifid 20 — DN
 24 4.6 OC ✓
 16 6.4 OC ✓
 Omega 17 — DN ✓
 18 — OC ✓

OPHIUCHUS H. VIII. 72

6, 7, 9, 16, 17, 18, 19, 23, 24, 62 ✓

28 }
 25 } AUG 1/2
 22 }
 27 }
 39 AUG 2/3
 107 AUG 4/5
 20 54 71
 69 56 2
 26 55