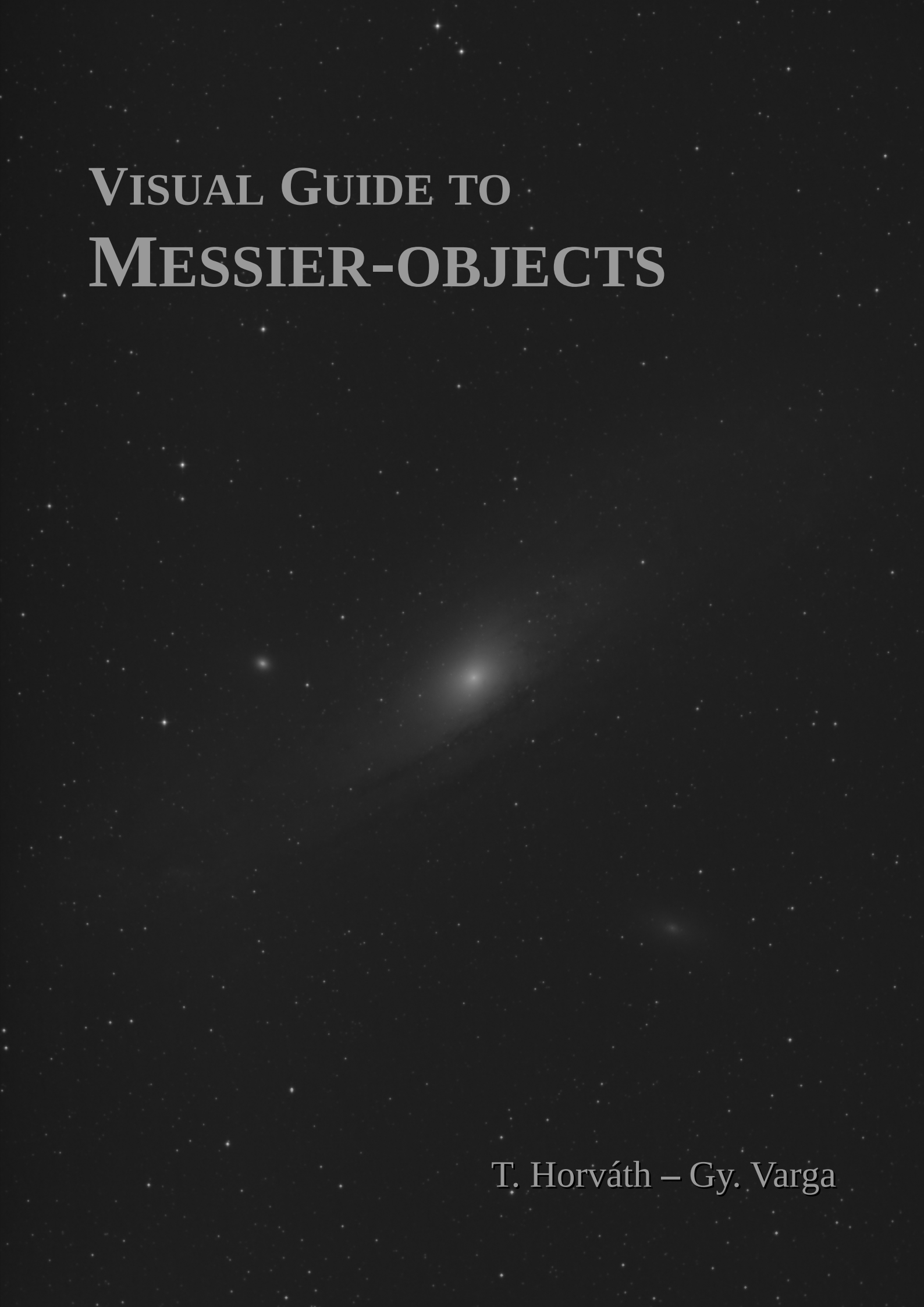
Visual Guide to Messier-objects



T. Horváth – Gy. Varga

Tamás Horváth – György Varga

Visual Guide to Messier-objects

Vega Astronomical Association
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FOREWORD

Many have telescopes, but only a few have seen all 110 Messier objects. Even fewer recorded their sights in a text description, drawing or photo.

The number of objects in the Messier catalogue is also disputed: if M91 is a repetition of M58 and M102 is a repetition of M101, then, depending on the author, the Messier catalogue contains only 108 or 109 objects. It was only in the 20th century that the old records were clarified. Messier was unable to publish objects beyond the M103 in the turmoil surrounding the French Revolution, but posterity added them to his catalogue under the serial number M104-110.

The Messier list is not as homogeneous as the Bode catalogue, which was also compiled around the same time. Messier recorded only what he saw while searching for or following comets; he occasionally examined objects that others found to be nebulous (and he may have been able to resolve them into stars). His main purpose was to catalog objects which could be mistaken for comets in the sky, so as not to lead to misguided discoveries. For this reason, his catalog is extremely inhomogeneous, both in terms of limiting magnitude, and in terms of the extent and celestial distribution of objects. There are several deep-sky objects left out of his list that he might have noticed if he had done a more regular search.

However, it is just the inhomogeneous nature of the catalogue that has made the Messier list attractive to amateur astronomers, and the fact that the performance of Messier's telescopes is practically identical to that of today's amateur astronomers' tiny and small/medium-sized instruments. It contains at least one of all types of deep-sky object, with the exception of dark nebulae: double stars, supernova remnants, planetary nebulae, emission and reflection diffuse nebulae, open and globular clusters, galaxies. Of these, too, mostly from the brighter, more extended ones. To learn about the northern sky, after becoming familiar with constellations and seeing the planets and the Moon, it is definitely worth continuing with observing through the Messier catalog.

One of the important guidelines for the preparations is provided by the present book compiled by Tamás Horváth and György Varga. It is terribly difficult for a novice observer, who has so far looked only a little into a telescope, to imagine the spectacle that will greet them. Which group of stars did Messier look at as an open cluster? How to see a faint spot, how big will it be in the instrument? When a more experienced amateur astronomer in an amateur astronomical club or association points out what to watch, the situation is easier. For those who cannot get to such community observing occasions, this book is a great help. But it is also a great help for the society leader, because it makes it easier for the novice amateur astronomer to prepare for the expected view.

This book shows what the observer can enjoy in the telescope, not what an amateur astronomer involved in astrophotography – or even astronomers from the Hubble Space Telescope, the European Southern Observatory, etc. – bring together after several nights of work.

There is something else this book shows: the persistent work, competence and thorough sky knowledge of the two authors. Astrophotos "degraded" to the visual view and drawings capturing the view suggest a huge amount of work. Anyone who wants to see the Universe with their own eyes in detail will start with the Messier catalog and visit the same celestial objects themselves, as the authors did.

Berlin, March 2022
Dr. Szilárd Csizmadia
Astronomer of the Deutsches Zentrum für Luft- und Raumfahrt

Sketches

Telescope: 300/1200 Newtonian
Corrector: Explore Scientific HRCC coma corrector
Mount: TMS-Astro Alt-Az mount and EQ-platform

During the drawings, the goal was to reproduce the view of the targeted deep-sky object, hence we put less effort into accurately drawing the stars in the vicinity of the objects. Tamás Horváth finalized all his drawings during he observation run, while György Varga improved and finished them on the next day based on the sketches and notes taken at night.

Photos

Telescope: 150/450 Newtonian
Corrector: Explore Scientific HRCC coma corrector
Mount: TMS-Astro Alt-Az mount and EQ-platform
Camera: Canon EOS 30D (not modified)
Exposure time: 25x10 sec, ISO 1600

All photos were taken with the same equipment and the same settings. The area of sky depicted in the photographs is uniformly 1.8°x1.8°, so the brightness of the objects and their dimensions can be compared well. North and East are not always to up and right, however, the orientation are marked in the drawings and rotated according to the photos. When taking the photos, we used only short exposure times and strived for a realistic display similar to what is visually seen in the eyepiece. So we abandoned the colors and restrained ourselves during the processing.

The primary mirrors and mechanical parts of the telescopes used for the observations were also made by the authors.

Objects that appear close to each other in the sky are shown on one page in the album.

Recommended observing sequence for Messier-marathon for latitudes of Hungary:

1.	M77	Cetus
2.	M74	Pisces
3.	M33	Triangulum
4.	M31	Andromeda
5.	M32	Andromeda
6.	M110	Andromeda
7.	M52	Cassiopeia
8.	M103	Cassiopeia
9.	M76	Perseus
10.	M34	Perseus
11.	M45	Taurus
12.	M79	Lepus
13.	M42	Orion
14.	M43	Orion
15.	M78	Orion
16.	M1	Taurus
17.	M35	Gemini
18.	M37	Auriga
19.	M36	Auriga
20.	M38	Auriga
21.	M41	Canis Major
22.	M93	Puppis
23.	M47	Puppis
24.	M46	Puppis
25.	M50	Monoceros
26.	M48	Hydra
27.	M44	Cancer
28.	M67	Cancer
29.	M95	Leo
30.	M96	Leo
31.	M105	Leo
32.	M65	Leo
33.	M66	Leo
34.	M81	Ursa Major
35.	M82	Ursa Major
36.	M97	Ursa Major
37.	M108	Ursa Major
38.	M109	Ursa Major
39.	M40	Ursa Major
40.	M106	Canes Venatici
41.	M94	Canes Venatici
42.	M63	Canes Venatici
43.	M51	Canes Venatici
44.	M101	Ursa Major
45.	M102	Draco
46.	M53	Coma Berenices
47.	M64	Coma Berenices
48.	M3	Canes Venatici
49.	M98	Coma Berenices
50.	M99	Coma Berenices
51.	M100	Coma Berenices
52.	M85	Coma Berenices
53.	M84	Virgo
54.	M86	Virgo
55.	M87	Virgo
56.	M89	Virgo
57.	M90	Virgo
58.	M88	Coma Berenices
59.	M91	Coma Berenices
60.	M58	Virgo
61.	M59	Virgo
62.	M60	Virgo
63.	M49	Virgo
64.	M61	Virgo
65.	M104	Virgo
66.	M68	Hydra
67.	M83	Hydra
68.	M5	Serpens
69.	M13	Hercules
70.	M92	Hercules
71.	M57	Lyra
72.	M56	Lyra
73.	M29	Cygnus
74.	M39	Cygnus
75.	M27	Vulpecula
76.	M71	Sagitta
77.	M107	Ophiuchus
78.	M10	Ophiuchus
79.	M12	Ophiuchus
80.	M14	Ophiuchus
81.	M9	Ophiuchus
82.	M4	Scorpius
83.	M80	Scorpius
84.	M19	Ophiuchus
85.	M62	Ophiuchus
86.	M6	Scorpius
87.	M7	Scorpius
88.	M11	Scutum
89.	M26	Scutum
90.	M16	Serpens
91.	M17	Sagittarius
92.	M18	Sagittarius
93.	M24	Sagittarius
94.	M25	Sagittarius
95.	M23	Sagittarius
96.	M21	Sagittarius
97.	M20	Sagittarius
98.	M8	Sagittarius
99.	M28	Sagittarius
100.	M22	Sagittarius
101.	M15	Pegasus
102.	M69	Sagittarius
103.	M70	Sagittarius
104.	M54	Sagittarius
105.	M2	Aquarius
106.	M75	Sagittarius
107.	M73	Aquarius
108.	M72	Aquarius
109.	M55	Sagittarius
110.	M30	Capricornus

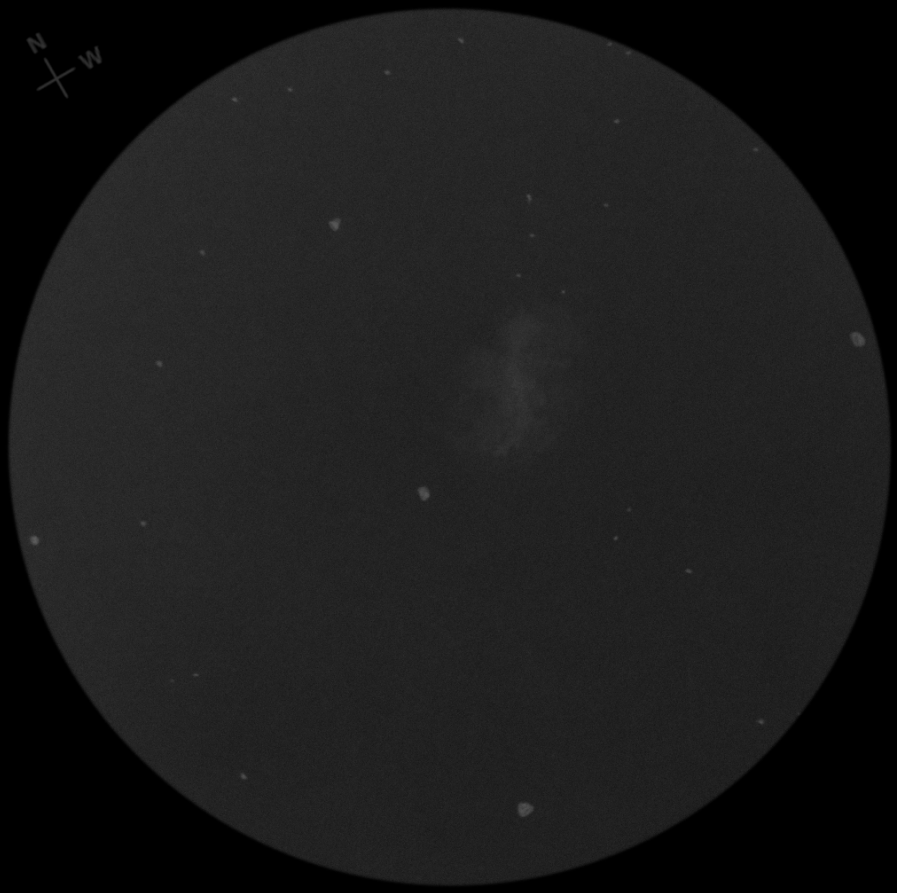
One of the 300/1200 Newtonian telescopes
we used to make the drawings

Objects of the Messier-catalog

Photos and sketches

M1

Supernova remnant in Taurus



Essentially, it has an oval shape, brighter in an S-shape. A darker bite is visible in its NE part, and three more smaller dark "bays" can be observed along its rim. Its entire surface is in a fine pattern, irregularly mottled. The CLS filter helps to see the details.

(145x, Varga)

M2

Globular cluster in Aquarius

Spectacular globular cluster. Relatively large, with a bright nucleus.

(160x, Horváth)

M3

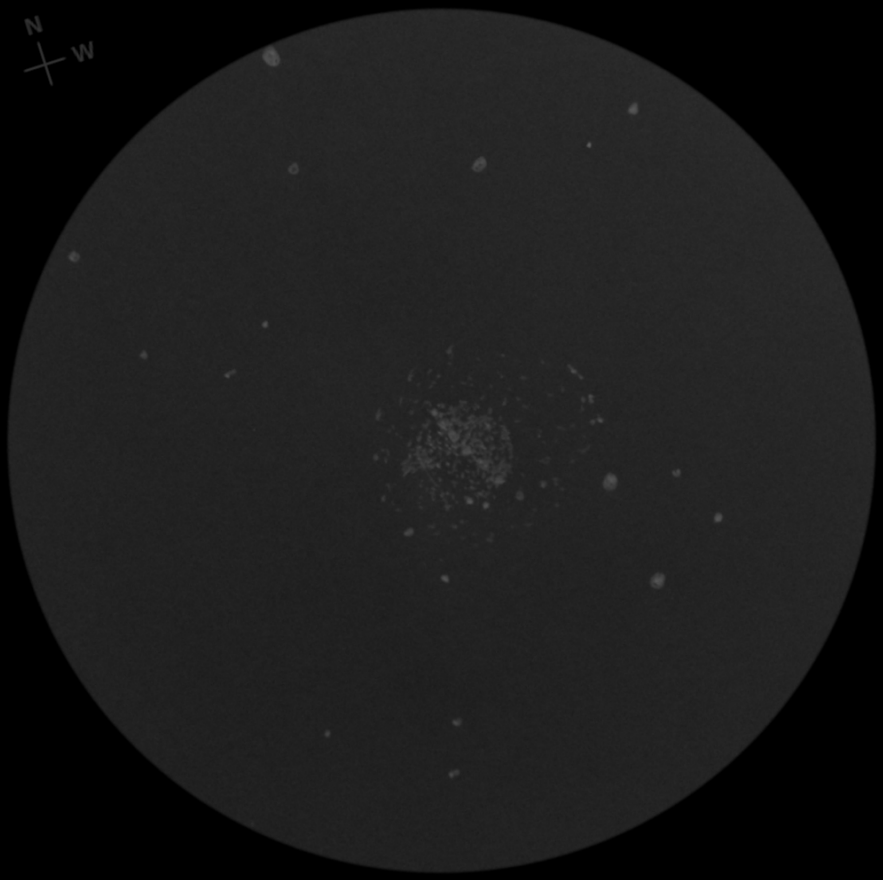
Globular cluster in Canes Venatici

Its central part is formed by a denser region resembling a triangle. Its attraction is that a chain of stars departs from the cluster to the bright star in a northwesterly direction from the cluster.

(160x, Horváth)

M4

Globular cluster in Scorpius



Extended globular cluster in Scorpius. In the center, a bright star chain runs along it.

(160x, Horváth)

M5

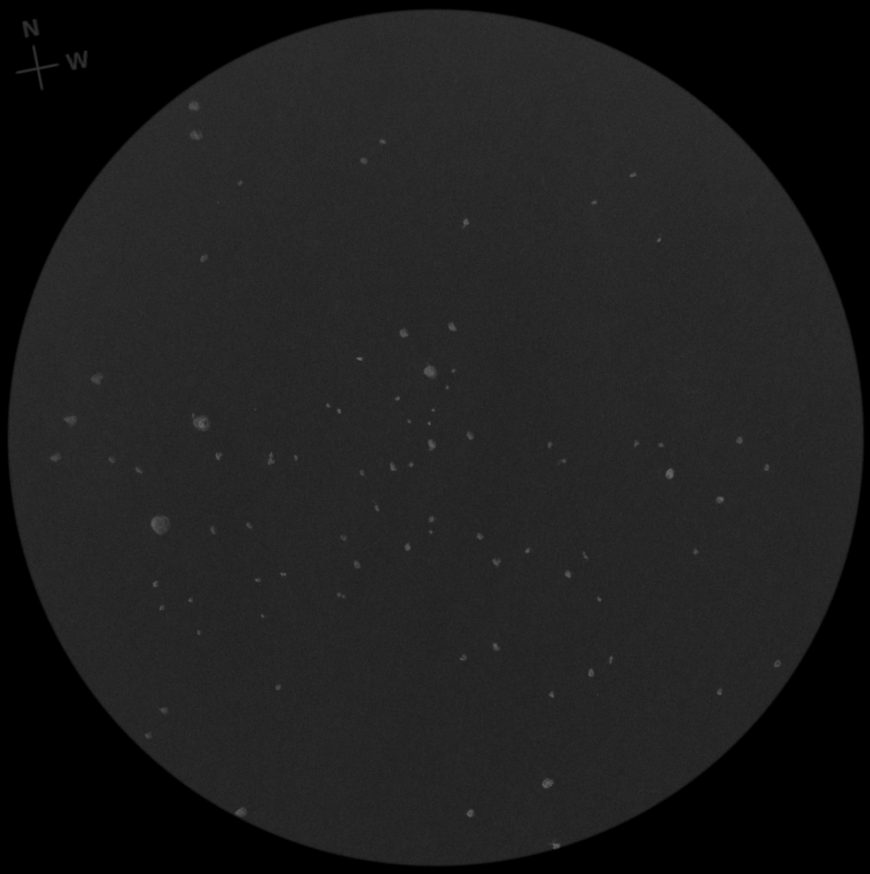
Globular cluster in Serpens

The core is surrounded by star chains in spiral forms. It resolves easily. It is noticeable even with the naked eye.

(180x, Varga)

M6

Open cluster in Scorpius



It is a large open cluster with many bright stars and fainter ones hidden between them. Its interesting feature is the yellowish star on the eastern side of the cluster, which is well contrasted from its bluish counterparts.

(80x, Horváth)

M7

Open cluster in Scorpius

It is a very large open cluster, formed mainly by bright stars.

(55x, Horváth)

M8

Diffuse nebula and star cluster in Sagittarius

A better-than-average sky reveals the nebula nicely. In brighter regions, globules and bubbles are visible.

(80x, Horváth)

M9

Globular cluster in Ophiuchus

A globular cluster, bright in the nucleus, slightly looks like Pac-Man. Rich star field.

(160x, Horváth)

M10

Globular cluster in Ophiuchus

There are almost only faint stars in the field of view. It seems as if the globular cluster is composed of stars of two levels of brightness. Its core has a gritty effect.

(180x, Varga)

M11

Open cluster in Scutum

In spots, the cluster seems denser. It is formed by a bright, and a lot of fainter stars of approximately the same brightness.

(160x, Horváth)

M12

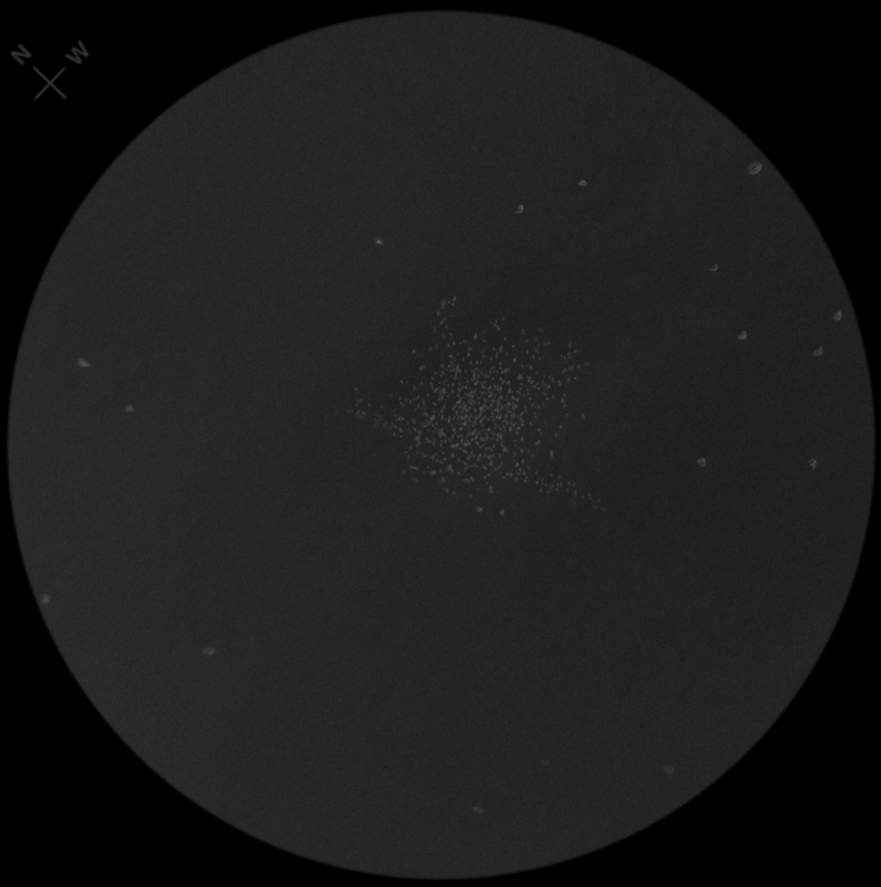
Globular cluster in Ophiuchus

It is a very well-resolved, loose cluster with bright stars. Elongated star chains stretch along one side.

(180x, Varga)

M13

Globular cluster in Hercules



Very spectacular, dense globular cluster. It resembles a beetle carrying a large abdomen.

(160x, Horváth)

M14

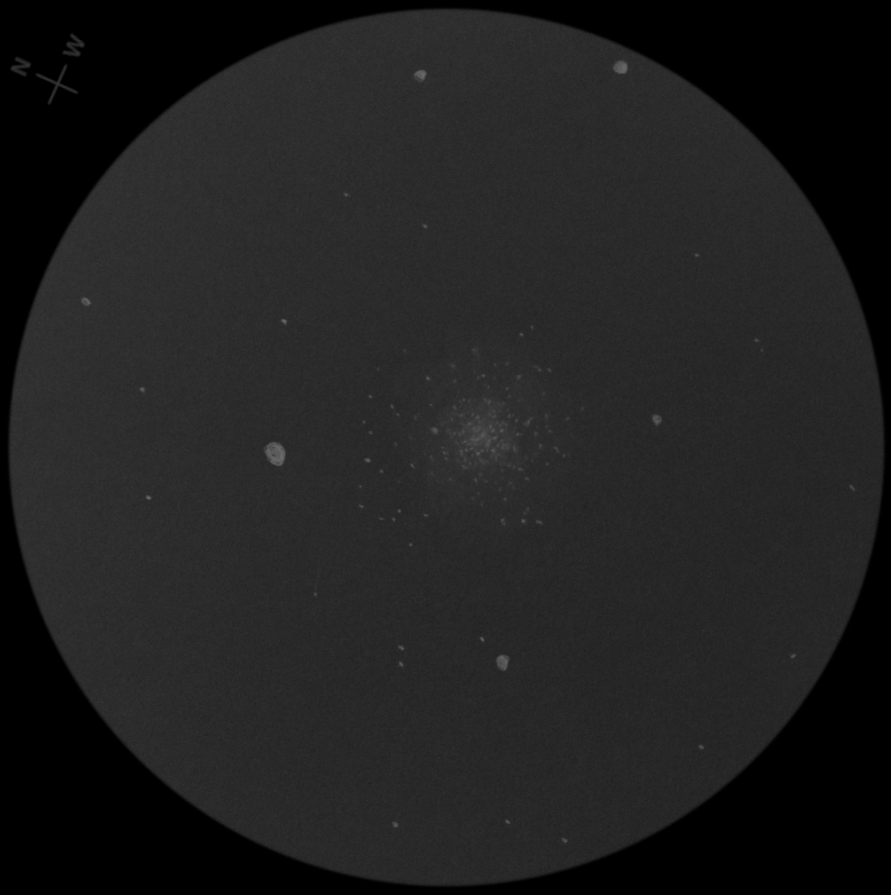
Globular cluster in Ophiuchus

It is a very dense cluster with very faint stars. The cluster itself is not bright either. There are also only a few stars in the field of view.

(180x, Varga)

M15

Globular cluster in Pegasus



It is a bright-cored, regular globular cluster. Towards the middle, it gets gradually denser. On the outer parts, it is surrounded by some of its brighter stars.

(190x, Varga)

M16

Diffuse nebula and open cluster in Serpens

A faint patch of nebulosity hiding behind stars.

(180x, Horváth)

M17, M18

Diffuse nebula and open cluster in Sagittarius

M 18: Loose cluster with bright stars.

(130x, Varga)

M 17: The nebula reminds me most of a digit 2. Its surface is lumpy, banded in many places. It is best studied with a UHC filter.

(65x, Varga)

M19

Globular cluster in Ophiuchus

Large and dense globular cluster. In the core there is a glare in the shape of a rectangle.

(160x, Horváth)

M20, M21

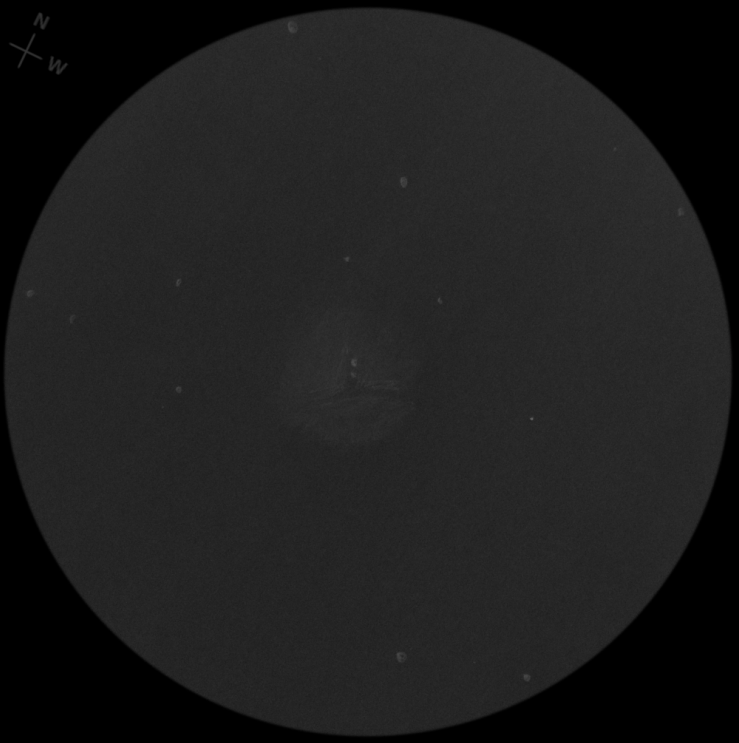
Diffuse nebula and open cluster in Sagittarius

M 21: It's a not exactly spectacular open cluster.

(160x, Horváth)

M 20: It is very spectacular how a dark nebula of shape of a letter T splits the nebula.

(160x, Horváth)



M22

Globular cluster in Sagittarius

A large globular cluster forming a human hand.

(160x, Horváth)

M23

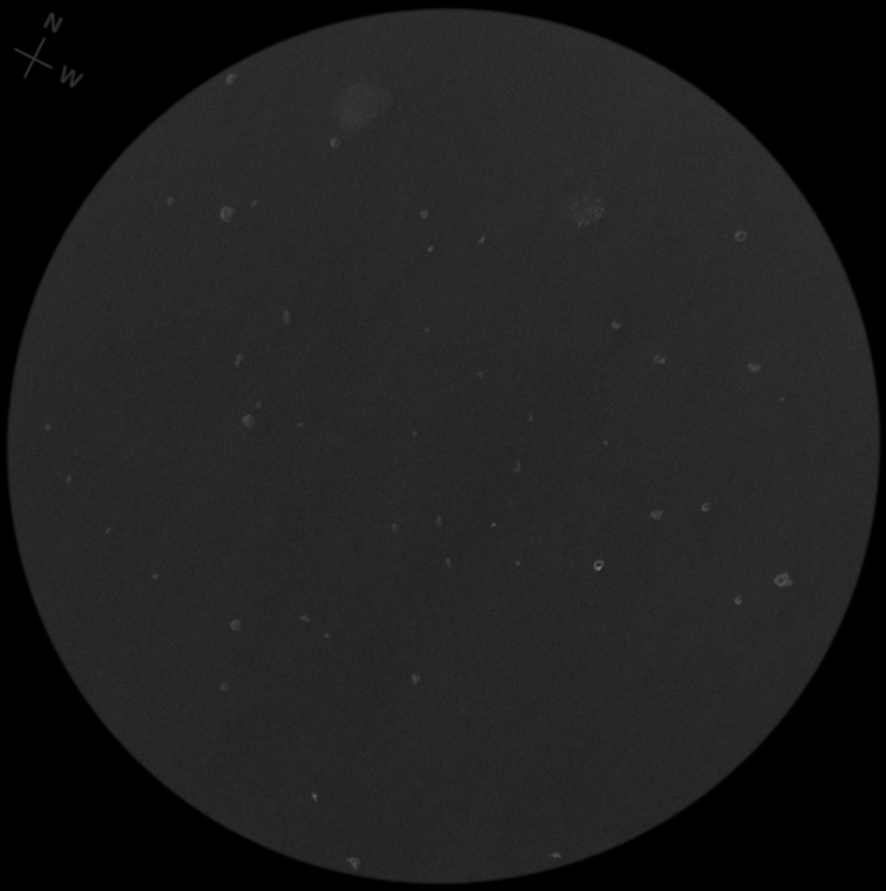
Open cluster in Sagittarius

An open cluster formed by curved star chains.

(80x, Horváth)

M24

Milky Way Star Cloud in Sagittarius



A star cloud in the Milky Way, on its border, two open clusters can be seen as blurred spots.

(55x, Horváth)

M25

Open cluster in Sagittarius

Quite wide open cluster in Sagittarius.

(80x, Horváth)

M26

Open cluster in Scutum

It's a not spectacular open cluster.

(255x Horváth)

M27

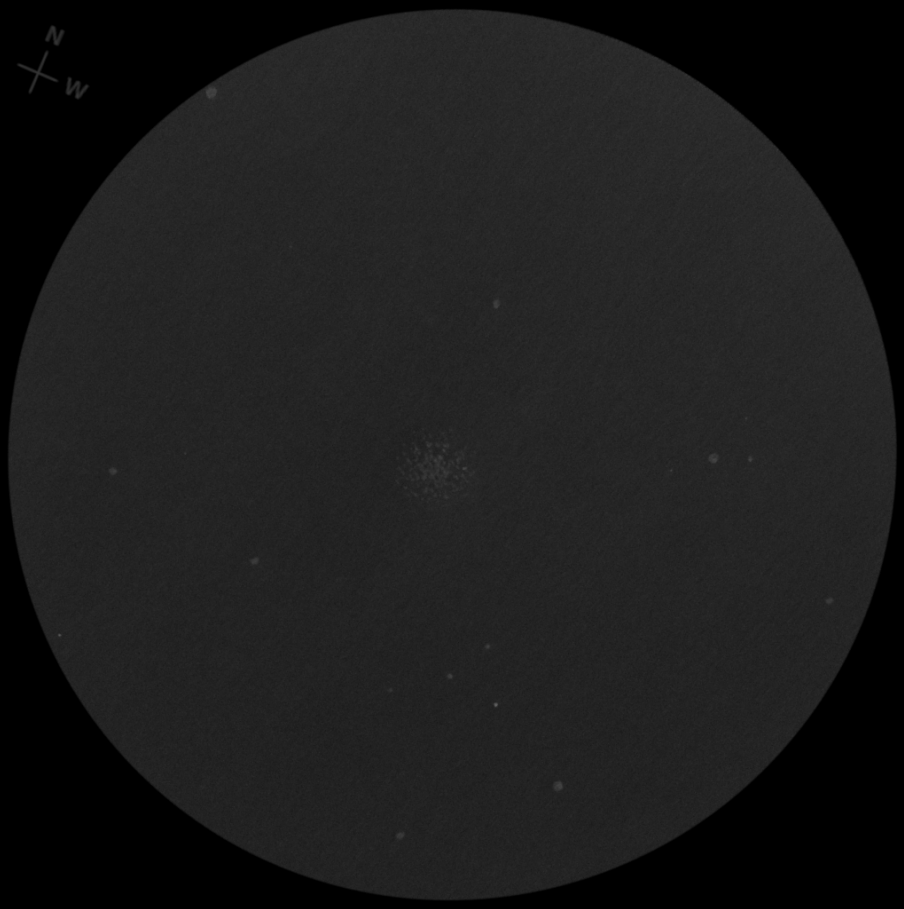
Planetary nebula in Vulpecula

Spectacular planetary nebula of relatively large size. The protrusions on the east side seem to close together.

(160x, Horváth)

M28

Globular cluster in Sagittarius



A globular cluster getting denser towards the center.

(160x, Horváth)

M29

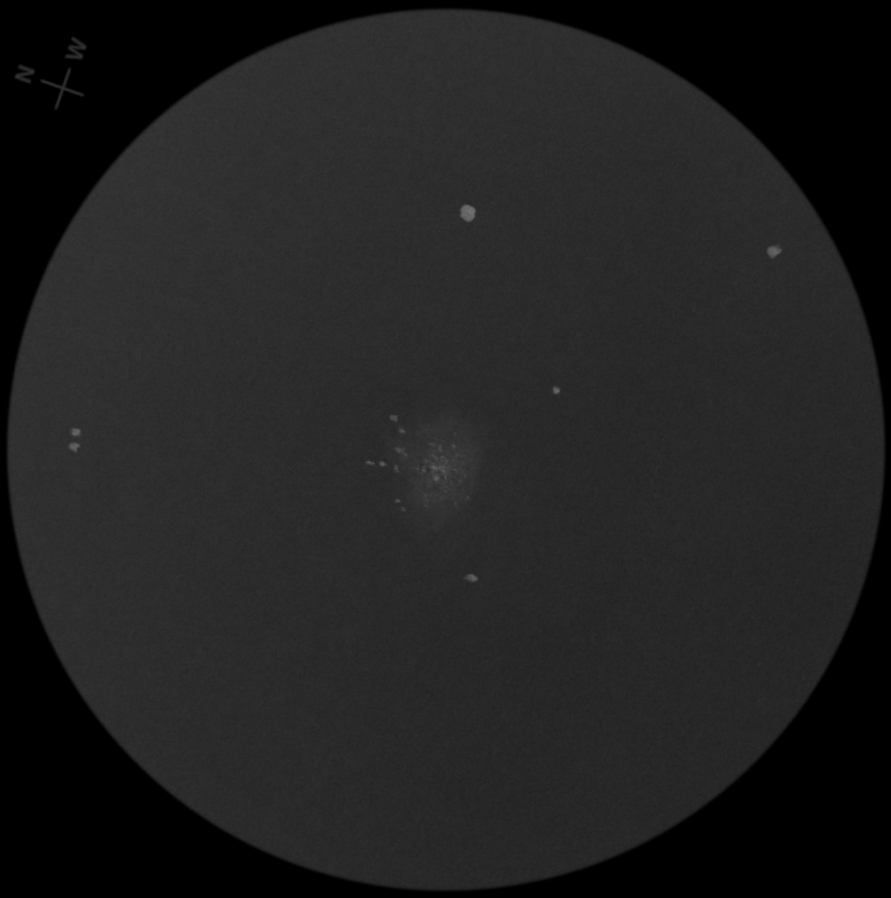
Open cluster in Cygnus

Due to the rich starfield, the drawing was made with large magnification and a narrow field of view, but it is also worth observing with lower magnification.

(170x, Varga)

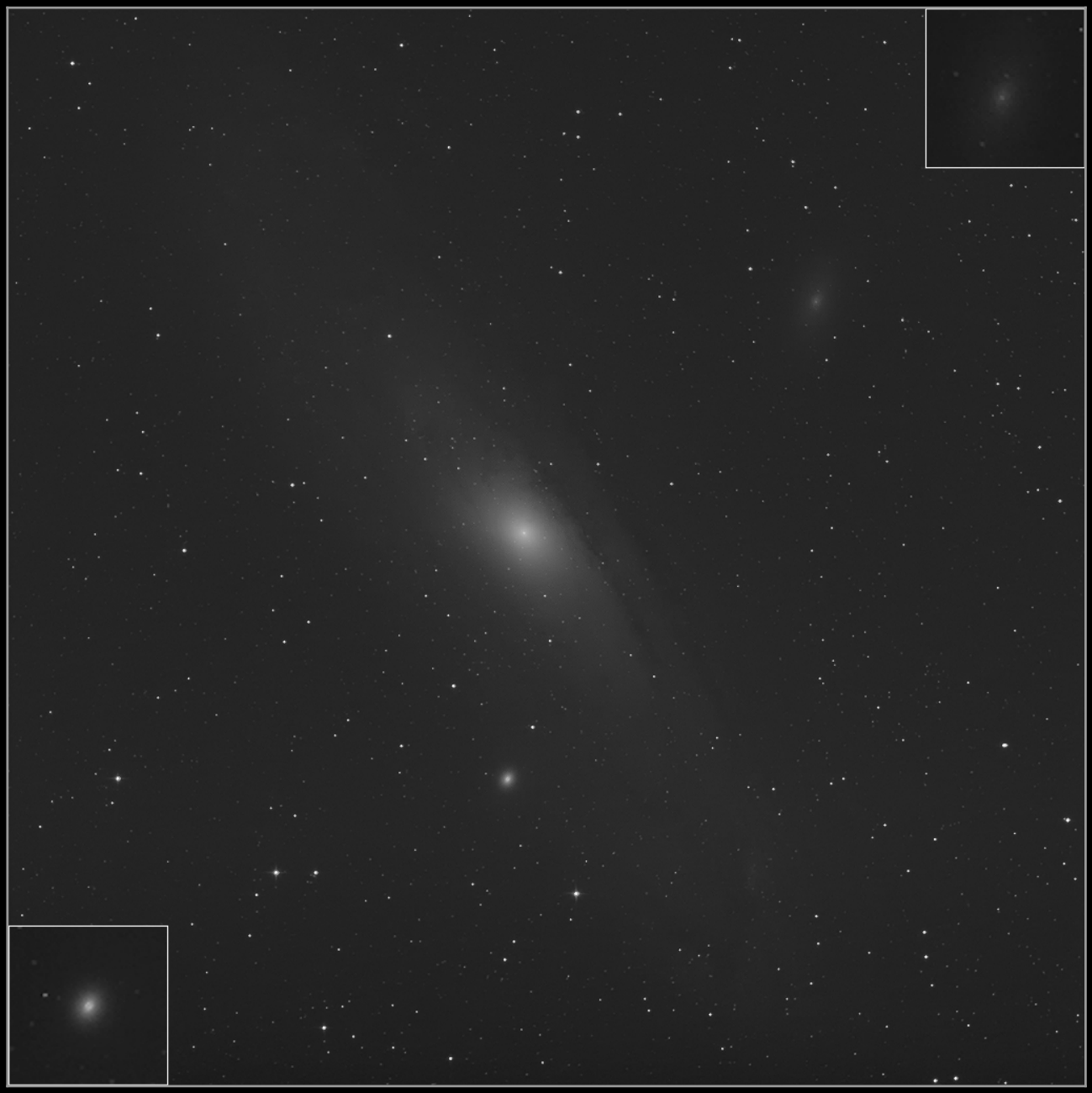
M30

Globular cluster in Capricornus



Only a few stars can be distinguished in it, star chains hanging out like tentacles to the north. Its surface is grainy, and with a better sky it might resolve better. Its shape is slightly flattened. It resembles a jellyfish.

(190x, Varga)



M32, M31, M110

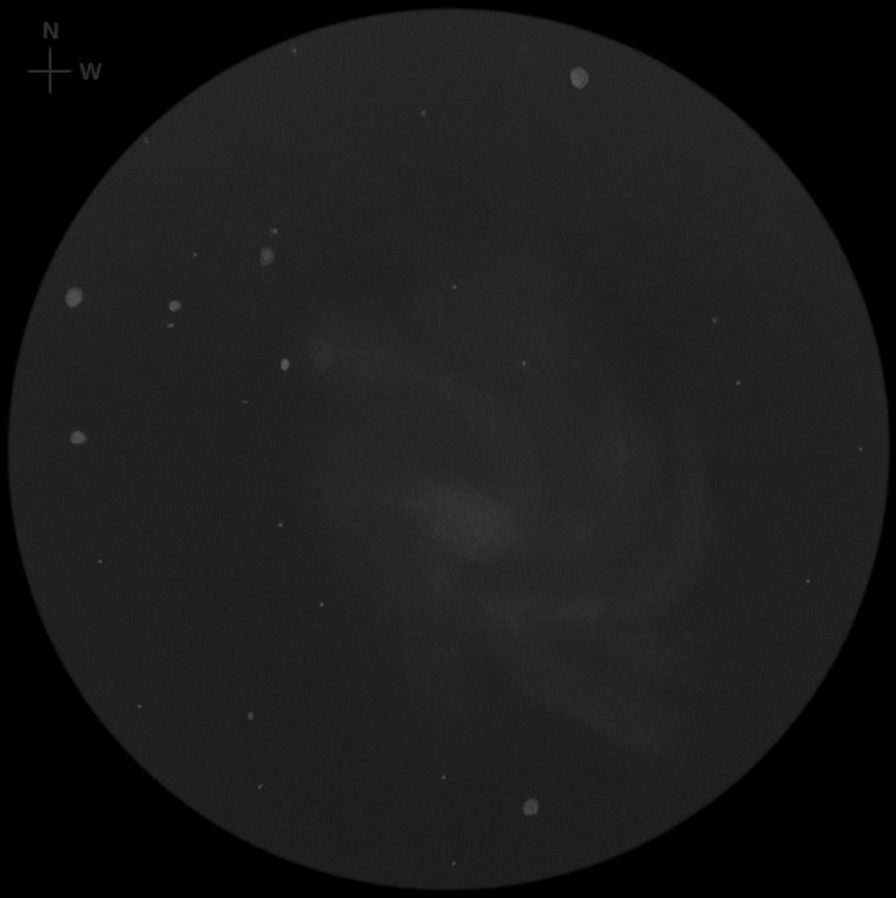
Galaxies in Andromeda

Due to the weaker transparency, dust lanes are more difficult to see. The spiral arms are spotted, but it would take more time and a better sky to accurately draw the spots. The CLS filter increases contrast, but the faint parts disappear. Companion galaxies also fit well into the field of view. M 32 is rounded, M 110 is more elongated. Both gradually brighten towards their core.

(65x, Varga)

M33

Galaxy in Triangulum



The spiral arms are easy to follow, in them I can see quite a few knots. With a CLS filter, it is possible to slightly increase the contrast of the spiral arms and emission nebulae. The UHC, OIII and H-beta filters particularly highlight gas nebulae, but with them the spiral arms can no longer be studied.

(110x, Varga)

M34

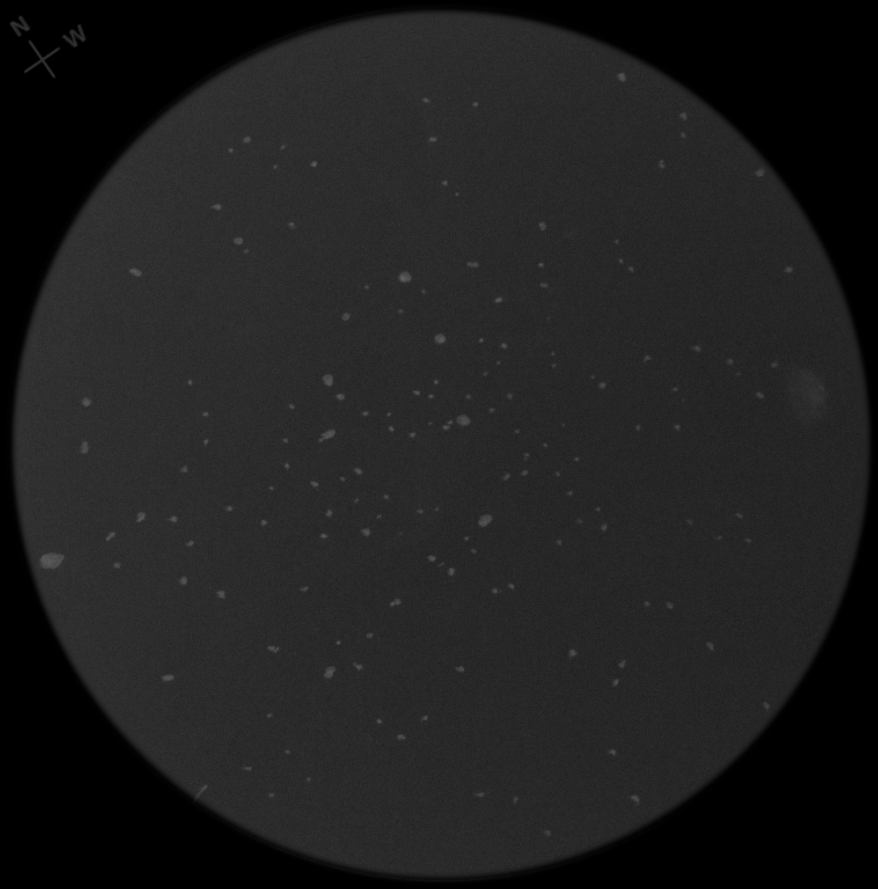
Open cluster in Perseus

It is a large open cluster. The middle bears a strong resemblance to the Owl Cluster NGC 452.

(50x, Horváth)

M35

Open cluster in Gemini

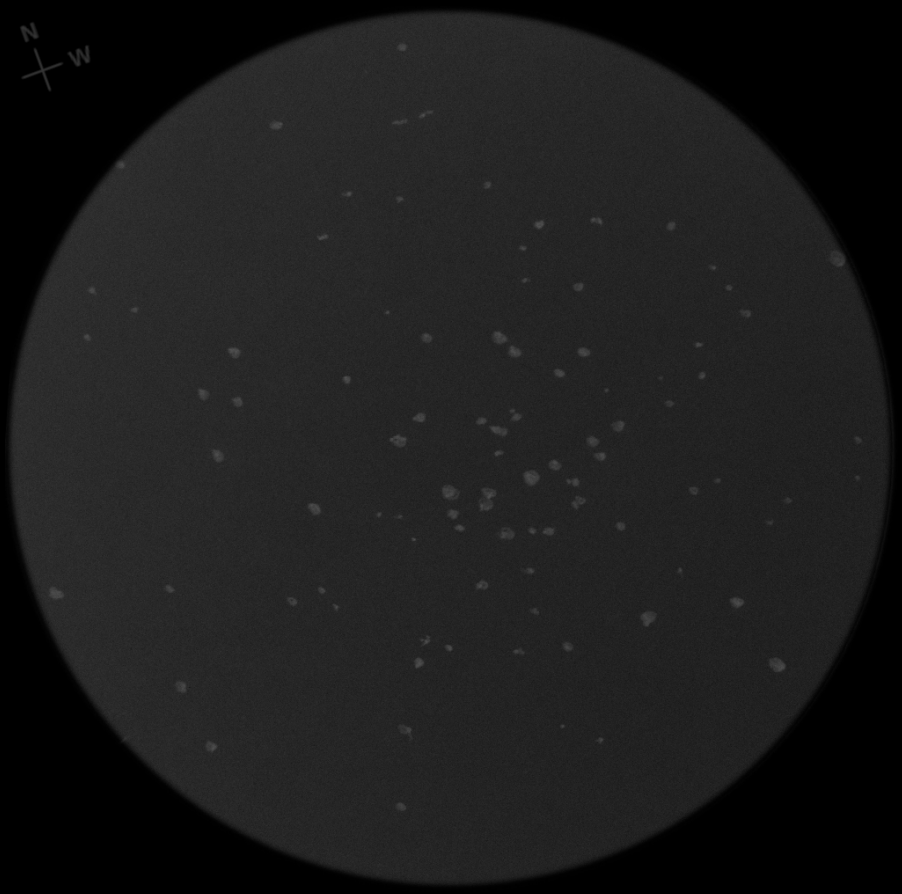


Open cluster, and open cluster NGC 2158.

(55x, Horváth)

M36

Open cluster in Auriga



Open cluster with several bright stars.

(80x, Horváth)

M37

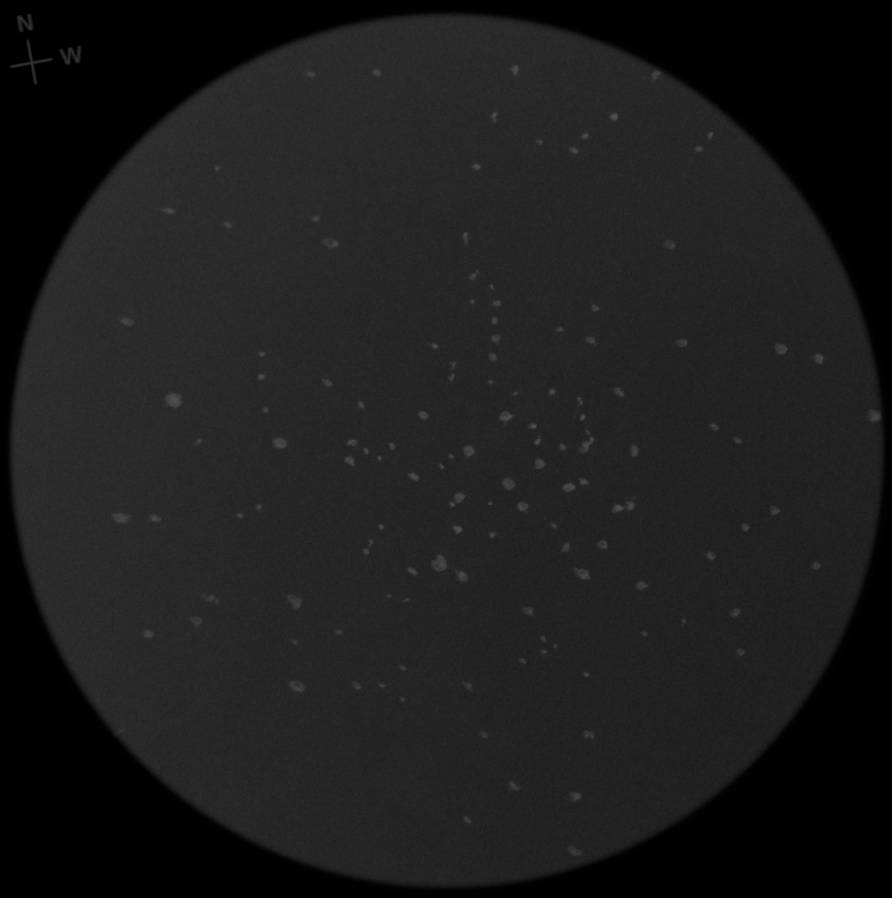
Open cluster in Auriga

It is an interesting open cluster with three denser regions.

(80x, Horváth)

M38

Open cluster in Auriga



It is a large open cluster, denser towards the center. Brighter stars are also concentrated here.

(80x, Horváth)

M39

Open cluster in Cygnus

The pattern of stars in the cluster reminds me of a delta-winged aircraft. Both inside and south of the large cluster, there are fewer very faint stars with which the field of view is otherwise filled. This effect is caused by the surrounding dark nebulae.

(65x, Varga)

M40

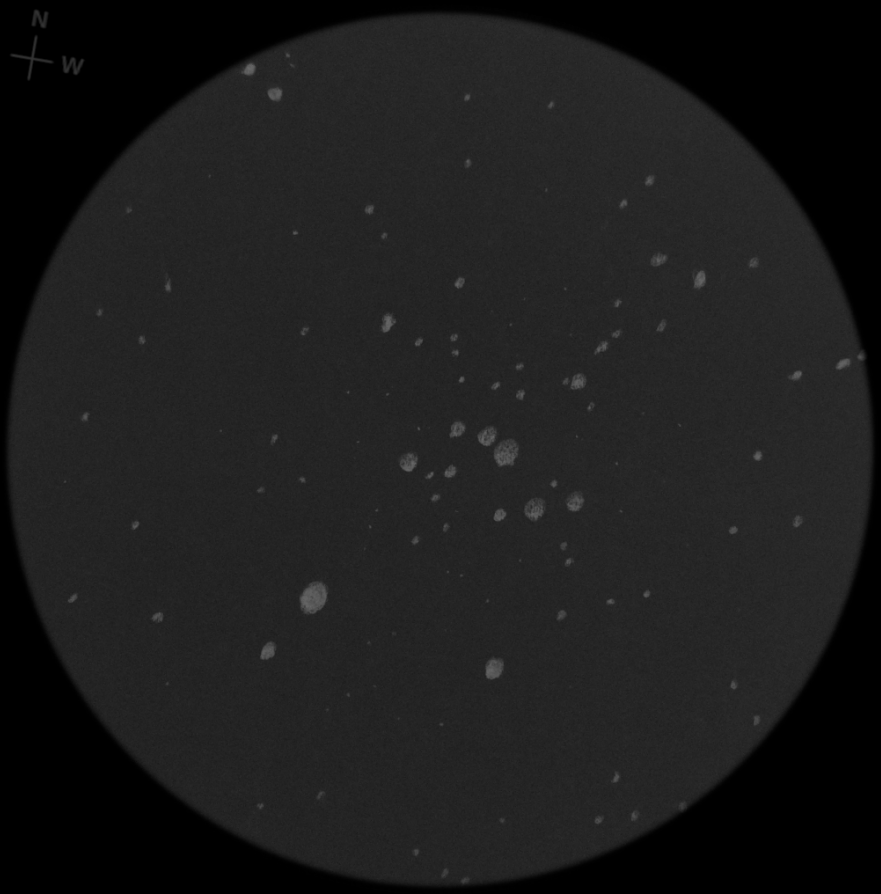
Double star in Ursa Major

A pleasant triangle is formed by the wide double star of approximately the same brightness, 70 UMa and the galaxy NGC 4290.

(90x, Varga)

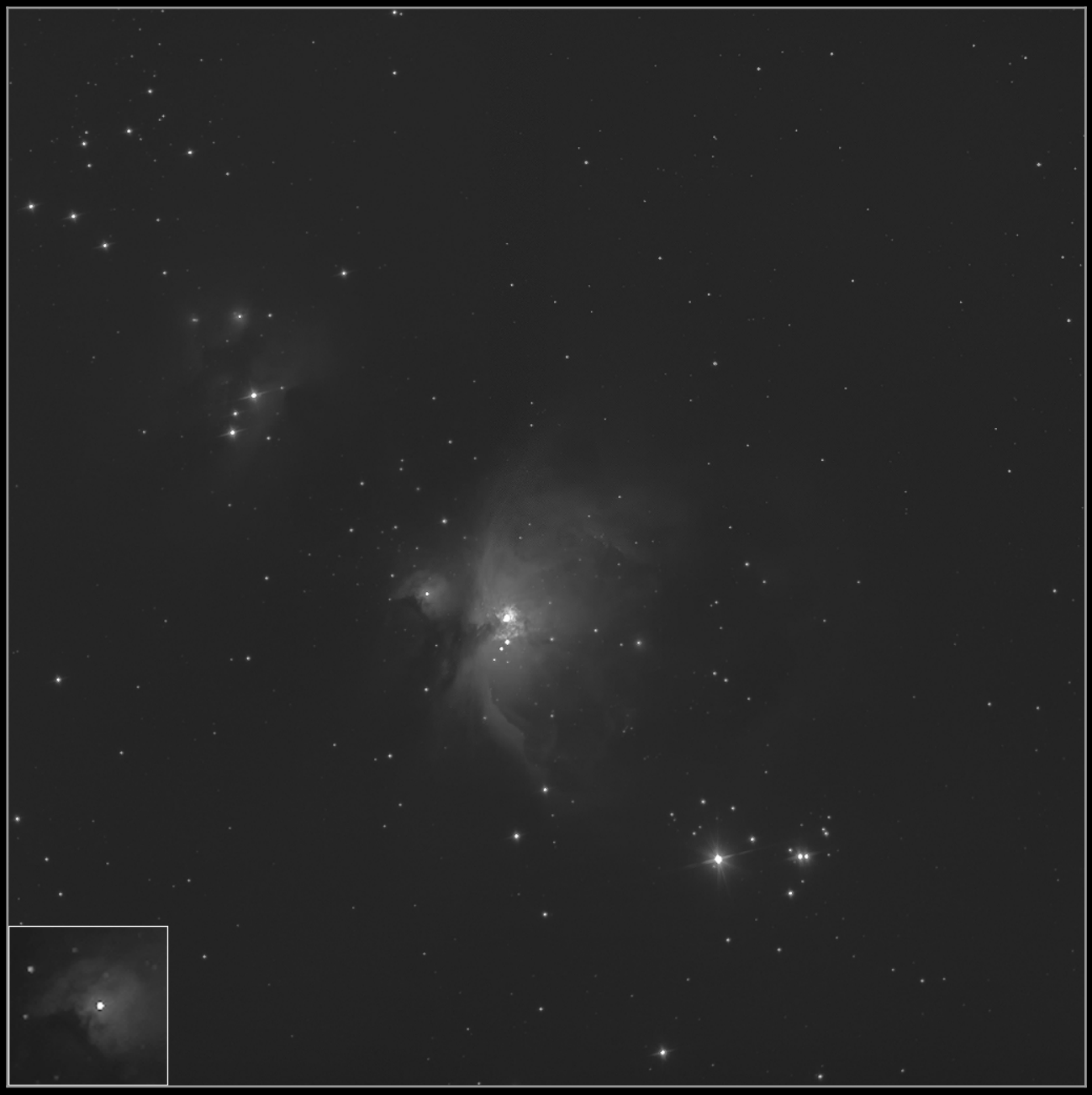
M41

Open cluster in Canis Major



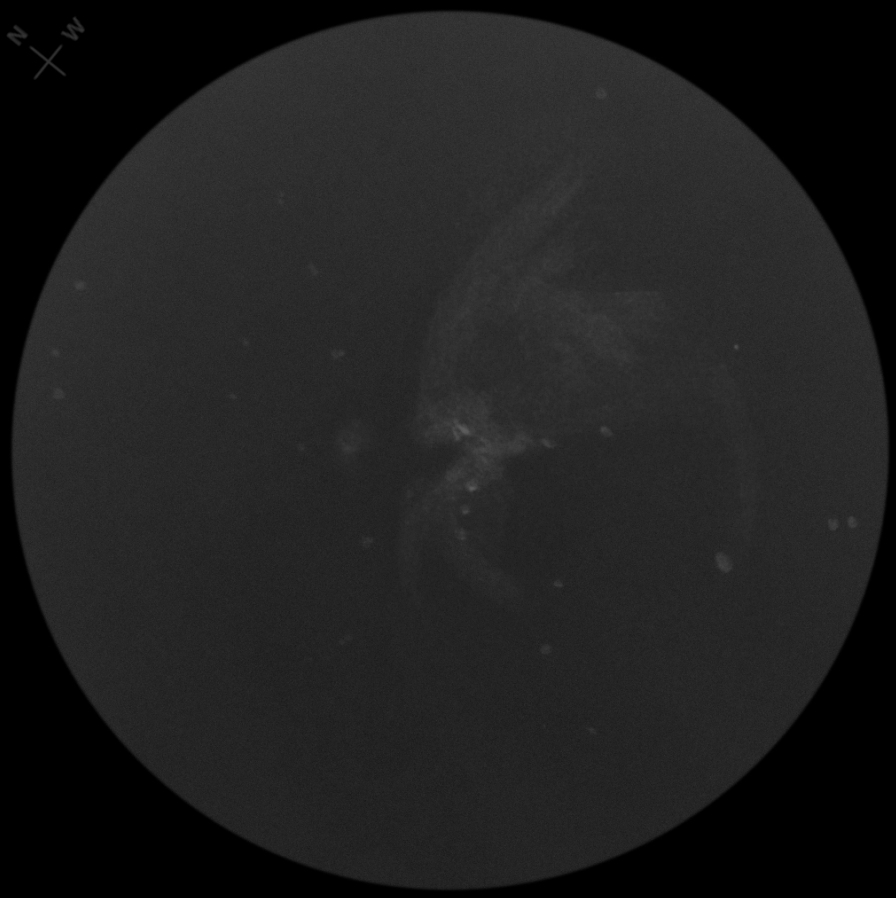
It is a large, loose cluster. It is dominated by bright stars. It is easy to see even with the naked eye.

(65x, Varga)



M43, M42

Diffuse nebula in Orion



Very popular and spectacular nebula with details, claw-like protrusions, with a “bite” in it.

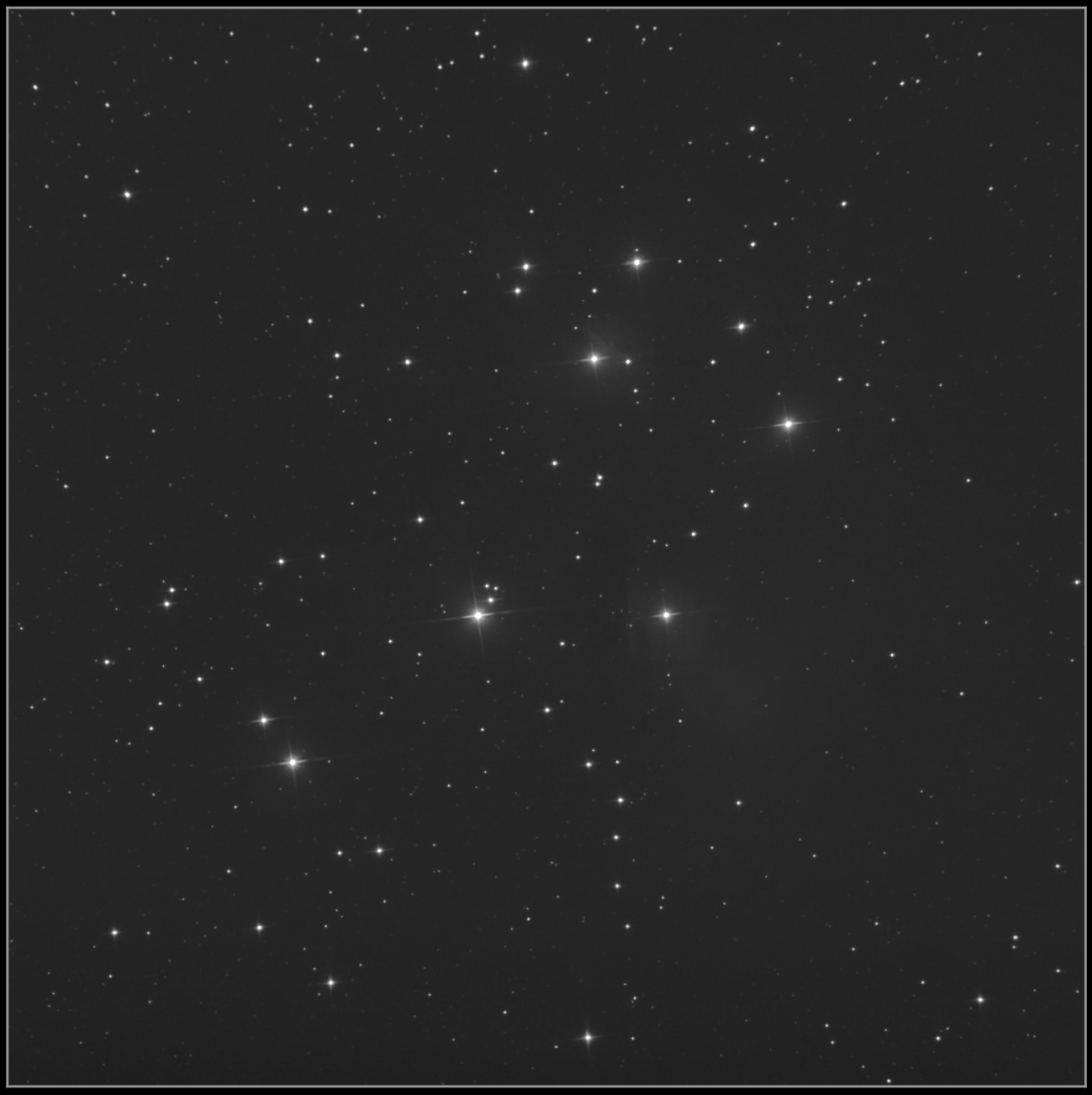
(50x, Horváth)

M44

Open cluster in Cancer

It is an open cluster of large size, with some brighter and more faint stars.

(65x, Horváth)



M45

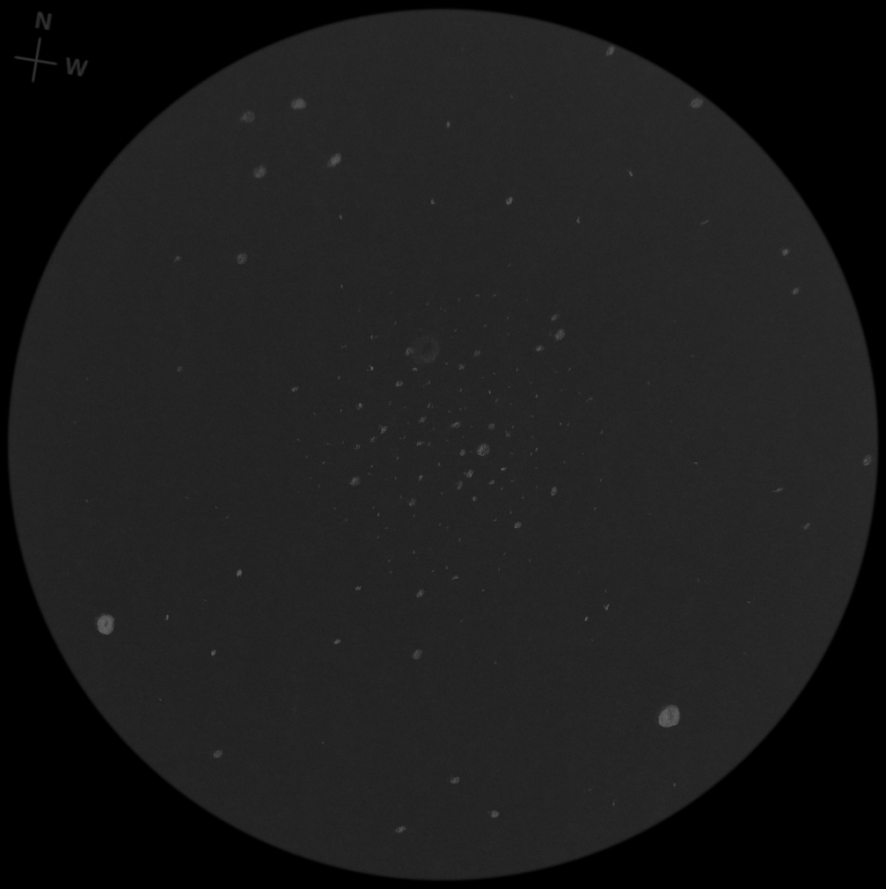
Open cluster in Taurus

Deservedly popular open cluster with many bright stars surrounded by reflection nebulae.

(65x, Horváth)

M46

Open cluster in Puppis

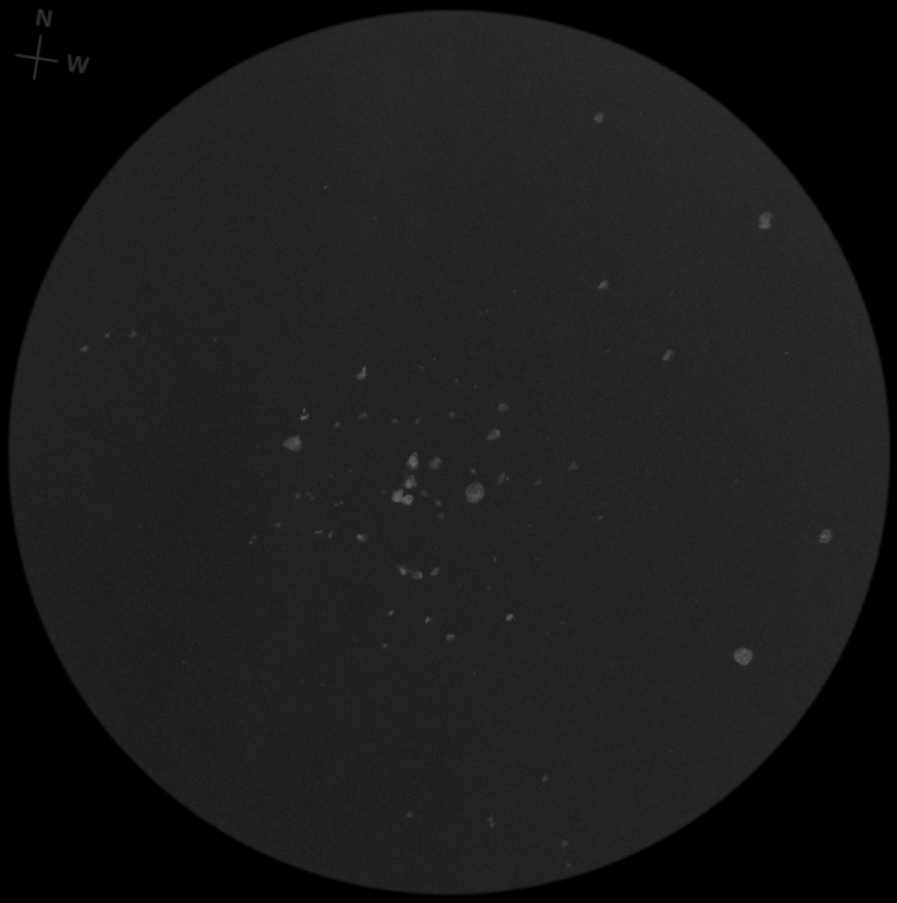


A very lush star field. The skeleton of the cluster is made up of moderately faint stars, but in addition to these, there are also countless very faint members. The planetary nebula NGC 2438 is very striking even without a filter. With its ringed appearance, it is an interesting sight in itself, together with the cluster it is a real specialty.

(65x, Varga)

M47

Open cluster in Puppis



It has quite bright and also faint stars. I can't detect any particular patterns in it. It is filled with many, many faint stars. For me, the most characteristic detail of the set is the double star formed by components of the same color and brightness, located approximately in the middle.

(65x, Varga)

M48

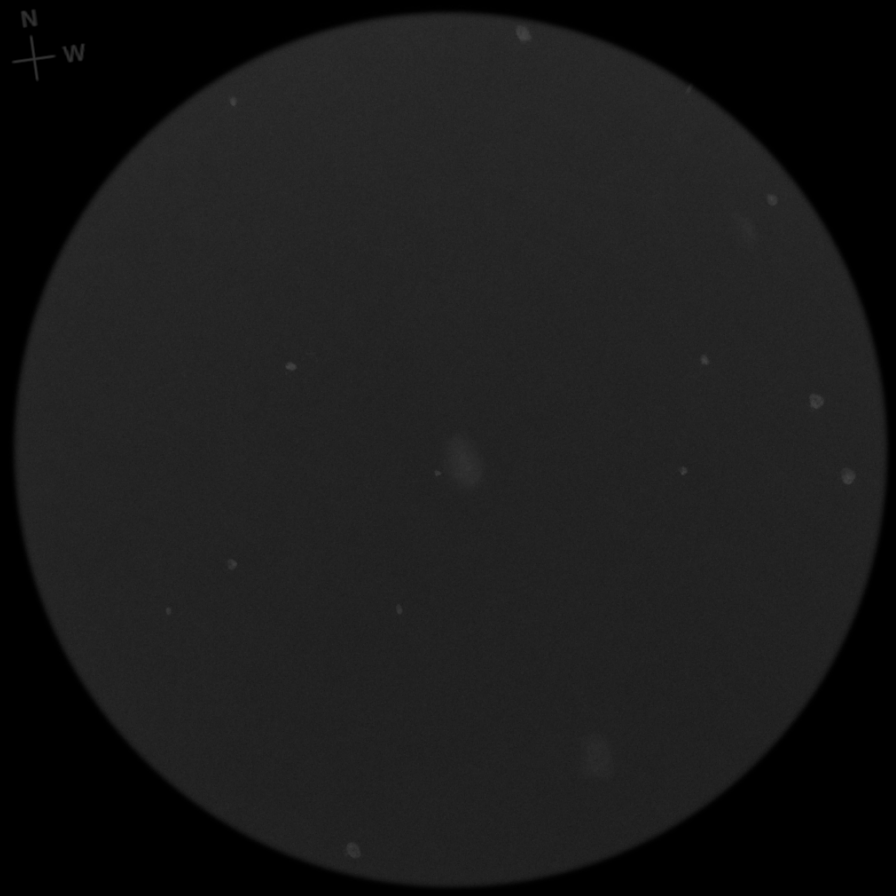
Open cluster in Hydra

It is a large cluster formed by moderately bright stars of nearly equal brightness. It reminds me of an insect because of the shape of the star chains.

(65x, Varga)

M49

Galaxy in Virgo



A diffuse galaxy adjacent to a star that looks like a flattened disk.

(160x, Horváth)

M50

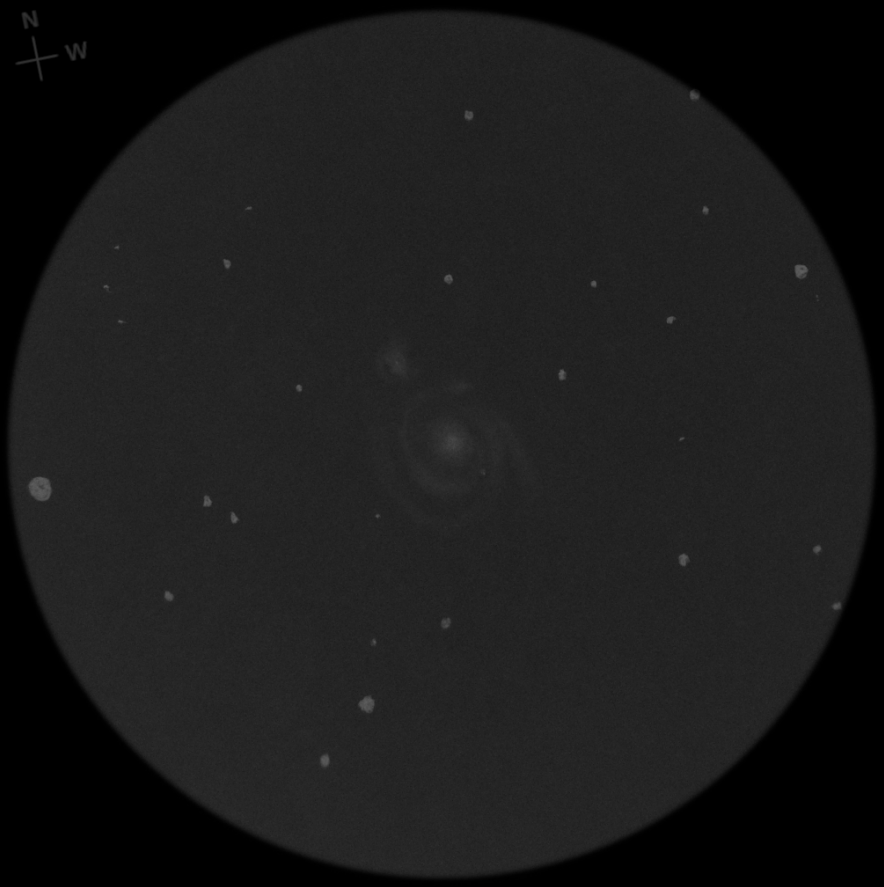
Open cluster in Monoceros

Perhaps it reminds me of a flower spider. It is a large, rich cluster filled with moderately bright and faint stars. Its curved star chains are impressive.

(65x, Varga)

M51

Galaxy in Ursa Major



Its core is round, gradually brightening towards the middle. Its companion, NGC 5194, is barely a little fainter. Its shape is a bit reminiscent of Thor's helmet, as if it had wings. To the east of the companion's core, a dark dust lane is visible. The spiral arms appear at first glance, but it takes more time for the view to unfold. The faintest details were only momentarily visible.

(110x, Varga)

M52

Open cluster in Cassiopeia

It's a wide open cluster, without notable formation.

(160x, Horváth)

M53

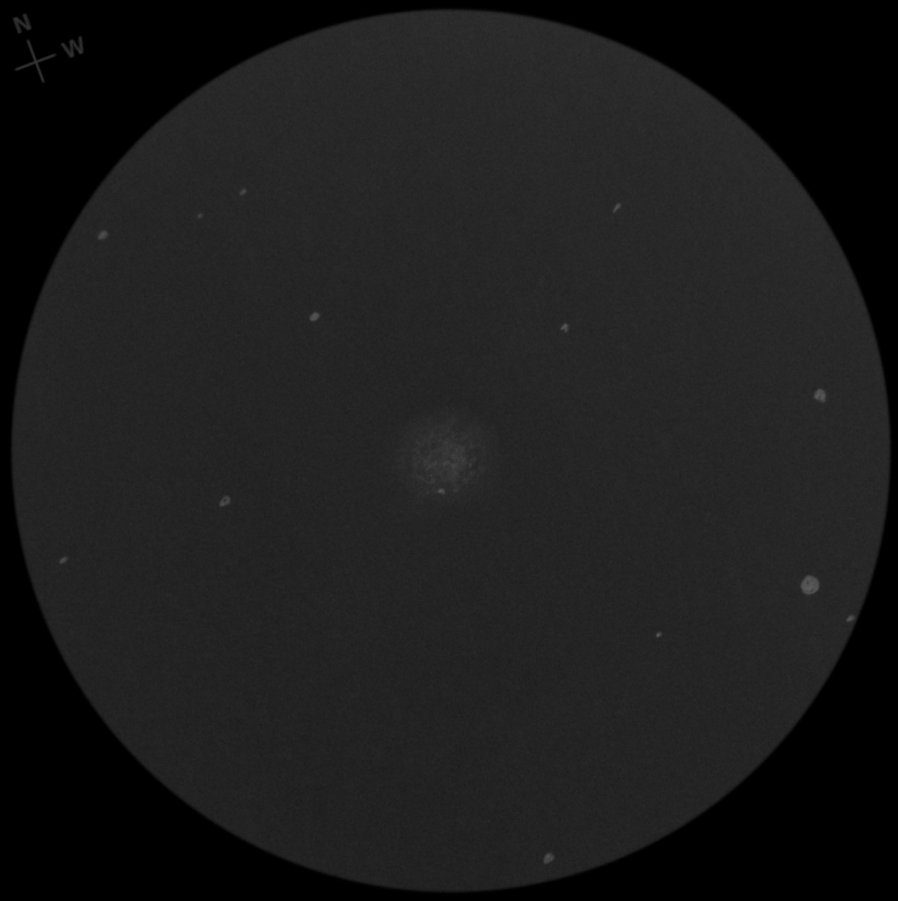
Globular cluster in Coma Berenices

It is a dense globular cluster with a relatively high-contrast central region. There is a definitely visible void on the eastern side of the core.

(160x, Horváth)

M54

Globular cluster in Sagittarius

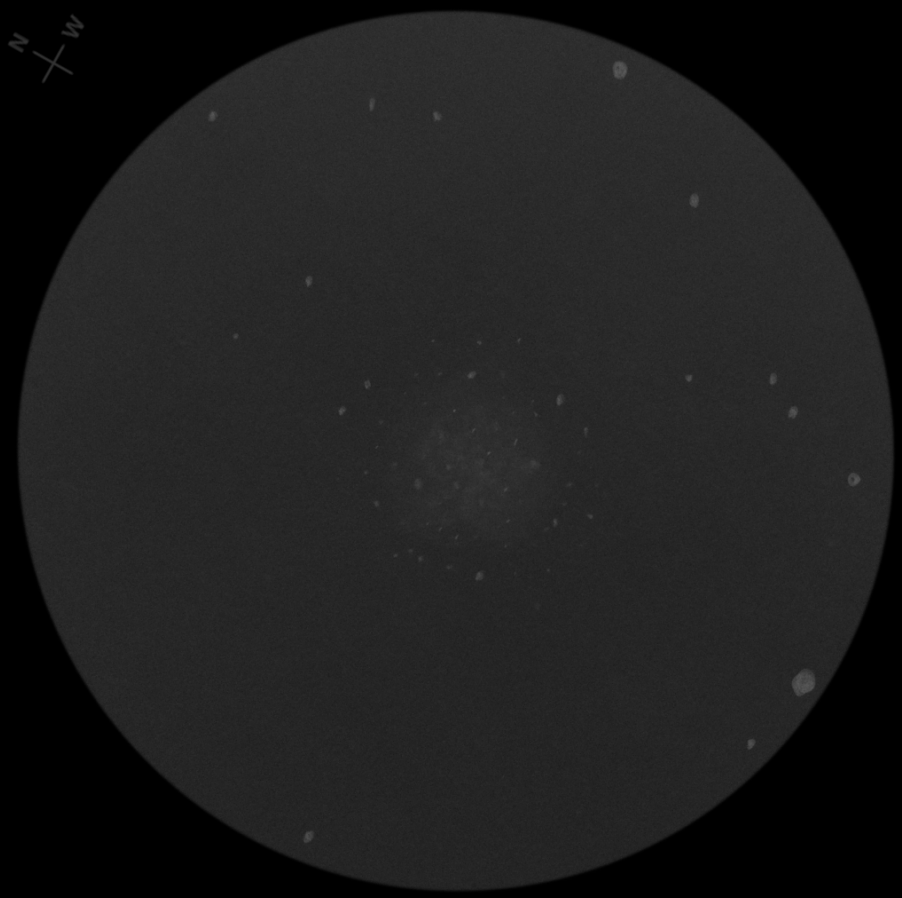


Its core is compact. It gradually brightens towards the center. Its surface is mottled. A brighter star appears on the southern edge of the cluster. The core of the cluster is shifted slightly southwest of the center.

(190x, Varga)

M55

Globular cluster in Sagittarius

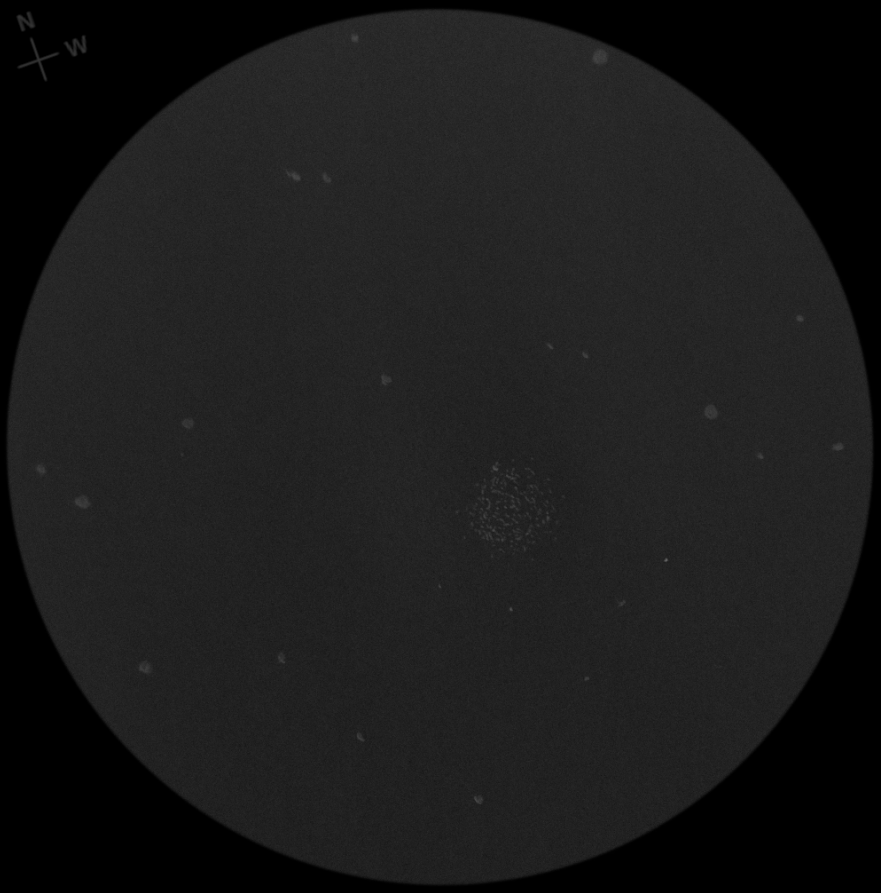


It is a very large cluster with no strong central brightening. Its brighter stars are moderately faint, and there are a lot of faint stars besides these. Its central parts are strongly nebulous.

(145x,Varga)

M56

Globular cluster in Lyra

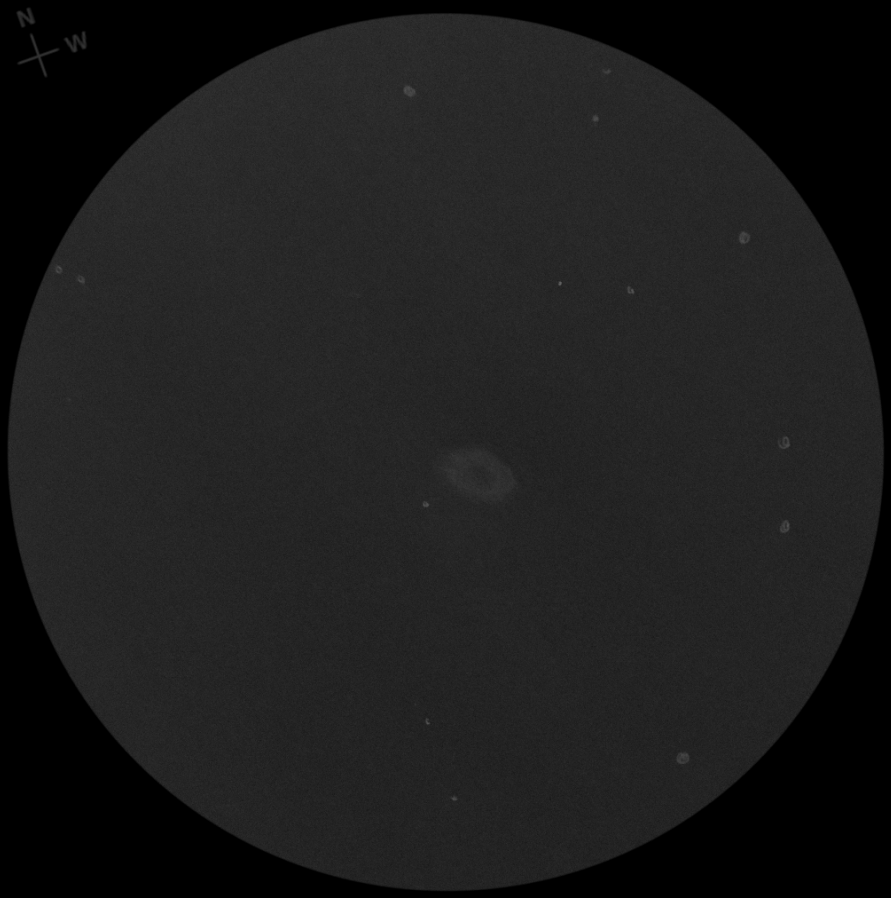


A tiny but very dense globular cluster.

(255x, Horváth)

M57

Planetary nebula in Lyra



Deservedly popular planetary nebula. It is also easy for beginners to see.

(255x, Horváth)

M58

Galaxy in Virgo

Diffuse core, symmetric arms, flattened shape.

(160x, Horváth)

M59, M60

Galaxies in Virgo

M 59: An elongated elliptical galaxy with a bright core.

M 60: A rounded elliptical galaxy with a bright core. Right next to it you can see the galaxy NGC 4647.

(90x, Varga)

M61

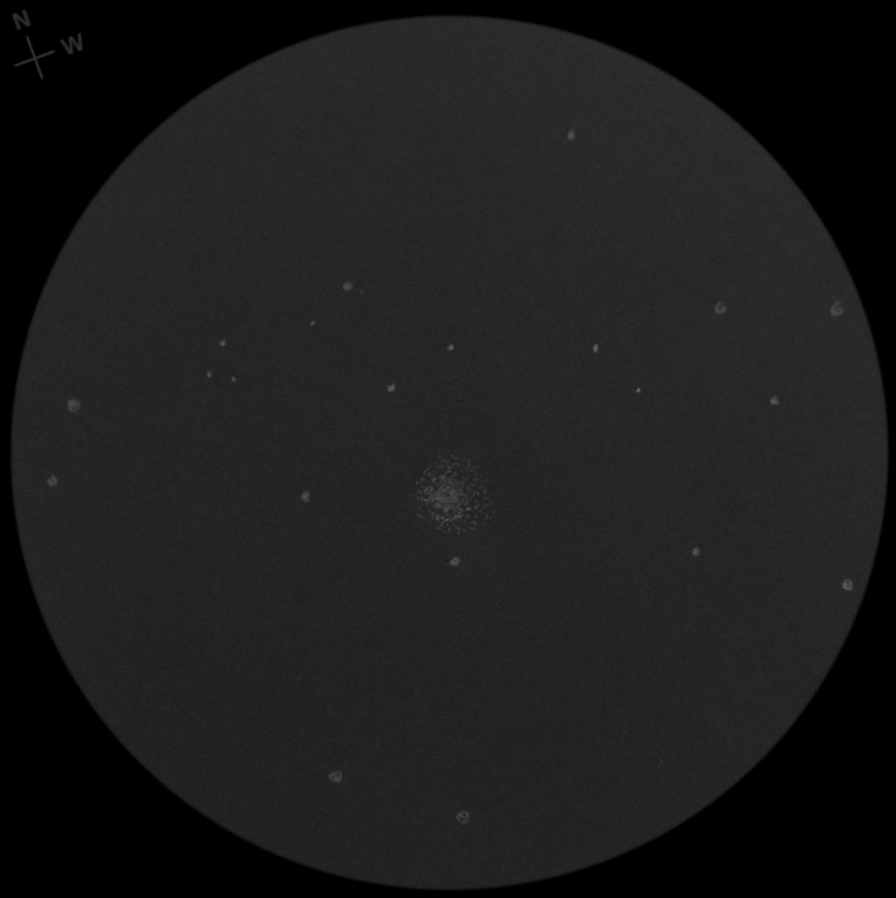
Galaxy in Virgo

It's easy to follow the spiral arms. The core is bright, star-like. The arm, which turns to the east, is brighter, and in its northern part an extensive, brighter knot is visible. The western arm is significantly fainter. At the end of that arm is the supernova SN 2020jfo, visible at the time of this observation, which is slightly brighter than the foreground star south of it.

(190x, Varga)

M62

Globular cluster in Ophiuchus



Small, bright globular cluster, slightly eccentric.

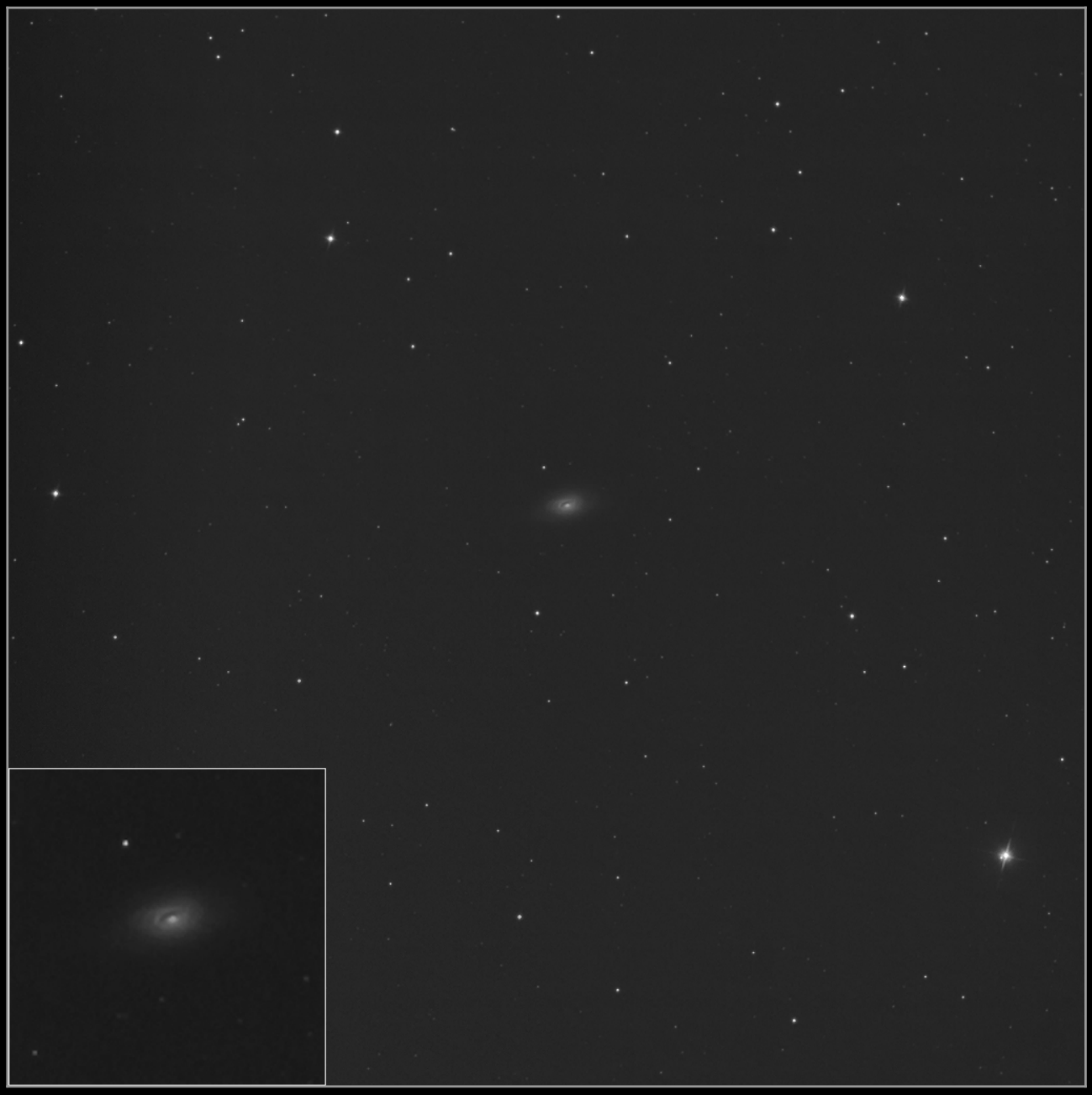
(160x, Horváth)

M63

Galaxy in Canes Venatici

A galaxy with a slightly elongated shape and brighter core. A fainter region can be observed in the northwest and southeast of the core.

(160x, Horváth)



M64

Galaxy in Coma Berenices

Galaxy with an elongated shape. The dark band that encircles the core extended almost 180° is very spectacular.

(160x, Horváth)

M65, M66

Galaxies in Leo

M 65: The galaxy is significantly elongated. From the core in both directions, you can see even brighter spots. The east side has a sharper boundary, but with averted vision, a band of dust is also revealed.

M 66: About north of the core there is a brighter spot. To the east of this is a darker part, the boundary of which draws out one of the spiral arms, which has a spotty appearance. The western, longer-extending spiral arm does not seem to be attached to the core.

(180x, Varga)

M67

Open cluster in Cancer

It is an extremely dense open cluster with many brighter stars with relatively uniform light and plenty of faint stars. Visually, it's made up of interesting curved star chains, reminding me of a crinoid.

(65x, Varga)

M68

Globular cluster in Hydra

It has a noticeably elongated shape. Its attraction is that there are brighter stars in a blob in the southern part of the cluster, and three bright stars can be seen on the northern boundary of the cluster.

(160x, Horváth)

M69

Globular cluster in Sagittarius

A globular cluster with uniform brightness, showing a slightly oval shape. Despite the low height, it is also barely noticeably but gritty.

(160x, Horváth)

M70

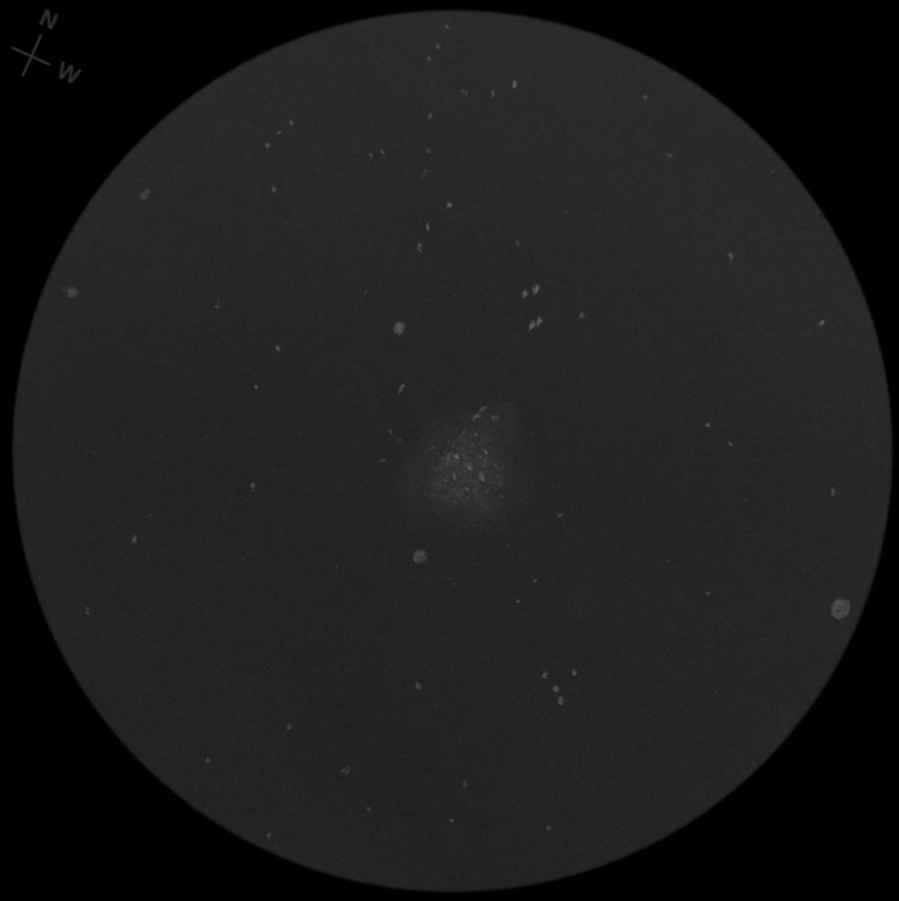
Globular cluster in Sagittarius

Undefined patch with a brighter lump in the center.

(160x, Horváth)

M71

Globular cluster in Sagitta

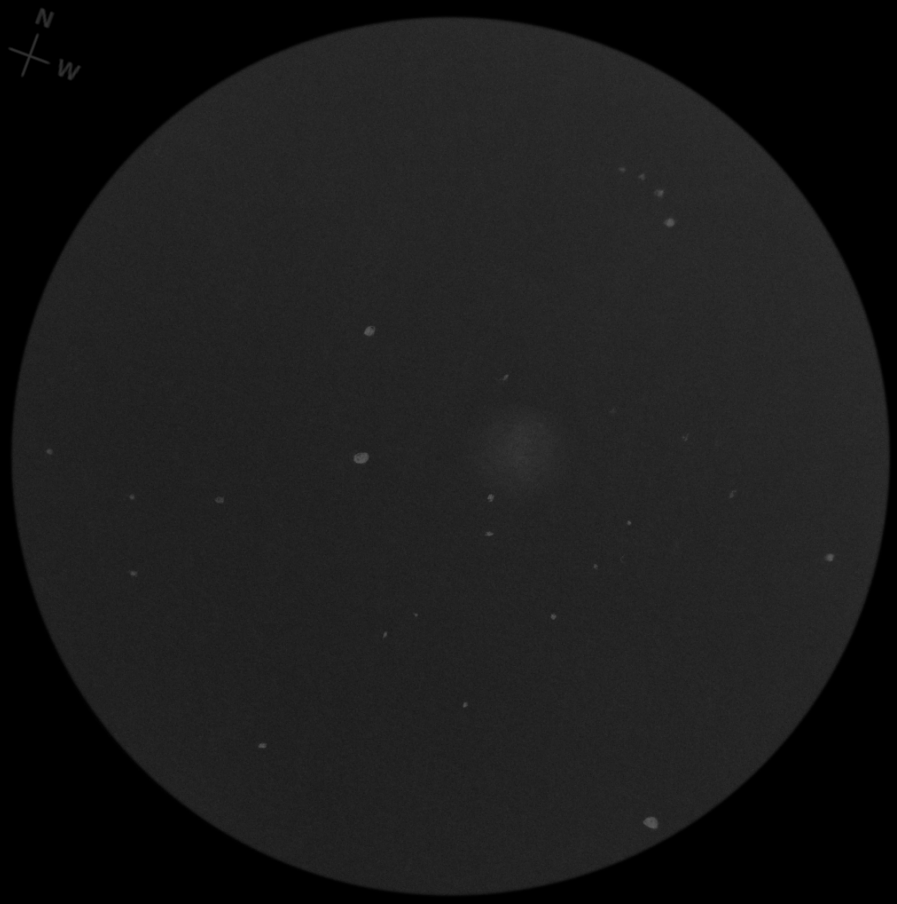


There are a lot of stars in the field of view. The globular cluster has the shape of a triangle. Some fainter stars form the base. Its surface is grainy, and its rim has a foggy appearance.

(190x, Varga)

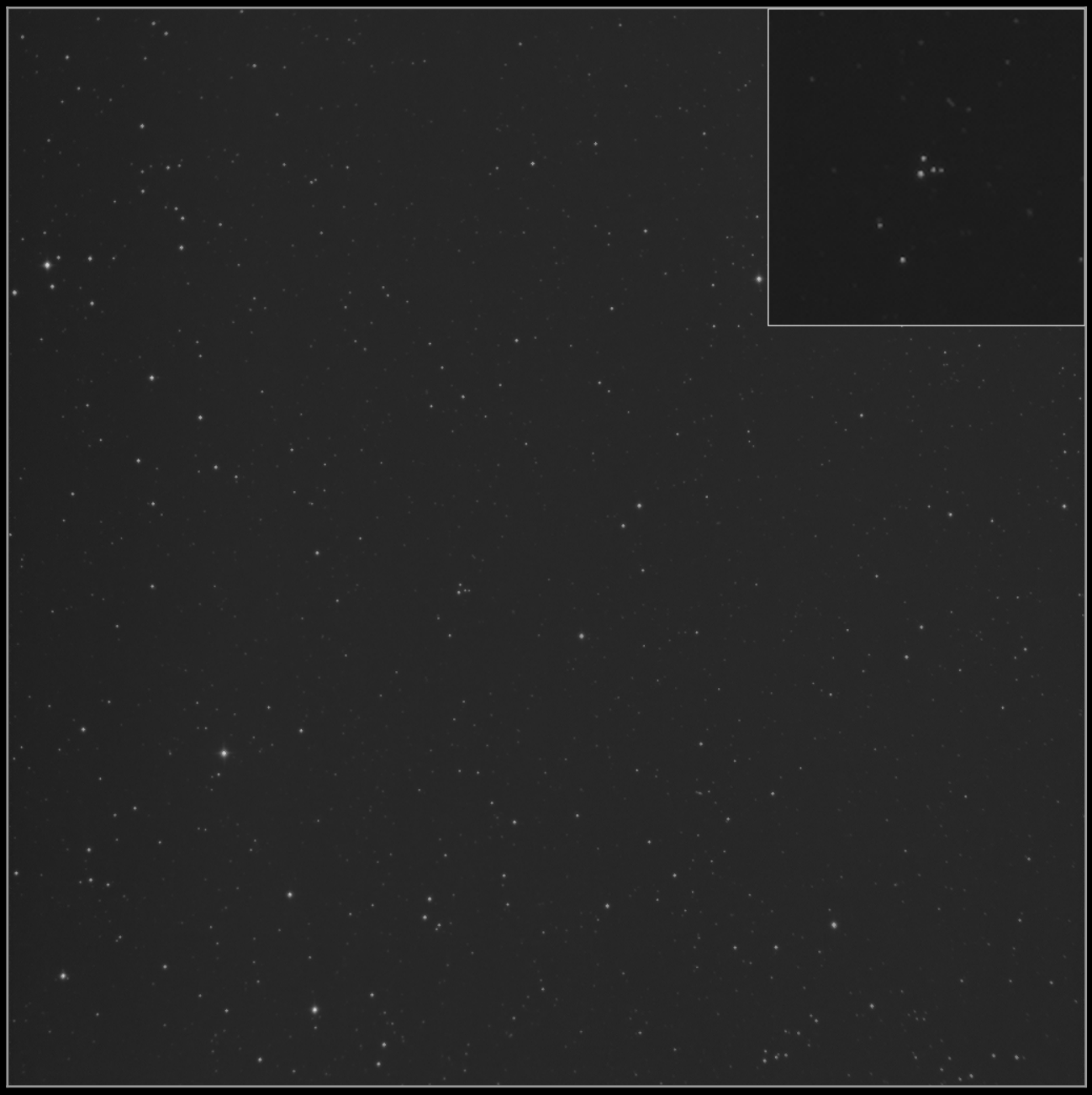
M72

Globular cluster in Aquarius



It does not resolve to stars. It is rather faint, its core is hardly brighter.

(190x, Varga)



M73

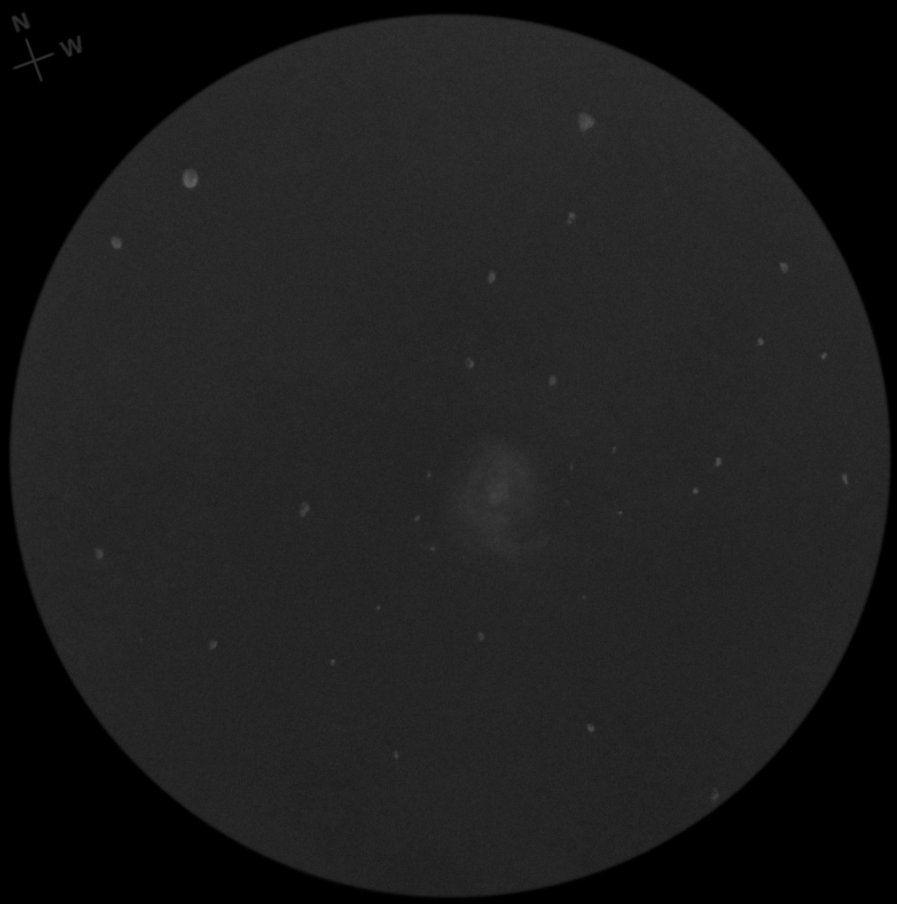
Asterism in Aquarius

4 stars in a triangular shape.

(190x, Varga)

M74

Galaxy in Pisces

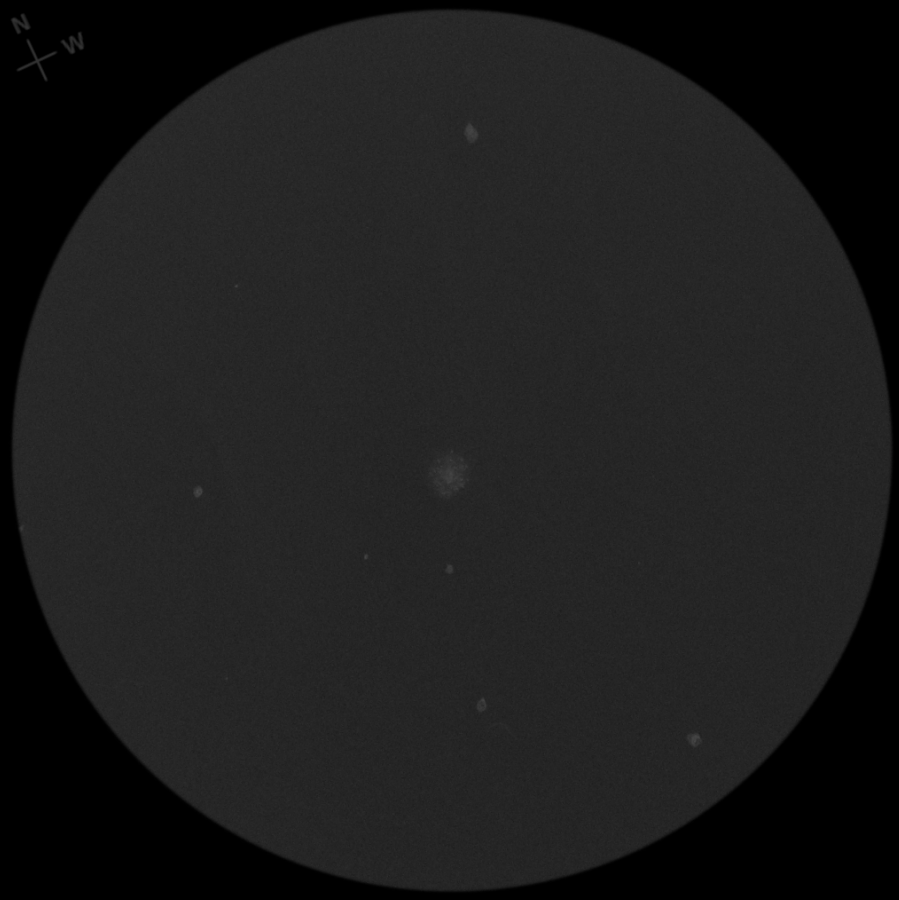


Compared to the drawing, the contrasts are much weaker in reality. To the southeast of the core, a brighter nodule is visible, and to the northwest, a larger but slightly paler spot can be seen. The shape of the arm winding south is clearly visible. The rest of the arms are vaguely perceived only, in the form of spots, protrusions.

(100x, Varga)

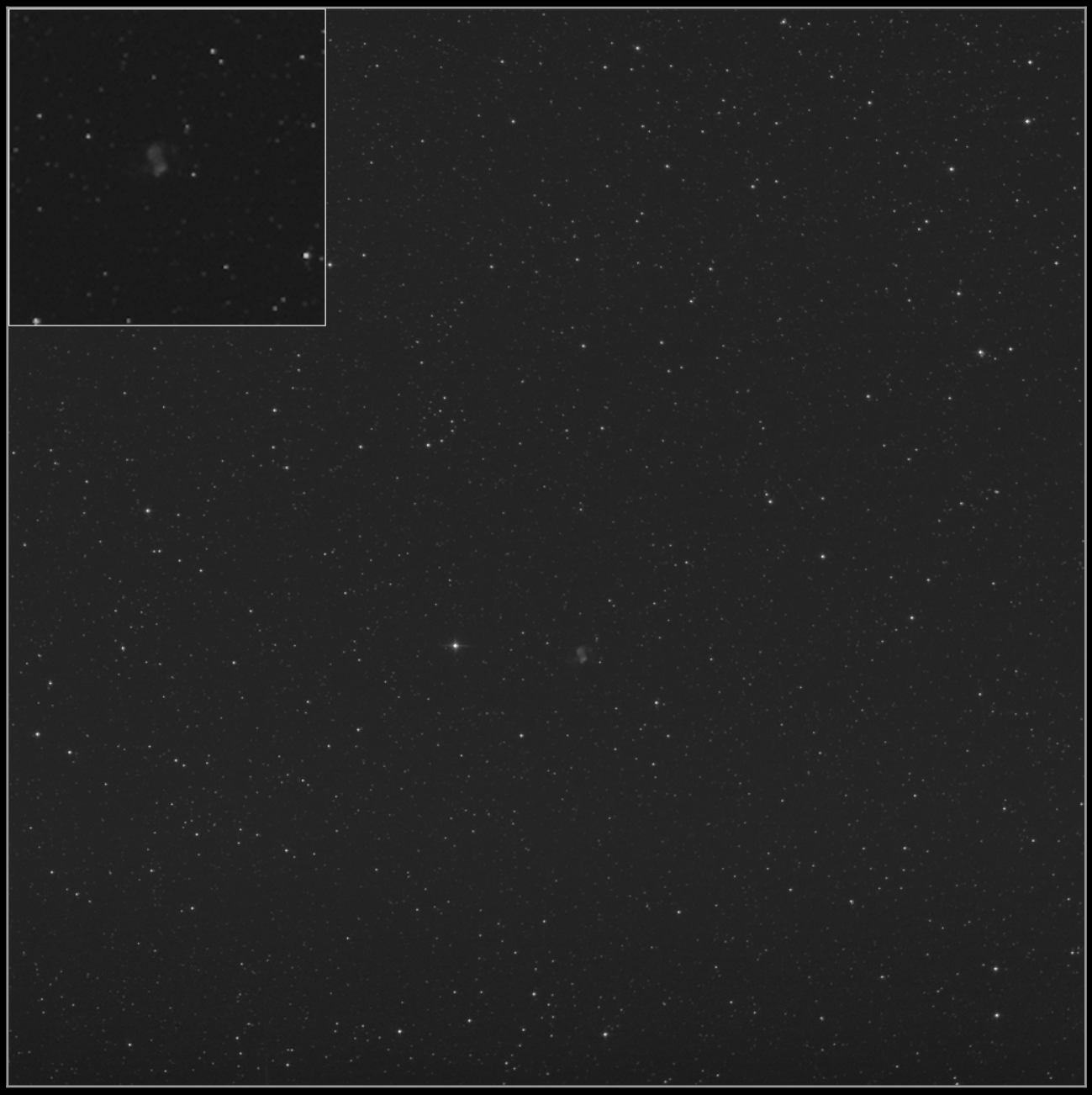
M75

Globular cluster in Sagittarius



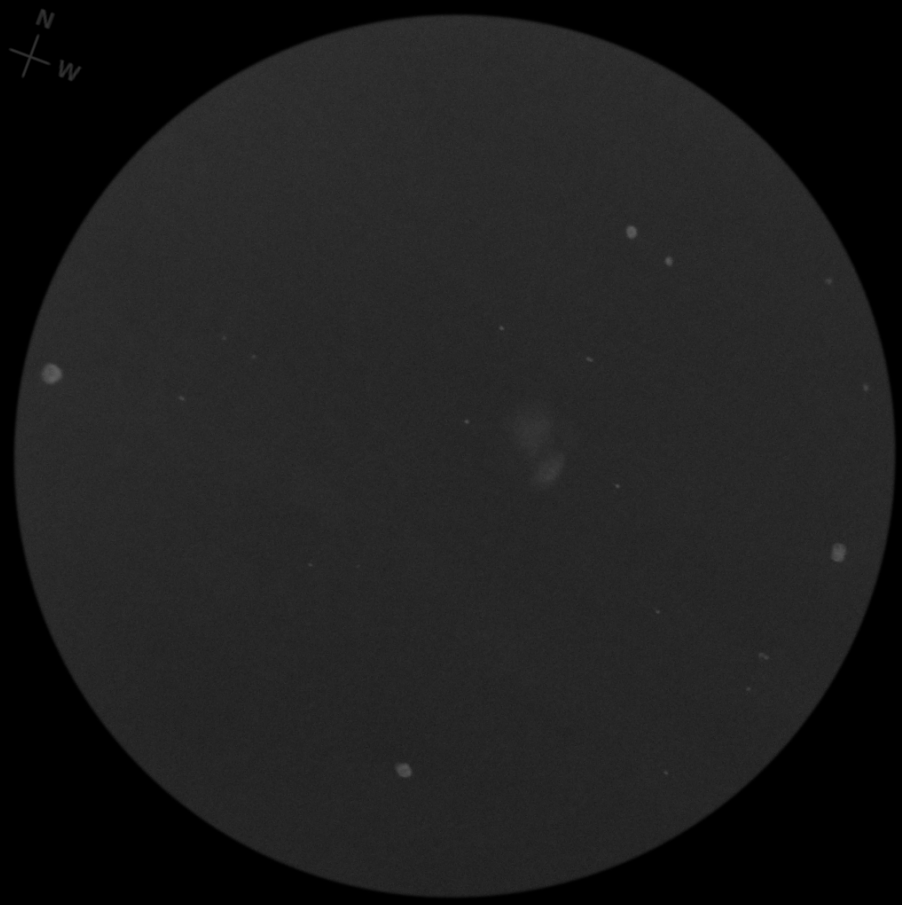
A tiny but bright globular cluster. Star-like core, seen as slightly gritty.

(255x, Horváth)



M76

Planetary nebula in Perseus

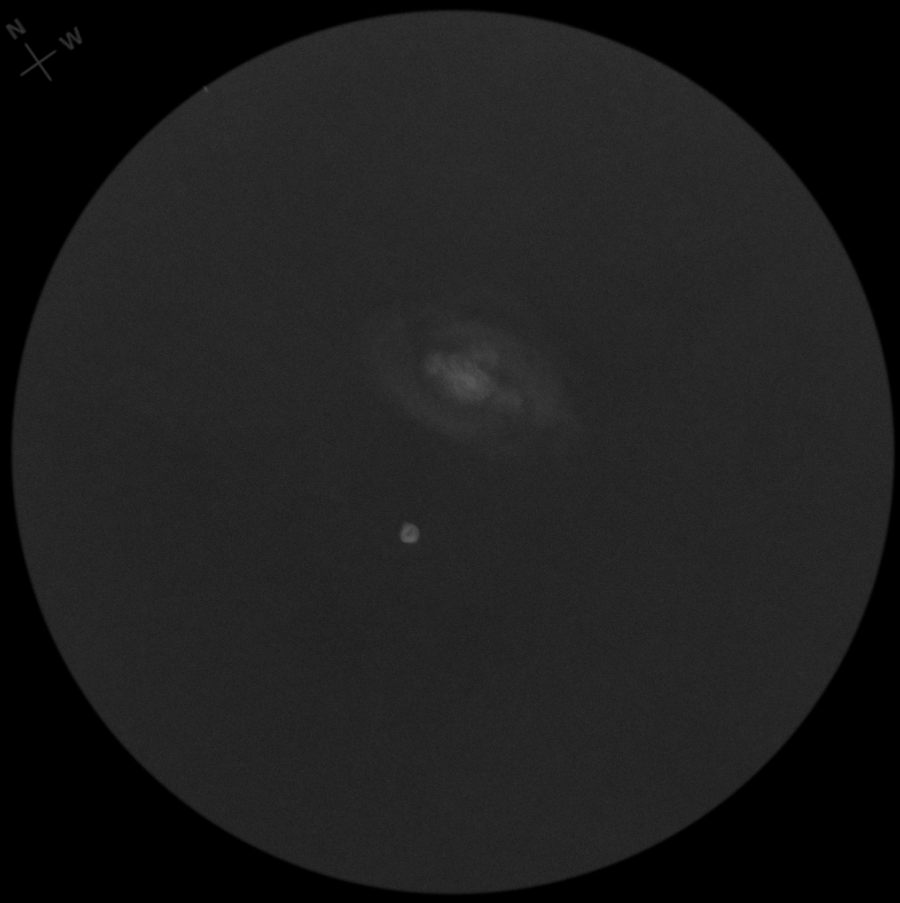


Two lobes with a fainter connection that looks crooked. The southern lobe is brighter and has a sharper boundary. From the northern lobe to the west, a very faint arc begins. On the east side, a faint spot can be seen adjacent to the two lobes.

(190x, Varga)

M77

Galaxy in Cetus

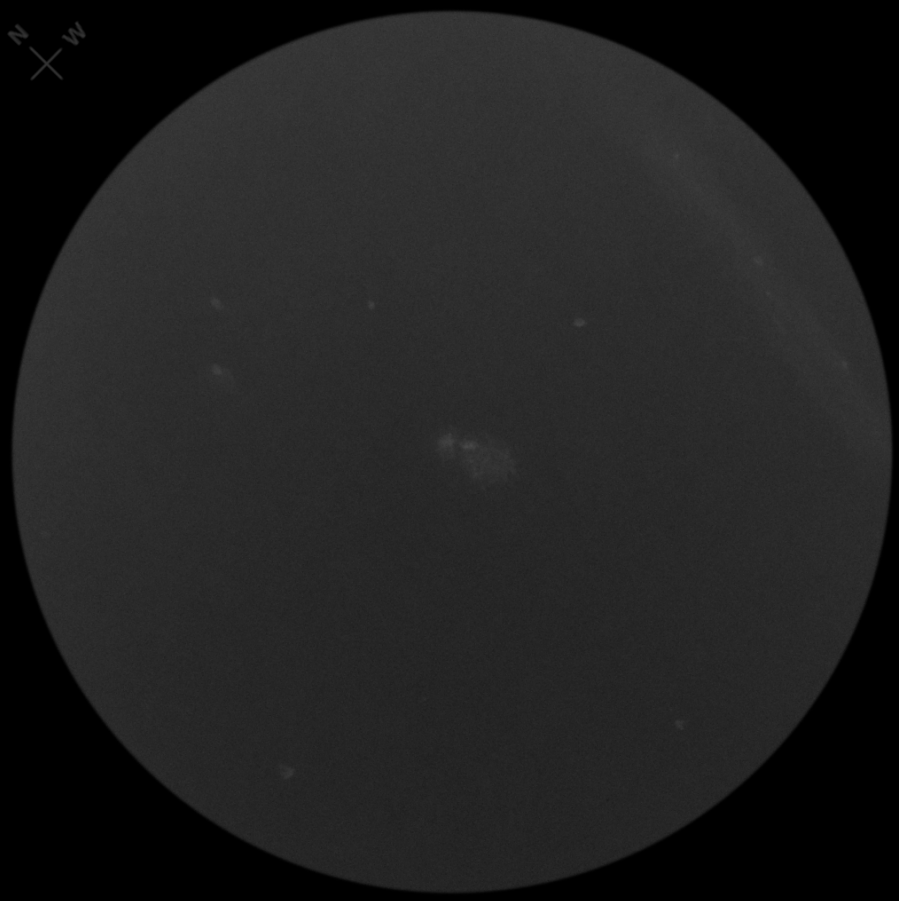


It is an extremely bright-cored galaxy, it can withstand magnification well. 3 blobs are visible around the core tightly. Of the two spiral arms, the western one is the brighter. The faint, external parts on the east side disappear abruptly, while gradually melting into the background on the west side.

(435x, Varga)

M78

Diffuse nebula in Orion

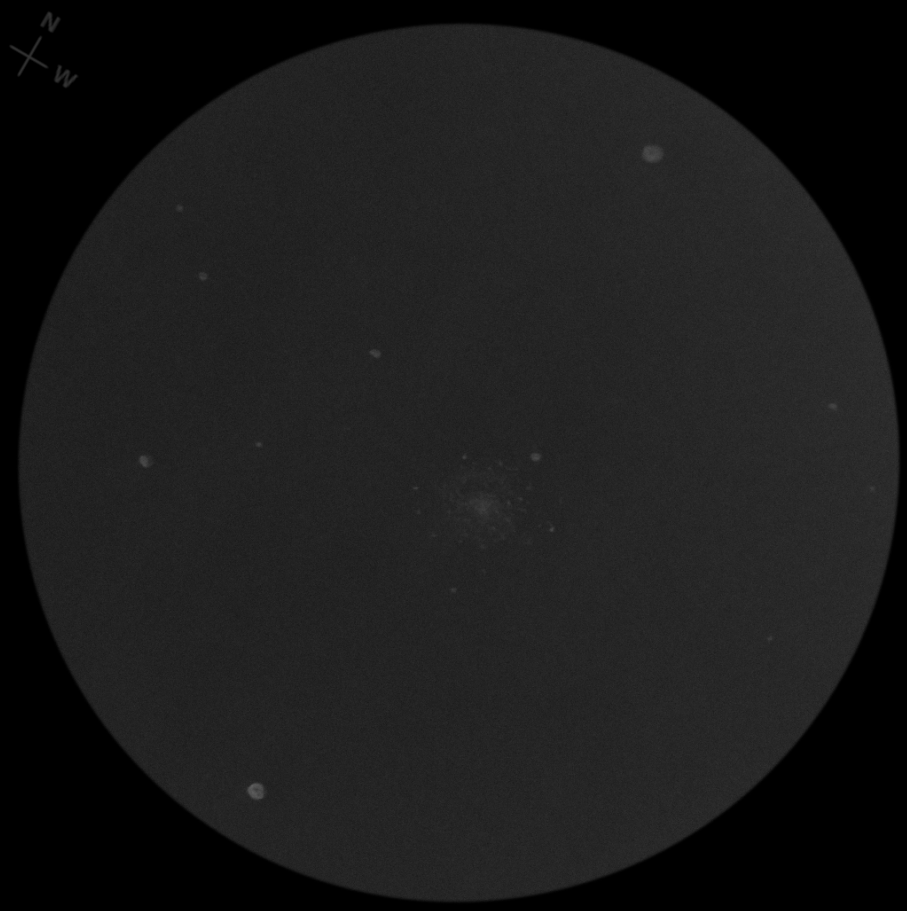


Mysterious nebula. Around the star further south, it looks larger. A dark band is barely visible between the two stars. In the western part of the field of view there is a faint band of nebula.

(80x, Horváth)

M79

Globular cluster in Lepus



With direct vision, it breaks down into about a dozen stars. With averted vision, its surface is grainy and several faint stars appear. To the northeast from the core, a darker, star-sparce band is visible.

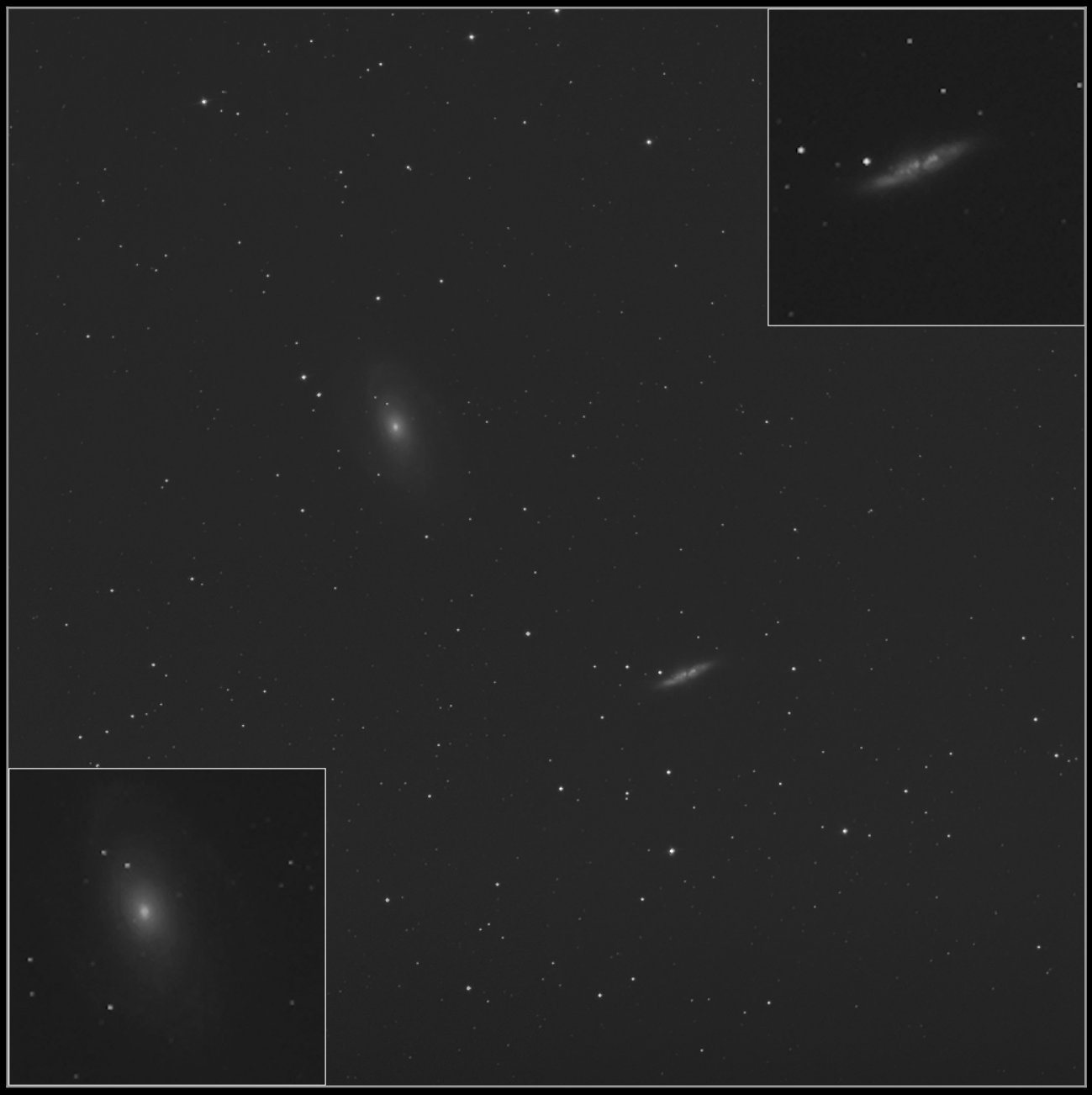
(190x, Varga)

M80

Globular cluster in Scorpius

Towards its center, it gradually gets denser. It resolves into very faint stars of roughly uniform brightness, with some brighter visible at the rim.

(180x, Varga)

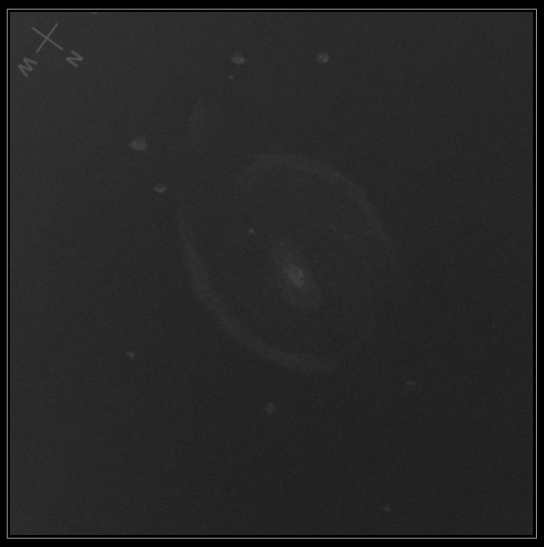


M81, M82

Galaxies in Ursa Major

M 82: At first glance, the surface of the galaxy is very fragmented, but it is difficult to make an accurate drawing of it.

(180x, Varga)

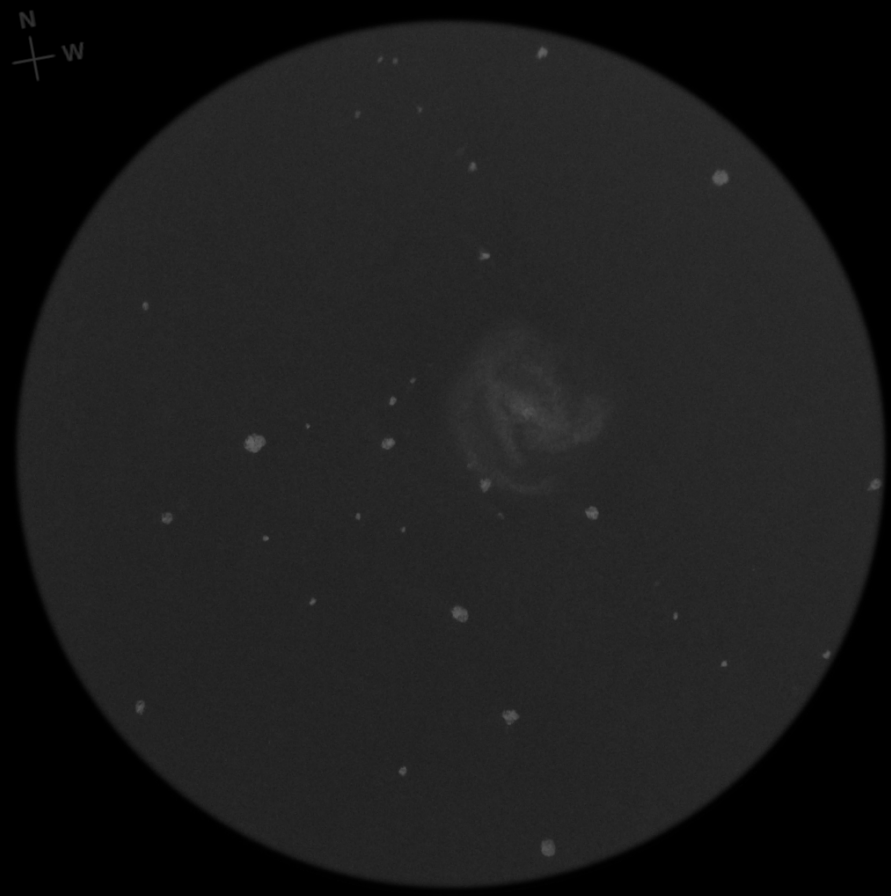


M 81: It is a large galaxy with a diffuse, bright core in the center and two arms.

(80x, CLS, Horváth)

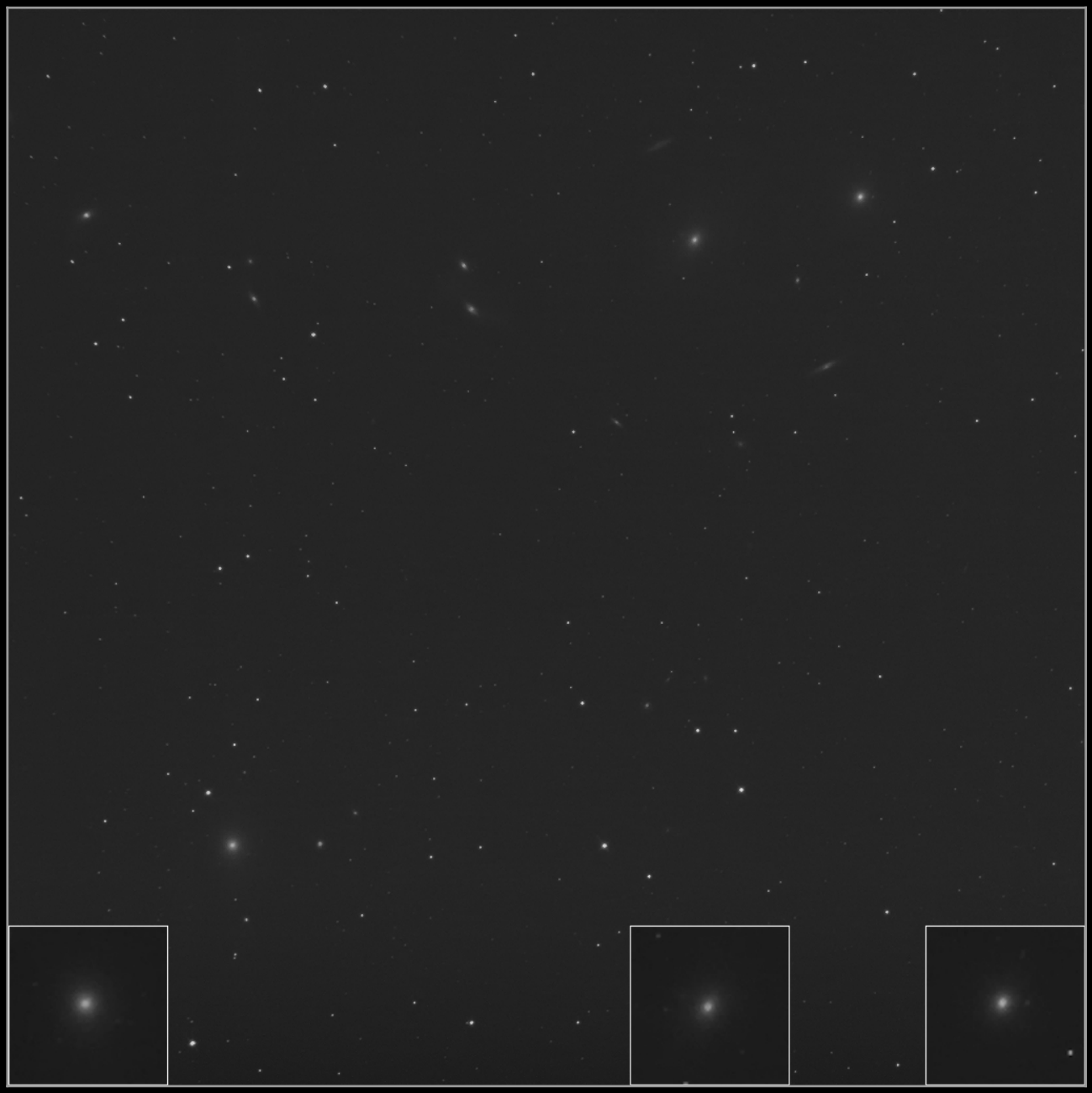
M83

Galaxy in Hydra



The spiral structure is visible only intermittently. Rather, the alternation of dark and light bands is noticeable.

(100x, Varga)

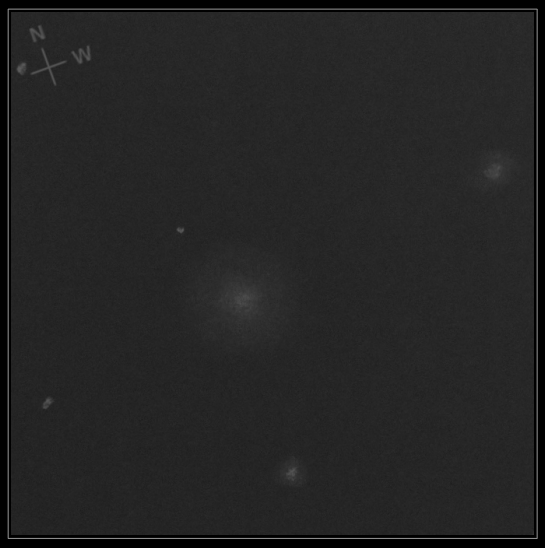


M87, M86, M84

Galaxies in Virgo

M 87: It is round, gradually brightening towards the middle.

(180x, Varga)



M 86: Flattened shape, bright core. Within the perimeter, a sharper contour is visible on each side.

(160x, Horváth)

M 84: A regular, circular galaxy with a bright core crossed by a dark band.

(160x, Horváth)

M85

Galaxy in Coma Berenices

A bright, diffuse core with a gradually dimmer fringe around it. In the southern part, an arched bite is visible.

(160x, Horváth)

M88, M91

Galaxies in Coma Berenices

M 88: Elongated galaxy with a not very bright core. Dust lanes can be seen both east and west of the core. The northern half of the galaxy is more rounded, the southern half is more pointed.

(140x, Varga)

M 91: The ends of the galaxy's rod bend back like a hook. The southern spiral arm is visible as a semicircular arch. The northern one is "incomplete" and very faint.

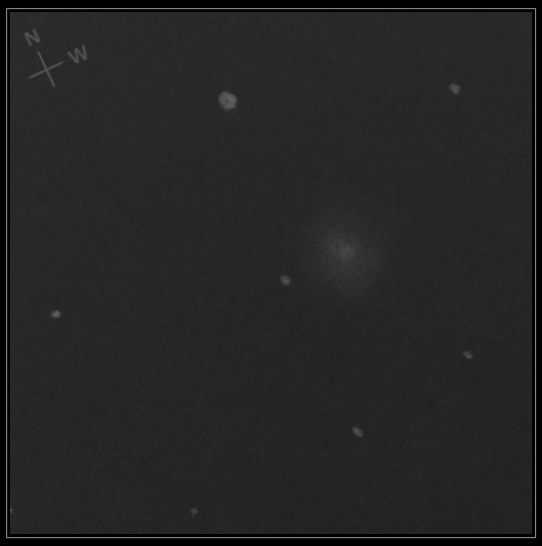
(140x, Varga)

M90, M89

Galaxies in Virgo

M 89: Elliptical galaxy without much detail.

(140x, Varga)



M 90: It is dotted with dark, curved spots (dust lanes).

(140x, Varga)

M92

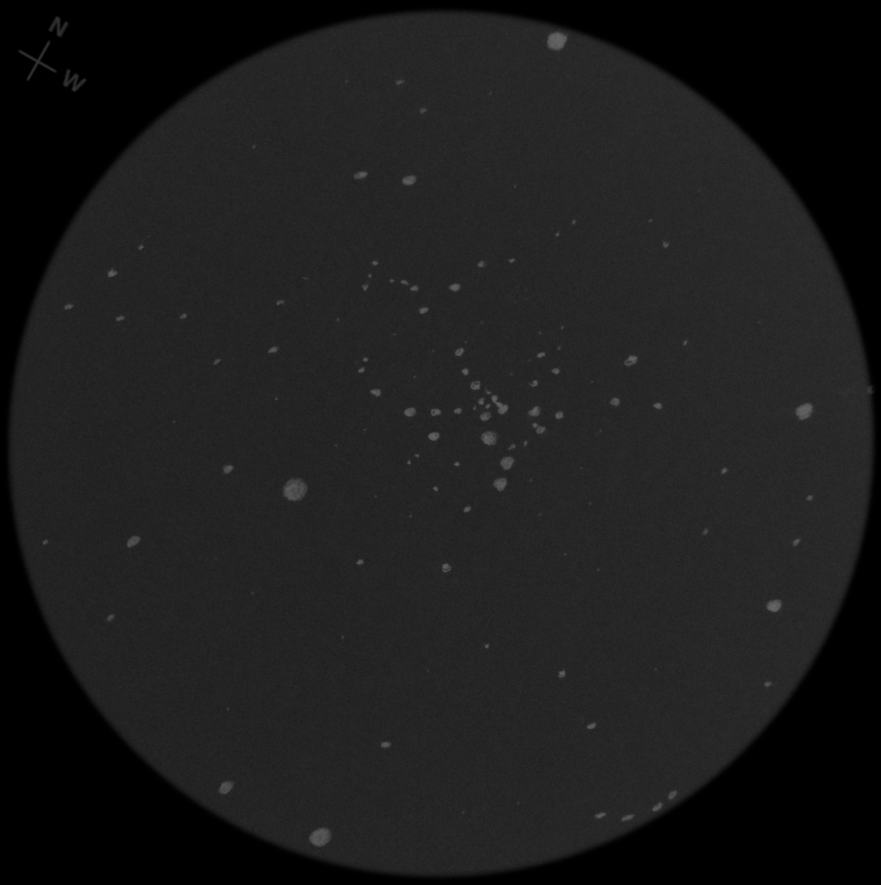
Globular cluster in Hercules

It is a relatively compact globular cluster with a bright core. It easily resolves into brighter and moderately faint stars. It contains several interesting areas scarcer in stars.

(180x, Varga)

M93

Open cluster in Puppis



Relatively dense cluster. It is formed by moderately bright and faint stars. From the central, more concentrated part, multiple star chains seem to emerge.

(65x, Varga)

M94

Galaxy in Canes Venatici

A bright core, a darker spot is visible to the northwest and southeast of it, and then a brighter, arm-like part again.

(160x, Horváth)

M105, M96, M95

Galaxies in Leo

M 105: Three galaxies in one field of view. M 105 shows details. The bright band of the "arm", starting from the core, turns back. On the other side, the galaxy's rim is faintly visible.

(160x, Horváth)

M 96: It's as if the core part is elongated in a different direction than the outer halo. Some spiral structure flashes in sometimes, but this may be more of an illusion or the effect of a spotted surface.

(140x,Varga)

M 95: Its core is crossed by a bright rod. In addition, a pale, ring-like halo is observed. Starting from the rod, along the ring you can see brighter nodules. The entire galaxy is surrounded by a very faint glow.

(140x, Varga)

M97, M108

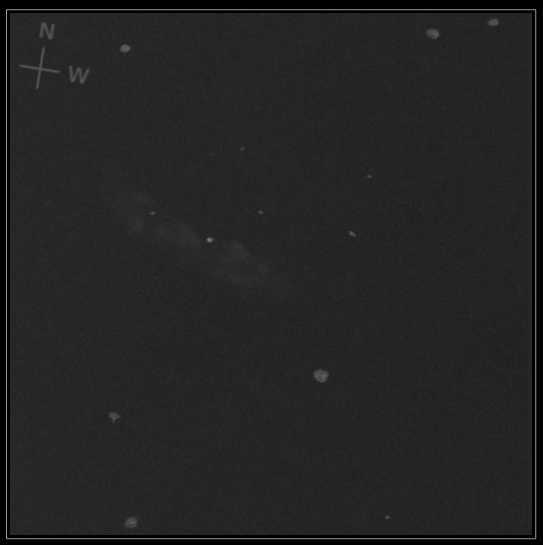
Planetary nebula and galaxy in Ursa Major

M 97: I can't decide which "eye" looks more contrasted. Sometimes I get the feeling that you can see a central star. I can't make out the exact outlines of the shape of the eyes. The planetary nebula’s rim blends softly into the background.

(180x, Varga)

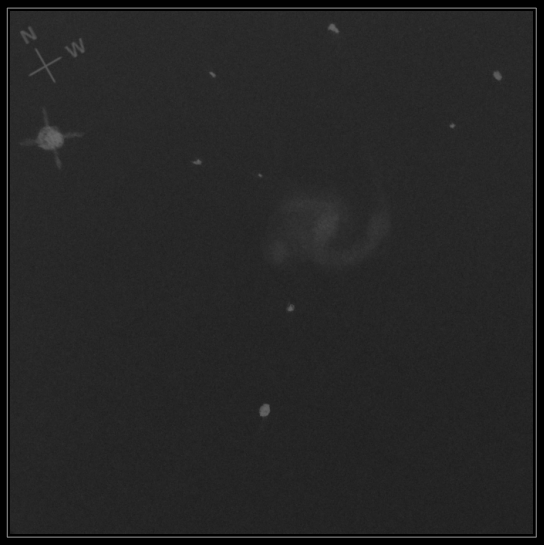
M 108: A brighter foreground star dominates the view. It has a very mottled surface. The north side of the galaxy has a sharper rim (could it be a dust lane?).

(180x, Varga)



M99, M98

Galaxies in Coma Berenices



M 99: The arm extending to the west is easily noticeable, towards the end a brighter blob is visible, after which the arm continues even more extremely faintly. To the northeast of the core, an extensive diffuse spot is visible, from which it is difficult to separate a shorter, nearly straight protrusion. To the east of the core, a brighter lump can be seen.

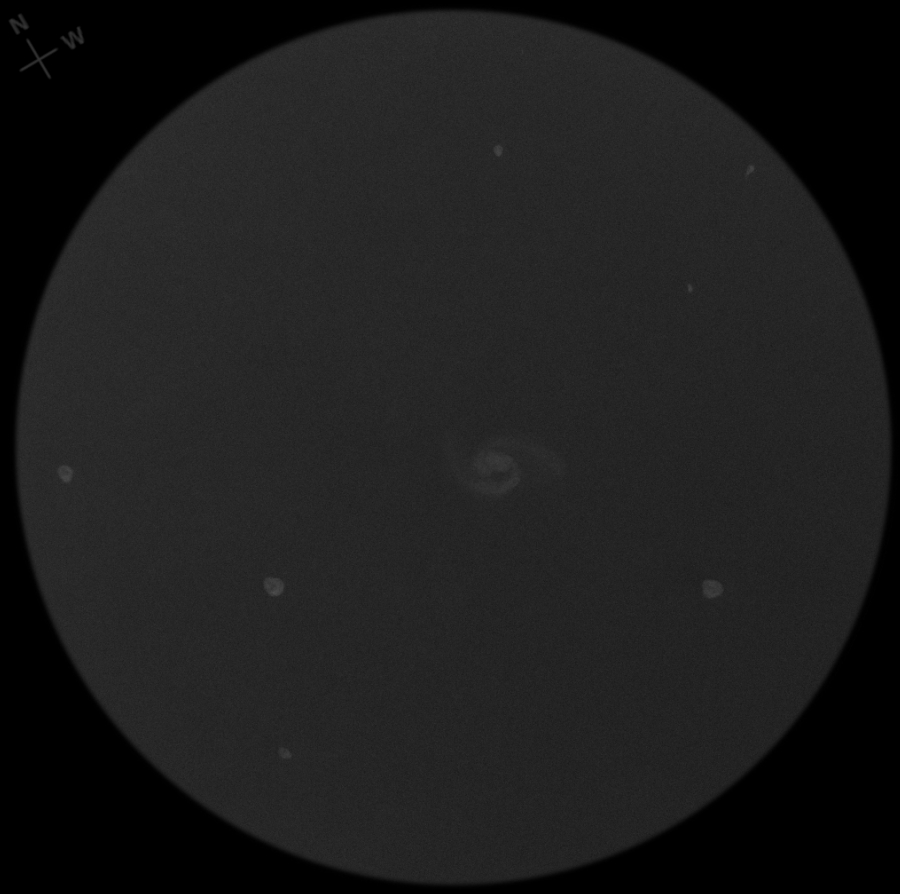
(190x, Varga)

M 98: Strongly elongated galaxy. Its oval core is brighter. Its southern side is brighter and wider, in the northwesterly direction it is somewhat thinner and fainter. The southwestern part is separated from the background more sharply than the northeastern.

(145x, Varga)

M100

Galaxy in Coma Berenices

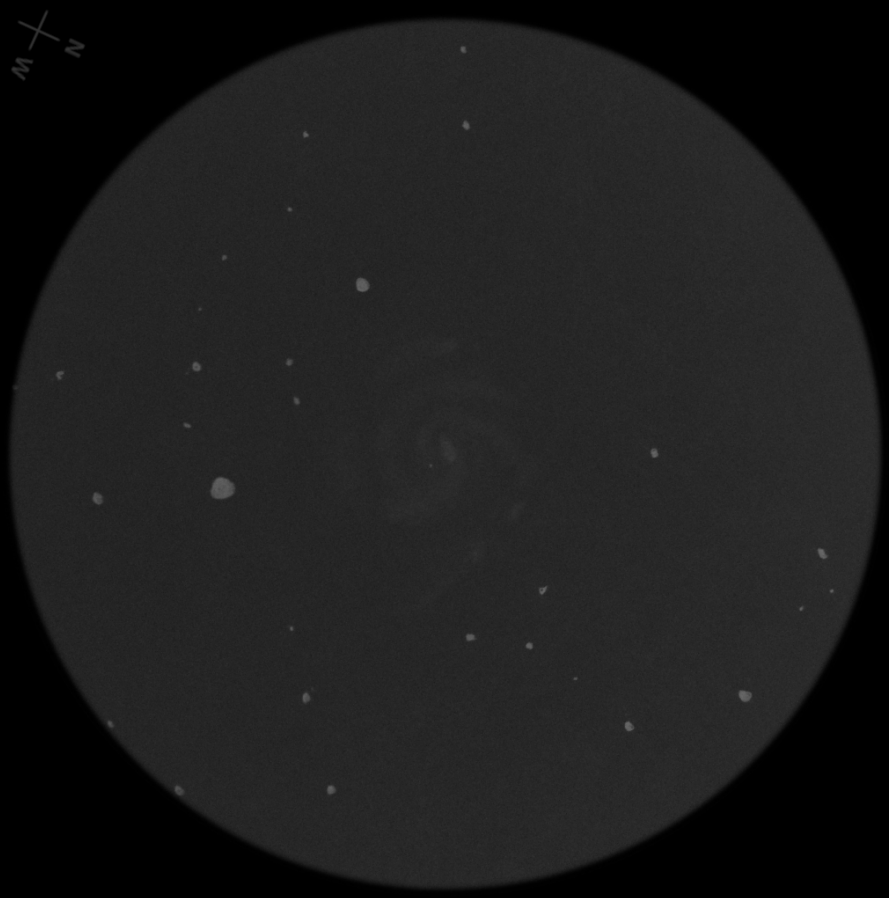


Bright-cored galaxy. On the west side, the dark part between the two arms is more easily noticeable, and on the eastern arm, a brighter part is the spectacular one.

(160x, Horváth)

M101

Galaxy in Ursa Major



At smaller magnifications, the CLS filter helps to highlight the spiral arms. The core is relatively compact, there is no star-like center, but it is clearly elongated. Three star-forming regions in the arms are relatively easy to see. Compared to the photo, the winding of the arms around the core was precieved visually in a different way.

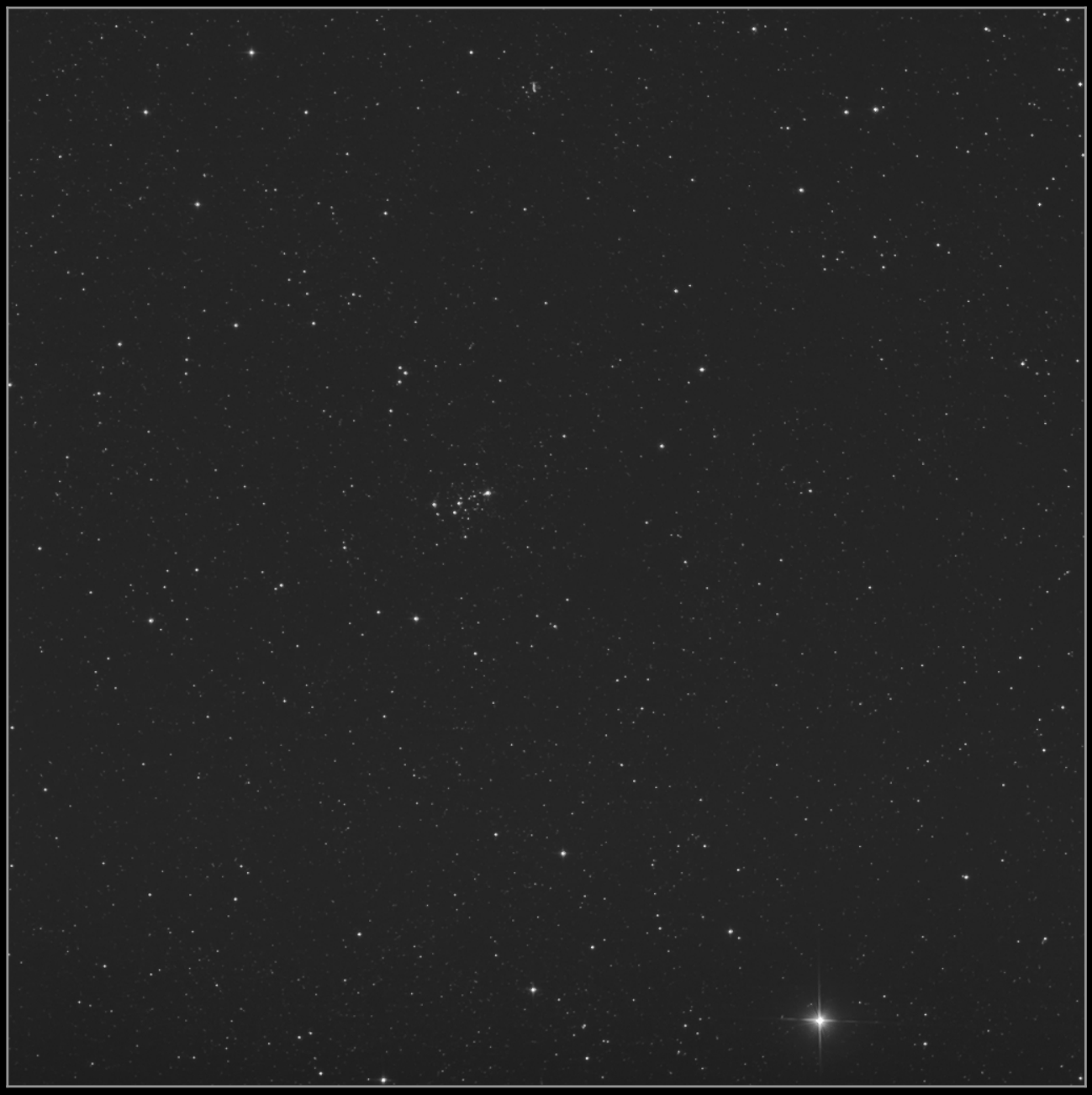
(65x, Varga)

M102

Galaxy in Draco

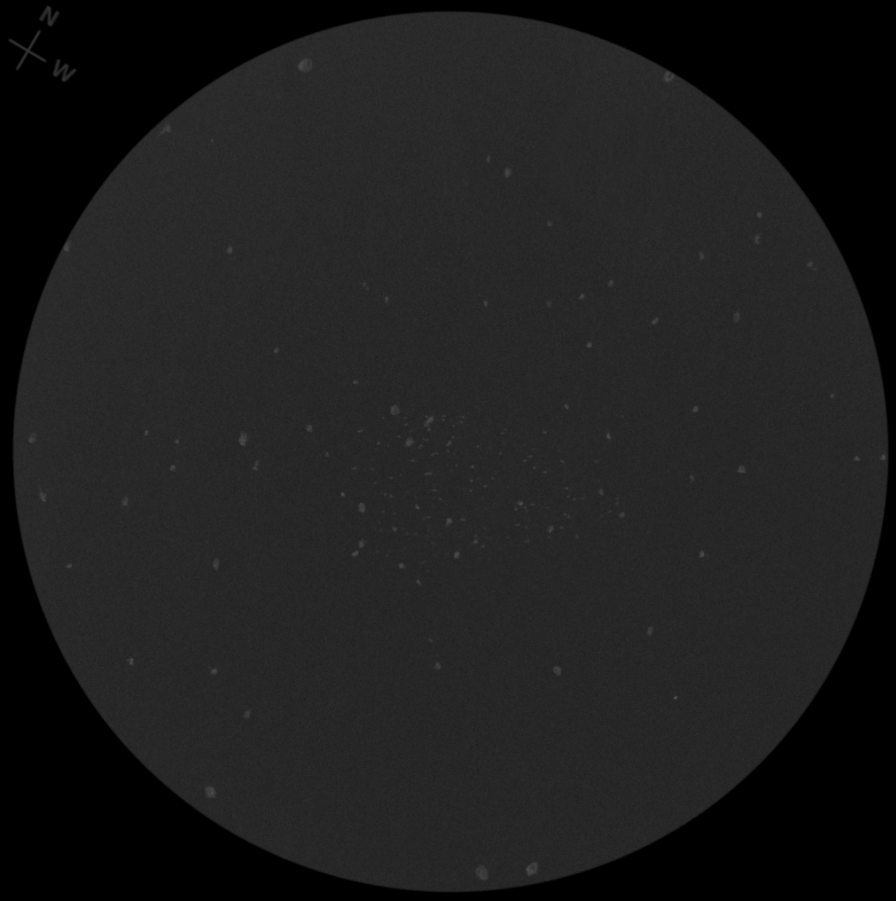
It is a peaked, bulging figure in the middle. The spiky ends seem to shine.

(160x, Horváth)



M103

Open cluster in Cassiopeia



Its characteristic feature is perhaps the paired star chain on its northeastern side.

(80x, Horváth)

M104

Galaxy in Virgo

The dust lane is well pronounced. The core is bright, star-like. The part north of the dust lane is much brighter. The entire galaxy is surrounded by a very faint oval halo.

(190x, Varga)

M106

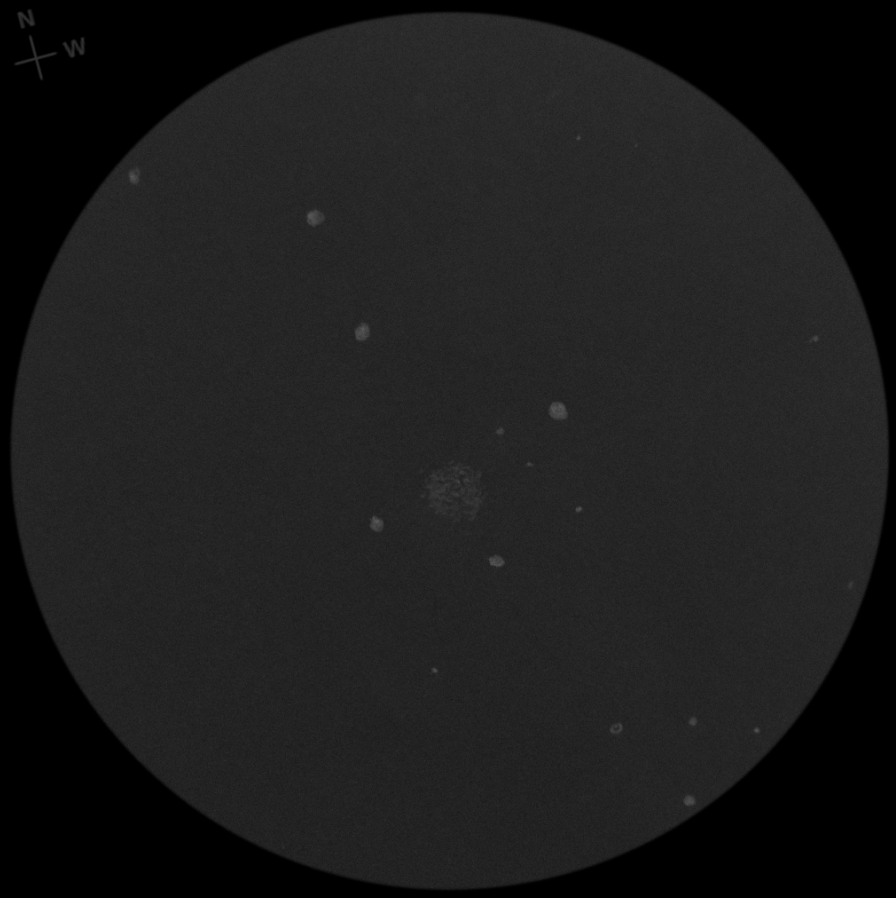
Galaxy in Canes Venatici

Despite the relatively low contrast, many interesting details are revealed.

(90x, Varga)

M107

Globular cluster in Ophiuchus



It is a globular cluster of uniform brightness, surrounded by three stars brighter than the cluster.

(160x, Horváth)

M109

Galaxy in Ursa Major

The bright nucleus and bar of the galaxy are easily visible. It looks like there are knots at the ends of the spokes. The spiral arms are faint and difficult to follow.

(180x, Varga)

The 150/450 Newtonian telescope comissioned for photography
(used visually on this occasion, a fireball flashes in the upper right corner)

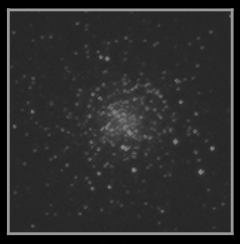
Objects of the Messier-catalog

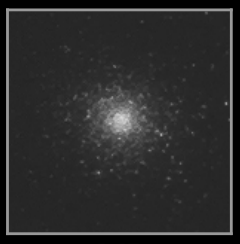
PHOTOS, ARRANGED BY TYPE

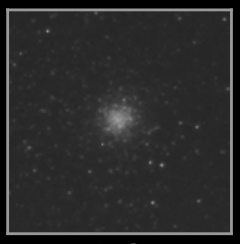
Globular clusters (field size: 15'x15')


M2


M3


M4


M5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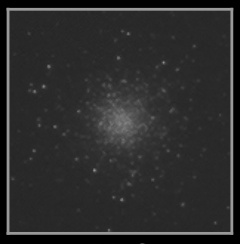
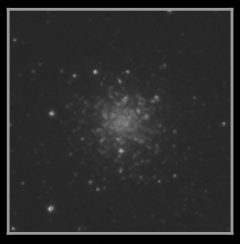
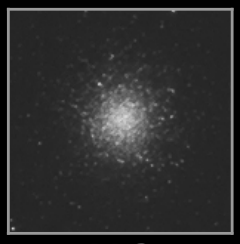
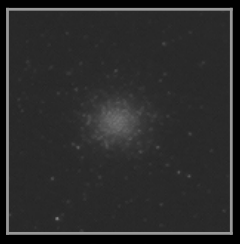
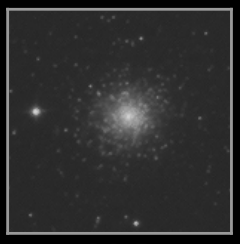
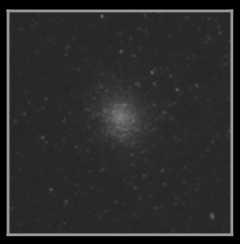

M10

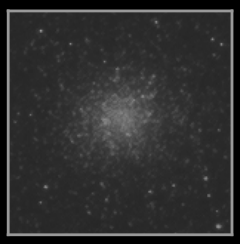

M12

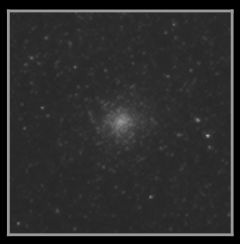

M13


M14

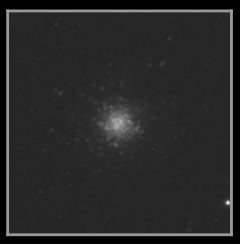

M15


M19

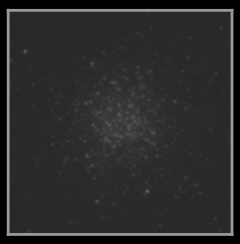

M22

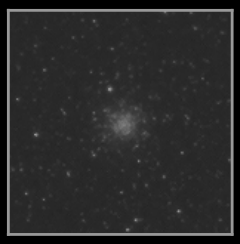

M28

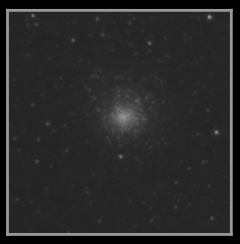

M30


M53

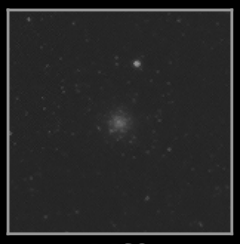

M54

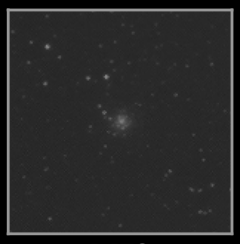

M55

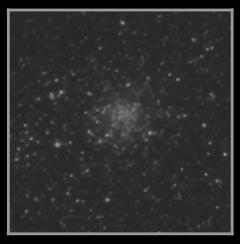

M56

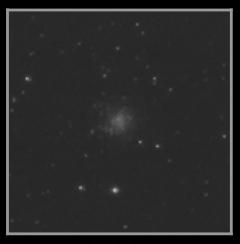

M62


M68

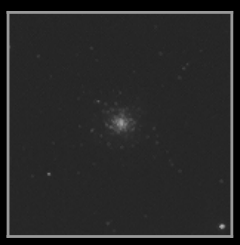

M69

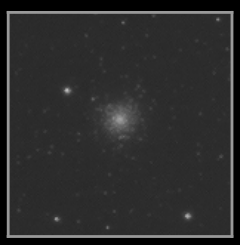

M70


M71

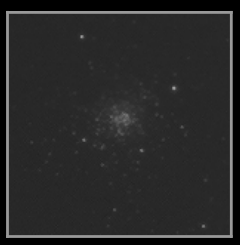

M72


M75


M79

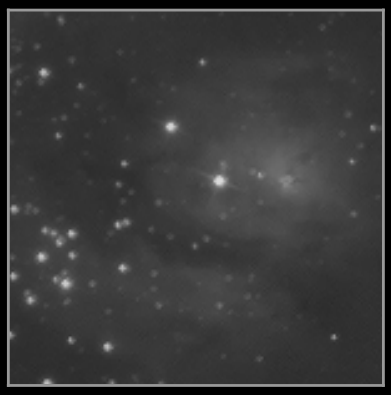

M80


M92

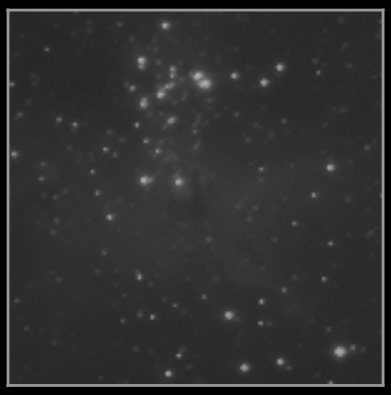

M107

Planetary and diffuse nebulae (field size: 15'x15')

M1

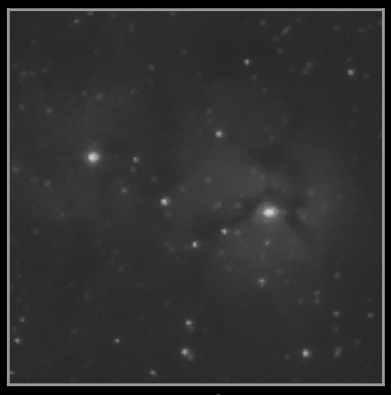


M8



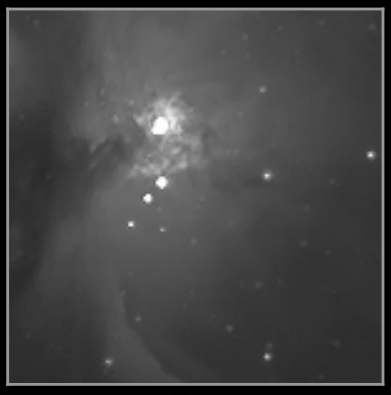
M16

M17

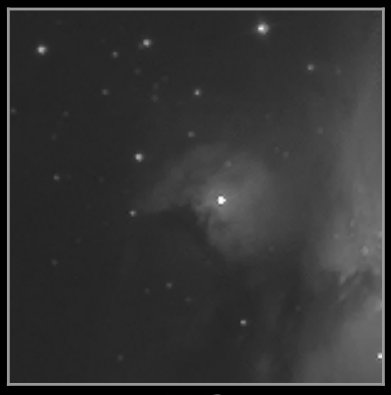


M20

M27



M42



M43

M57

M76

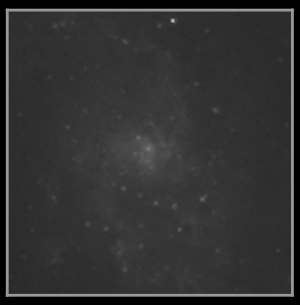
M78

M97

Galaxies (field size: 15'x15')


M31


M32


M33


M49


M51


M58


M59


M60


M61


M63


M64


M65


M66


M74


M77


M81


M82


M83


M84


M85

M86

M87

M88

M89

M90

M91

M94

M95

M96

M98

M99

M100

M101

M102

M104

M105

M106

M108

M109

M110

Open clusters, a double star and an asterism (field size: 60'x60')

M6

M7

M11

M18

M21

M23

M24 (+ NGC 6603)

M25

M26

M29

M34

M35

M36

M37

M38

M39

M40

M41

M44

M45

M46

M47

M48

M50

M52

M67

M73

M93

M103

Basic data of the photos in the Album

OBJECT	DATE	OBSERVING LOCATION
M 1	2021. 02. 13.	Bóly
M 2	2021. 07. 08.	Vasszécseny
M 3	2021. 03. 06.	Bóly
M 4	2021. 07. 06.	Vasszécseny
M 5	2021. 03. 07.	Bóly
M 6	2021. 07. 07.	Vasszécseny
M 7	2021. 07. 07.	Vasszécseny
M 8	2021. 07. 07.	Vasszécseny
M 9	2021. 08. 06.	Vasszécseny
M 10	2021. 07. 07.	Vasszécseny
M 11	2021. 07. 07.	Vasszécseny
M 12	2021. 07. 07.	Vasszécseny
M 13	2021. 03. 07.	Bóly
M14	2021. 07. 07.	Vasszécseny
M 15	2021. 07. 08.	Vasszécseny
M 16	2021. 07. 08.	Vasszécseny
M 17, M 18	2021. 07. 08.	Vasszécseny
M 19	2021. 07. 06.	Vasszécseny
M 20, M 21	2021. 07. 07.	Vasszécseny
M 22	2021. 07. 07.	Vasszécseny
M 23	2021. 07. 07.	Vasszécseny
M 24	2021. 07. 08.	Vasszécseny
M 25	2021. 07. 08.	Vasszécseny
M 26	2021. 07. 08.	Vasszécseny
M 27	2021. 07. 08.	Vasszécseny
M 28	2021. 07. 08.	Vasszécseny
M 29	2021. 07. 07.	Vasszécseny
M 30	2021. 07. 08.	Vasszécseny
M 31, M 32, M 110	2021. 02. 13.	Bóly

M 33	2021. 02. 13.	Bóly
M 34	2021. 02. 13.	Bóly
M 35	2021. 02. 12.	Bóly
M 36	2021. 02. 13.	Bóly
M 37	2021. 02. 13.	Bóly
M 38	2021. 02. 13.	Bóly
M 39	2021. 07. 07.	Vasszécseny
M 40	2021. 03. 06.	Bóly
M 41	2021. 02. 12.	Bóly
M 42, M 43	2021. 02. 12.	Bóly
M 44	2021. 02. 13.	Bóly
M 45	2021. 02. 12.	Bóly
M 46	2021. 02. 12.	Bóly
M 47	2021. 02. 12.	Bóly
M 48	2021. 02. 12.	Bóly
M 49	2021. 03. 07.	Bóly
M 50	2021. 02. 12.	Bóly
M 51	2021. 03. 06.	Bóly
M 52	2021. 02. 13.	Bóly
M 53	2021. 03. 06.	Bóly
M 54	2021. 07. 07.	Vasszécseny
M 55	2021. 07. 08.	Vasszécseny
M 56	2021. 07. 07.	Vasszécseny
M 57	2021. 07. 07.	Vasszécseny
M 58	2021. 03. 07.	Bóly
M 59, M 60	2021. 03. 07.	Bóly
M 61	2021. 03. 07.	Bóly
M 62	2021. 07. 06.	Vasszécseny
M 63	2021. 03. 06.	Bóly
M 64	2021. 03. 06.	Bóly
M 65, M 66	2021. 02. 13.	Bóly
M 67	2021. 02. 13.	Bóly
M 68	2021. 03. 07.	Vasszécseny

M 69	2021. 07. 07.	Vasszécseny
M 70	2021. 07. 07.	Vasszécseny
M 71	2021. 07. 08.	Vasszécseny
M 72	2021. 07. 08.	Vasszécseny
M 73	2021. 07. 08.	Vasszécseny
M 74	2021. 02. 13.	Bóly
M 75	2021. 07. 08.	Vasszécseny
M 76	2021. 02. 13.	Bóly
M 77	2021. 02. 13.	Bóly
M 78	2021. 02. 12.	Bóly
M 79	2021. 02. 13.	Bóly
M 80	2021. 07. 06.	Vasszécseny
M 81, M 82	2021. 02. 13.	Bóly
M 83	2021. 03. 07.	Bóly
M 84, M 86, M 87	2021. 03. 07.	Bóly
M 85	2021. 03. 07.	Bóly
M 88, M 91	2021. 03. 07.	Bóly
M 89, M 90	2021. 03. 07.	Bóly
M 92	2021. 03. 07.	Bóly
M 93	2021. 02. 13.	Bóly
M 94	2021. 03. 06.	Bóly
M 95, M 96, M 105	2021. 03. 06.	Bóly
M 97, M 108	2021. 02. 13.	Bóly
M 98, M 99	2021. 03. 06.	Bóly
M 100	2021. 03. 06.	Bóly
M 101	2021. 03. 06.	Bóly
M 102	2021. 03. 06.	Bóly
M 103	2021. 02. 13.	Bóly
M 104	2021. 03. 07.	Bóly
M 106	2021. 03. 06.	Bóly
M 107	2021. 07. 07.	Vasszécseny
M 109	2021. 03. 06.	Bóly

Basic data of the Drawings in the Album

OBJECT	DATE	OBSERVING LOCATION	OBSERVER
M 1	2021. 11. 09.	Vasszécseny	Varga György
M 2	2021. 08. 08.	Vasszécseny	Horváth Tamás
M 3	2021. 05. 10.	Vasszécseny	Horváth Tamás
M 4	2021. 06. 13.	Vasszécseny	Horváth Tamás
M 5	2021. 05. 10.	Vasszécseny	Varga György
M 6	2021. 07. 06.	Vasszécseny	Horváth Tamás
M 7	2021. 07. 06.	Vasszécseny	Horváth Tamás
M 8	2021.09.02.	Vasszécseny	Horváth Tamás
M 9	2021. 06. 13.	Vasszécseny	Horváth Tamás
M 10	2021. 05. 11.	Vasszécseny	Varga György
M 11	2021. 08. 08.	Vasszécseny	Horváth Tamás
M 12	2021. 05. 11.	Vasszécseny	Varga György
M 13	2021. 07. 06.	Vasszécseny	Horváth Tamás
M 14	2021. 05. 11.	Vasszécseny	Varga György
M 15	2021. 08. 08.	Vasszécseny	Varga György
M 16	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 17	2021. 08 .09.	Őrimagyarósd	Varga György
M 18	2021. 08. 09.	Őrimagyarósd	Varga György
M 19	2021.06. 14.	Vasszécseny	Horváth Tamás
M 20	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 21	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 22	2021. 08. 07.	Vasszécseny	Horváth Tamás
M 23	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 24	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 25	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 26	2021. 08. 08.	Vasszécseny	Horváth Tamás
M 27	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 28	2021. 08. 06.	Vasszécseny	Horváth Tamás
M 29	2021. 05. 11.	Vasszécseny	Varga György

M 30	2021. 08. 08.	Vasszécseny	Varga György
M 31	2021. 08. 08.	Vasszécseny	Varga György
M 32	2021. 08. 08.	Vasszécseny	Varga György
M 33	2016. 11. 28.	Vasszécseny	Varga György
M 34	2021. 10. 31.	Vasszécseny	Horváth Tamás
M 35	2021. 03. 16.	Vasszécseny	Horváth Tamás
M 36	2021. 03. 16.	Vasszécseny	Horváth Tamás
M 37	2021. 03. 16.	Vasszécseny	Horváth Tamás
M 38	2021. 03. 16.	Vasszécseny	Horváth Tamás
M 39	2021. 08. 08.	Vasszécseny	Varga György
M 40	2021. 05. 08.	Vasszécseny	Varga György
M 41	2021. 03. 16.	Vasszécseny	Varga György
M 42	2021. 11. 09.	Vasszécseny	Horváth Tamás
M 43	2021. 11. 09.	Vasszécseny	Horváth Tamás
M 44	2021. 03. 16.	Vasszécseny	Horváth Tamás
M 45	2021. 11. 09.	Vasszécseny	Horváth Tamás
M 46	2021. 03. 16.	Vasszécseny	Varga György
M 47	2021. 11. 09.	Vasszécseny	Varga György
M 48	2021. 03. 16.	Vasszécseny	Varga György
M 49	2021. 05. 10.	Vasszécseny	Horváth Tamás
M 50	2021. 11. 09.	Vasszécseny	Varga György
M 51	2019. 05. 24.	Vasszécseny	Varga György
M 52	2021. 08. 08.	Vasszécseny	Horváth Tamás
M 53	2021. 05. 10.	Vasszécseny	Horváth Tamás
M 54	2021. 08. 09.	Őrimagyarósd	Varga György
M 55	2021. 08. 09.	Őrimagyarósd	Varga György
M 56	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 57	2021. 07. 07.	Vasszécseny	Horváth Tamás
M 58	2021. 05. 10.	Vasszécseny	Horváth Tamás
M 59	2021. 05. 09.	Vasszécseny	Varga György
M 60	2021. 05. 09.	Vasszécseny	Varga György
M 61	2020. 05. 10.	Vasszécseny	Varga György
M 62	2021. 06. 13.	Vasszécseny	Horváth Tamás

M 63	2021. 05. 10.	Vasszécseny	Varga György
M 64	2021. 05. 11.	Vasszécseny	Horváth Tamás
M 65	2021. 04. 03.	Bóly	Varga György
M 66	2021. 04. 03.	Bóly	Varga György
M 67	2021. 03. 16.	Vasszécseny	Varga György
M 68	2021. 05. 09.	Vasszécseny	Horváth Tamás
M 69	2021. 08. 06.	Vasszécseny	Horváth Tamás
M 70	2021. 08. 06.	Vasszécseny	Horváth Tamás
M 71	2021. 08. 08.	Vasszécseny	Varga György
M 72	2021. 08. 08.	Vasszécseny	Varga György
M 73	2021. 08. 08.	Vasszécseny	Varga György
M 74	2021. 10. 31.	Vasszécseny	Varga György
M 75	2021. 09. 02.	Vasszécseny	Horváth Tamás
M 76	2021. 11. 09.	Vasszécseny	Varga György
M 77	2021. 11. 01.	Vasszécseny	Varga György
M 78	2021. 11. 09.	Vasszécseny	Horváth Tamás
M 79	2021. 11. 09.	Vasszécseny	Varga György
M 80	2021. 05. 11.	Vasszécseny	Varga György
M 81	2021. 11. 09.	Vasszécseny	Horváth Tamás
M 82	2021. 05. 07.	Vasszécseny	Varga György
M 83	2020. 05. 20.	Vasszécseny	Varga György
M 84	2021. 05. 09.	Vasszécseny	Horváth Tamás
M 85	2021. 05. 11.	Vasszécseny	Horváth Tamás
M 86	2021. 05. 10.	Vasszécseny	Horváth Tamás
M 87	2021. 04. 03.	Bóly	Varga György
M 88	2021. 05. 09.	Vasszécseny	Varga György
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With the spread of astrophotography, and especially digital astrophotography, we get a very different picture of deep-sky objects than what our ancestors could have seen for centuries by peering into their telescopes. Fortunately, many people still observe visually today, but most astrophotos are taken with long exposure times and are published with strong post-procession. The result, although very spectacular, has little to do with what we see in the telescope. In many cases, novice telescope owners are disappointed that the deep-sky objects seen in the eyepiece are not as bright as they saw in the photos, in addition, most of them appear completely colorless.

With this album, we want to bring the objects of Messier's list closer, to make them look in our photos and drawings as – with some perseverance – we can see them in amateur telescopes.

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