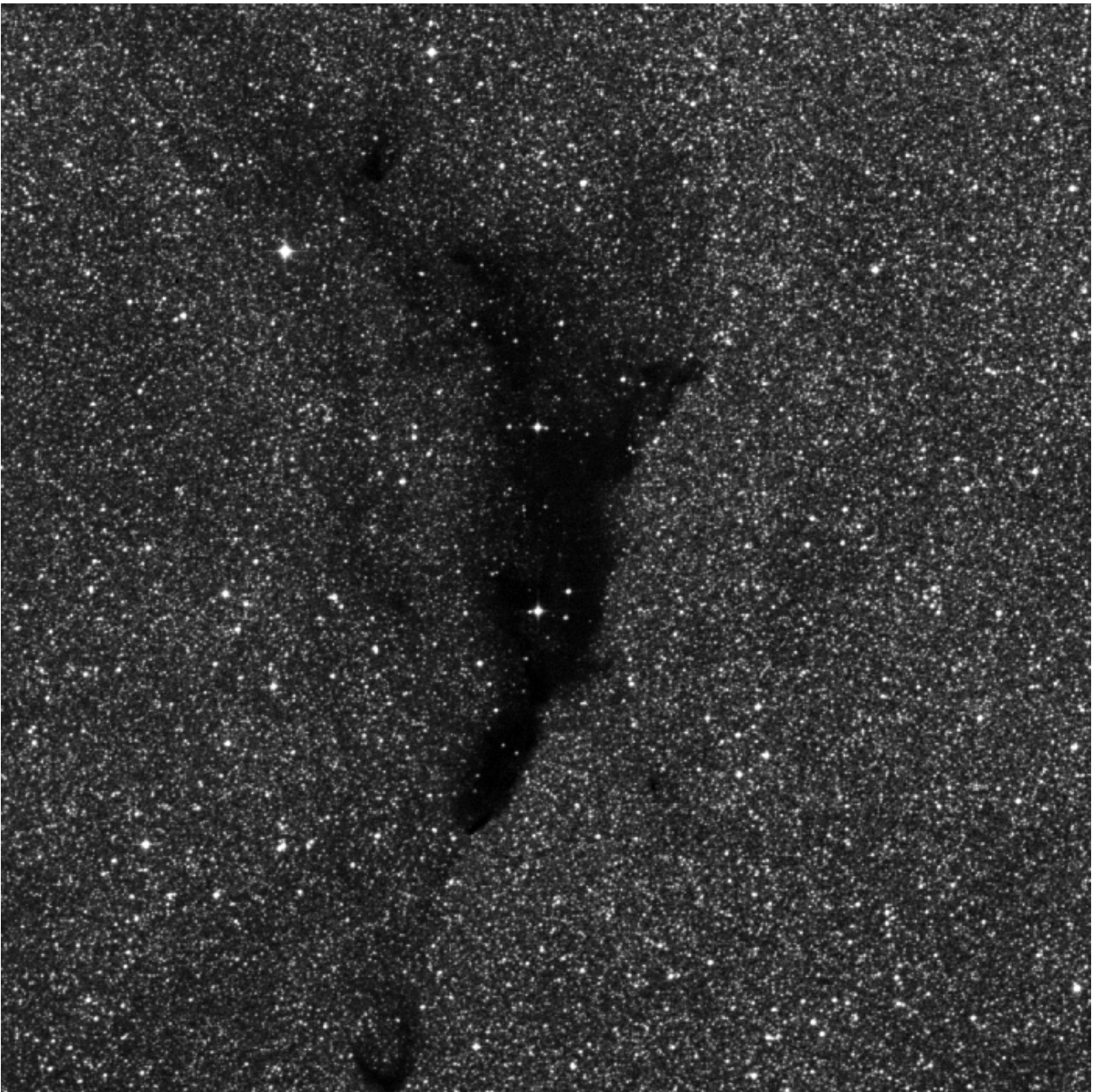


Dark nebulae

Composed by Manos Tsikalas, August 2012



What exactly is a dark nebula?

The dark nebulae are clumps or clouds that become opaque because of their internal dust grains. The form of such dark clouds is very irregular: they have no clearly defined outer boundaries and sometimes take on convoluted serpentine shapes. The largest dark nebulae are visible to the naked eye, appearing as dark patches against the brighter background of the Milky Way. An example is the Coalsack in the southern sky.

The hydrogen of these opaque dark clouds exists in the form of H_2 molecules. The largest nebulae of this type, the so-called giant molecular clouds, are more than a million times as massive as the Sun. They contain much of the mass of the interstellar medium, are some 150 light-years across, and have an average density of 100 to 300 molecules per cubic centimetre and an internal temperature of only 7 to 15 K. Molecular clouds consist mainly of gas and dust but contain many stars as well. The cloud cores are completely hidden from view and would be undetectable except for the microwave emissions from their constituent molecules. This radiation is not absorbed by dust and readily escapes the cloud. The material within the clouds is clumped together in all sizes, with some clouds ranging down to the masses of individual stars. The density within the clumps may reach up to 10^5 H_2 per cubic centimetre or more. Small clumps may extend about one light-year across. The clouds have an internal magnetic field that provides support against their own gravity.

Chemistry and physical conditions become quite different from those of the surrounding low-density interstellar medium. In the outer parts of the dark cloud, the hydrogen is neutral. Deeper within it, as dust blocks out an increasing amount of stellar ultraviolet radiation, the cloud becomes darker and colder. As the centre is approached, the predominant form of carbon changes successively from C^+ (on the outside) to neutral C to finally the molecule carbon monoxide (CO), which is so stable that it remains the major form of carbon in the gas phase in the darkest regions. At great depths within the cloud other molecules can be seen from their microwave transitions, and more than 70 chemical species have been identified within the constituent gas. Owing to the comparatively low densities and low temperatures, the chemistry is very exotic, as judged by terrestrial experiments; some rather unstable species can exist in space because there is not enough energy to convert them to more stable forms. An example is the near equality of the abundances of the interstellar molecule HNC (hydroisocyanic acid) and its isomer HCN (hydrocyanic acid); in ordinary terrestrial conditions there is plenty of energy to

allow the nitrogen and carbon atoms in HNC to exchange positions and produce HCN, by far the preferred species for equilibrium chemistry. In the cold clouds, however, not enough energy exists for the exchange to occur. There is less than one-thousandth as much starlight within a cloud as in the interstellar space outside the cloud, and the heating of the material in the cloud is provided primarily by cosmic rays. Cooling within the cloud occurs chiefly by transitions between low-lying levels of the carbon monoxide molecule.

In the inner regions of dark nebulae important events take place: the formation of stars. The discussion that follows will be slightly oversimplified by the assumption that a nebula has very little net rotation. Since the density in a star is immensely greater than that in a nebula, star formation must occur through condensation. The force of gravity in the nebula constantly pulls it together, working against the disruptive collisions of any one nebula or cloud with its neighbours and against the pressure provided by an internal magnetic field. But, even if gravity can hold the cloud together against other forces, the cloud cannot collapse unless it can cool; gravitational energy is released in a contraction and would heat the gas cloud, thus increasing the outward pressure and preventing further collapse. The dust grains are efficient emitters of infrared radiation, which escapes, removing the energy from the nebula. A cloud, therefore, contracts under its own gravity, radiating away half of the gravitational energy of the contraction, the other half going into heating the gas. As it contracts, the density and gravitational binding increase until finally the cloud's gravity so dominates the internal pressure that the material rushes inward in almost a free fall.

While the entire cloud has been collapsing, it does not have a smooth density distribution but rather consists of a chaotic jumble of smaller clouds. These cloudlets pull themselves together by their own gravity into "protostars," each of which is destined to be an individual stellar system. Most of these protostars are smaller than one solar mass, but a very few may be several (up to about 100) times as massive as the Sun. These few massive stars have a profound influence in the evolution of the nebula.

Each protostar collapses very quickly; its gas falls inward in free fall. A protostar can collapse from a size equal to the outer diameter of the solar system to about 30 times the Sun's size (the size of Mercury's orbit) in about six months. After it reaches that size, the material becomes so hot it has become a star—that is, an opaque body radiating energy only from its surface. Around it is a whirling ring of cold, dusty material, which will also break up into even smaller fragments, the "protoplanets." It is now believed that planetary systems are made out of this dusty chaos.

Such newly formed stars continue to contract, becoming hotter but less luminous in the process, until they start to produce heat by converting hydrogen into helium rather than by contracting. If massive enough, a star ionizes the nebular material, producing a bright nebula around it.

These ideas are given encouraging confirmation by observations of dark nebulae in very long wavelength infrared radiation. Some of the brightest infrared sources are associated with such dark dust clouds; a good example is the class of T Tauri variables, named for their prototype star in the constellation Taurus. The T Tauri stars are known for a variety of reasons to be extremely young. The variables are always found in or near dark nebulae; they often are also powerful sources of infrared radiation, corresponding to warm clouds of dust heated by the T Tauri star to a few hundred kelvins. There are some strong infrared sources (especially in the constellation of Orion) that have no visible stars with them; these are presumably "cocoon stars" completely hidden by their veils of dust.

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Images

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The Digitized Sky Survey was produced at the Space Telescope Science Institute under U.S. Government grant NAG W-2166. The images of these surveys are based on photographic data obtained using the Oschin Schmidt Telescope on Palomar Mountain and the UK Schmidt Telescope. The plates were processed into the present compressed digital form with the permission of these institutions.

About this catalog

This catalog contains a very careful selection of the most prominent dark nebulae in the whole sky. The selection was made from the plates of DSS. Every object information was obtained from Uranometria 2000.0 Deep Sky Atlas.

Object – The name of the dark nebula

RA (2000) – The right ascension coordinates at the year 2000

DEC (2000) – The declination coordinates at the year 2000

Dim ' Maj x min – Dimensions of the nebula in arcminutes

Opacity – Contrast, this is measured on a numerical scale of 1 to 6, 1: barely darker than the surrounding background, 6: the blackest and the most easily visible

Photo size ' – The photo size in arcminutes

UR 2000.0 – In which page Uranometria 2000.0 plots the nebula

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Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0	Page
Barnard 202	03 25 38.7	+30 17 00	33 x 12	4	60 x 60	60	12
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Barnard 205	03 28 32.0	+31 06 00	15 x 2	5	40 x 40	60	14
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Barnard 33	05 40 52.9	-02 28 00	6 x 4	4	40 x 40	116	44
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Barnard 227	06 07 23.9	+19 39 00	12 x 12		30 x 30	76	46
Barnard 37	06 32 55.0	+10 29 00	180 x 150	4	60 x 60	95	47
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Be 149	16 09 24.0	-39 08 00	60 x 12	6	60 x 60	165	56
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Barnard 232	16 43 44.4	-39 49 00	10 x 10		20 x 20	164	62
Barnard 44a	16 44 45.0	-40 20 00	5 x 5	5	30 x 30	164	63
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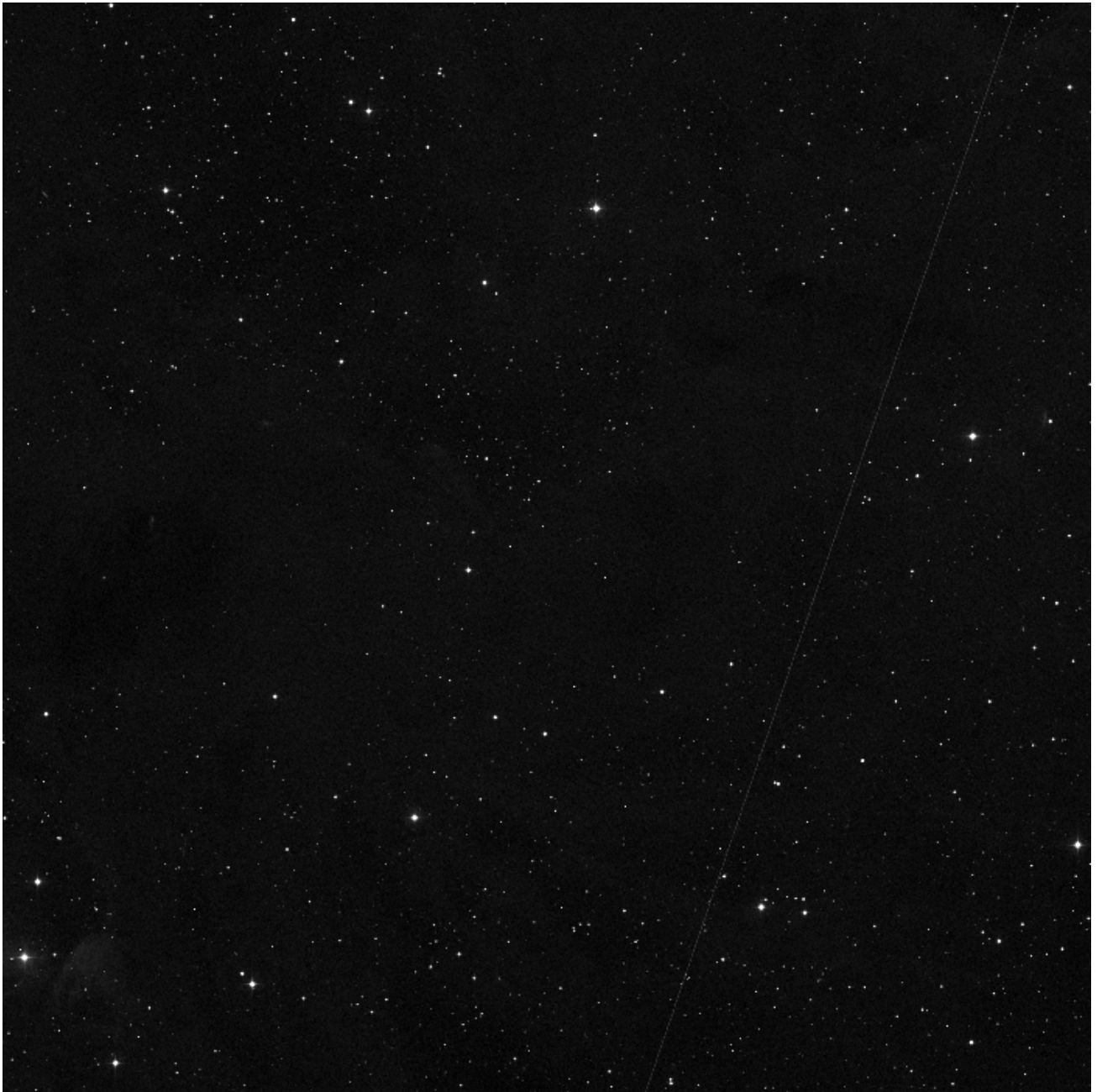
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Barnard 71	17 23 02.2	-24 00 00					
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Barnard 262	17 25 32.6	-22 37 00	30 x 30	4	50 x 50	146	98
Barnard 263	17 26 56.4	-42 47 00	30 x 30	5	40 x 40	181	99
Barnard 264	17 27 12.8	-25 32 00	10 x 1	4	30 x 30	146	100
Barnard 265	17 27 36.6	-25 12 00	18 x 7	4	40 x 40	146	101
Barnard 267	17 28 31.8	-25 13 00	5 x 3	5			
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Barnard 77	17 28 37.0	-23 51 00	60 x 60	3	60 x 60	146	103
Barnard 269	17 32 13.5	-22 46 00	60 x 28		60 x 60	146	104
Barnard 270	17 32 43.0	-19 36 00	11 x 11	5	30 x 30	146	105
Barnard 78	17 32 43.3	-25 36 00	200 x 140	5	60 x 60	146	106
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Barnard 272	17 37 35.9	-23 25 00	45 x 45	3	50 x 50	146	108
Barnard 274	17 38 03.6	-22 44 00	18 x 3.5	4	30 x 30	146	109
Barnard 273	17 38 29.3	-33 21 00	15 x 15		40 x 40	164	110
Barnard 81	17 38 32.7	-23 56 00					
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Barnard 83	17 38 58.6	-24 11 00	7 x 7	7			
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Barnard 280	17 44 57.1	-20 43 00	60 x 60	3	60 x 60	146	115
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Barnard 282	17 48 36.5	-23 28 00	18 x 4		30 x 30	146	118
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Barnard 286	17 53 03.6	-35 37 00	15 x 15		30 x 30	164	122
Barnard 287	17 54 26.8	-35 12 00	25 x 15	5	40 x 40	164	123
Barnard 289	17 56 36.8	-29 01 00	35 x 7	4	40 x 40	145	124
Barnard 84a	17 57 37.4	-17 40 00	16 x 16	5	30 x 30	126	125
Barnard 291	17 59 43.4	-33 54 00	5 x 5		20 x 20	163	126
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Barnard 95	18 25 35.9	-11 45 00	30 x 30	5	40 x 40	126	146
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Barnard 311	18 30 27.2	-17 40 00	6 x 1	4	30 x 30	145	149
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Barnard 320	18 52 47.1	-05 51 00	15 x 15	4	40 x 40	105	164
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Barnard 150	20 50 39.7	+60 18 00	60 x 3	5	60 x 60	20	197
LDN 935	20 56 48.0	+43 52 00	90 x 20	4	60 x 60	32	198
Barnard 352	20 57 10.8	+45 54 00	20 x 10	5	40 x 40	32	199
Barnard 353	20 57 22.6	+45 29 00	12 x 6		30 x 30	32	200
Barnard 355	20 59 38.0	+43 11 00	5 x 5		30 x 30	32	201
Barnard 357	20 59 52.1	+55 34 00	30 x 30	5	60 x 60	19	202
Barnard 356	20 59 58.8	+46 41 00	24 x 24	5	60 x 60	32	203
Barnard 358	21 05 40.6	+43 17 00	20 x 20		40 x 40	32	204
Barnard 360	21 07 52.2	+56 30 00		5	40 x 40	19	205
Barnard 151	21 08 13.6	+56 19 20	1 x 1	5	30 x 30	19	206
Barnard 361	21 12 45.8	+47 26 00	17 x 17	4	40 x 40	32	207
Barnard 152	21 14 29.6	+61 44 00	15 x 3	5	40 x 40	19	208
Barnard 154	21 21 22.5	+56 37 00	8 x 2	5	30 x 30	19	209
Barnard 362	21 23 57.8	+50 12 00	15 x 8	5	40 x 40	32	210
Barnard 363	21 24 53.8	+48 56 00	40 x 15	3	60 x 60	32	211

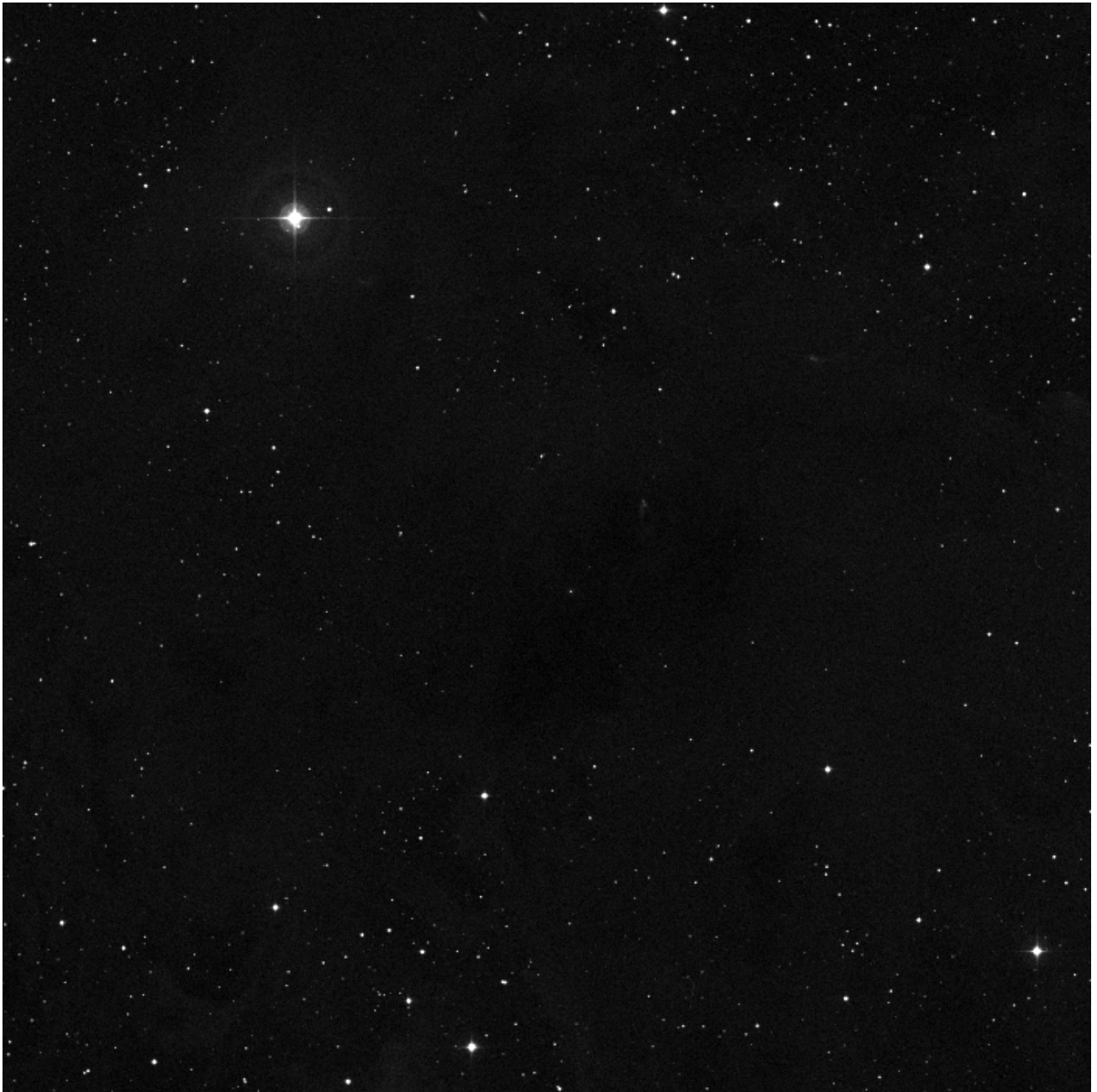
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0	Page
Barnard 157	21 33 41.6	+54 40 00	4 x 4	4	30 x 30	19	212
Barnard 365	21 34 53.5	+56 43 00	22 x 3	4	50 x 50	19	213
Barnard 158	21 37 13.6	+43 24 40	3 x 3		30 x 30	31	214
Barnard 160	21 37 58.9	+56 14 00	30 x 15	4	60 x 60	19	215
Barnard 159	21 38 22.8	+43 14 00	25 x 25	5	50 x 50	31	216
Barnard 161	21 40 22.2	+57 49 00		6	30 x 30	19	217
Barnard 162	21 41 09.2	+56 19 00	13 x 2	4	30 x 30	19	218
Barnard 163	21 42 10.1	+56 42 00	4 x 4	4	30 x 30	19	219
Barnard 367	21 44 24.5	+57 10 00	5 x 5	5	30 x 30	19	220
Barnard 164	21 46 31.9	+51 06 00	12 x 6	5	60 x 60	19	221
Barnard 368	21 50 55.6	+58 59 00	14 x 3	5	30 x 30	19	222
Barnard 167	21 51 58.2	+60 04 00	5 x 5	5	40 x 40	19	223
Barnard 169	21 58 52.9	+58 46 00	60 x 60	3	60 x 60	19	224
Barnard 170	21 58 02.9	+58 58 00	26 x 4	4	40 x 40	19	225
Barnard 171	22 01 18.8	+58 52 00	19 x 19	5	60 x 60	19	226
Barnard 174	22 07 19.9	+59 05 00	19 x 19	6	40 x 40	19	227

Barnard 202



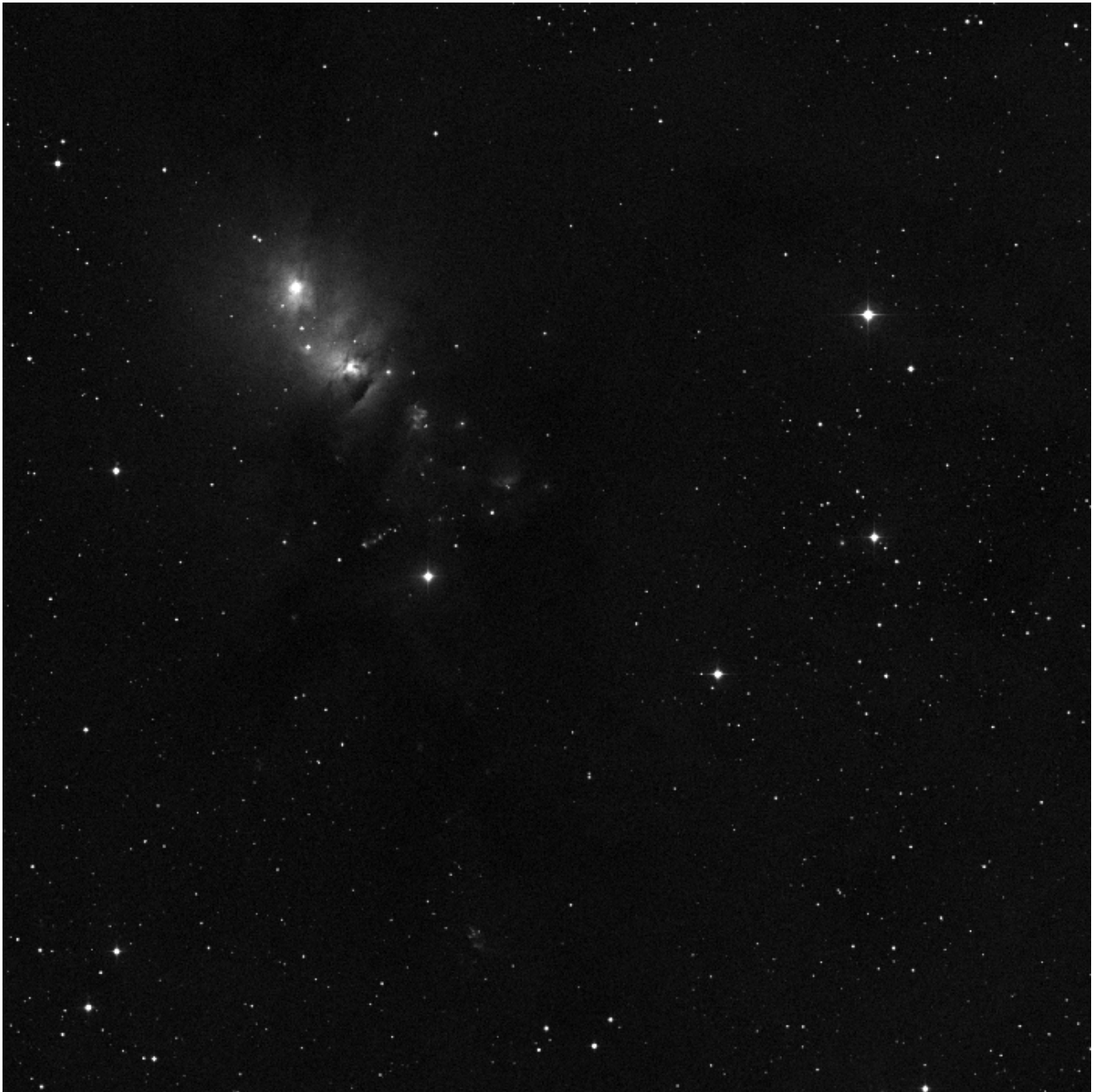
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 202	03 25 38.7	+30 17 00	33 x 12	4	60 x 60	60

Barnard 204



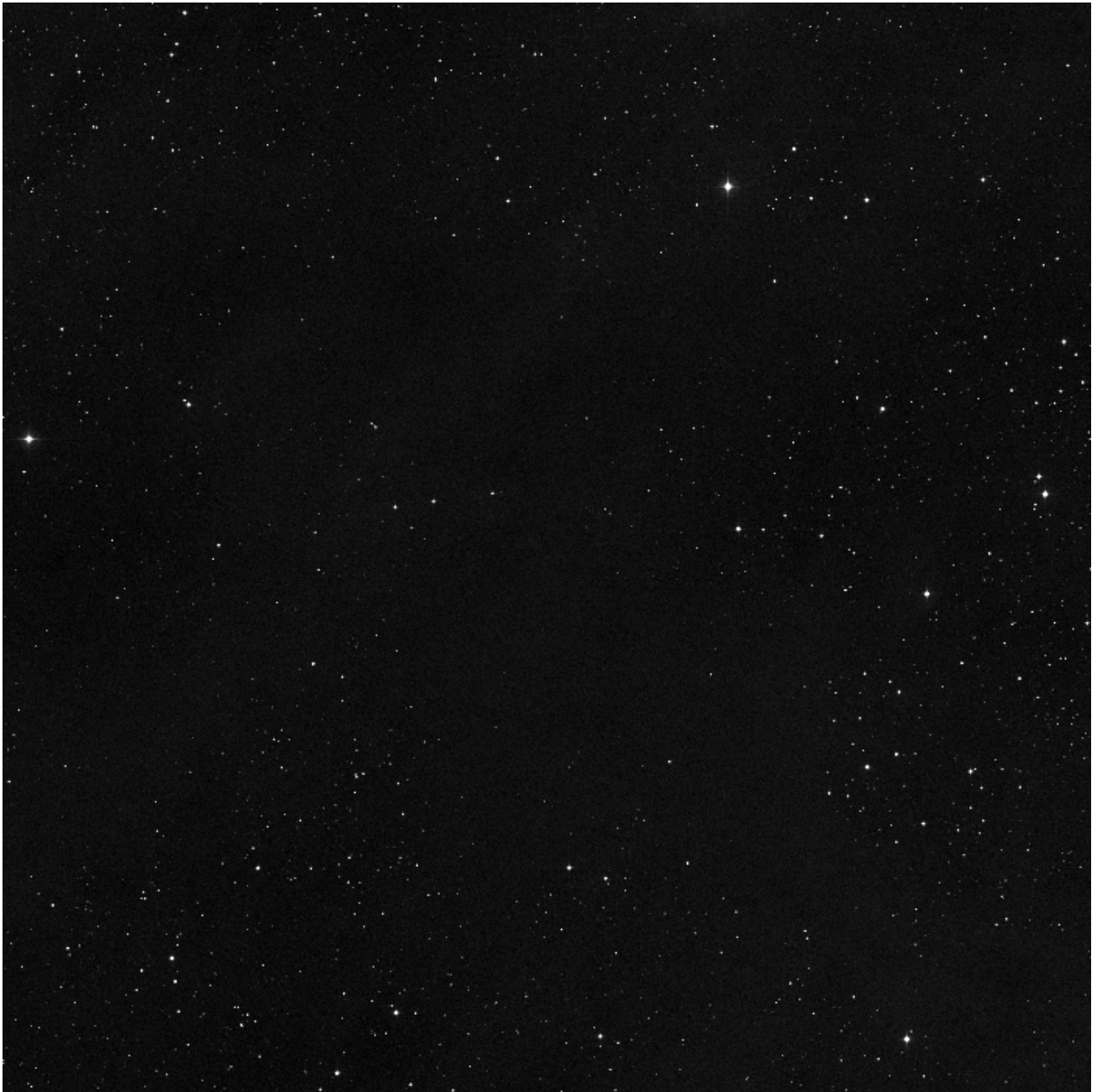
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 204	03 28 29.2	+30 11 00	14 x 14	5	40 x 40	60

Barnard 205



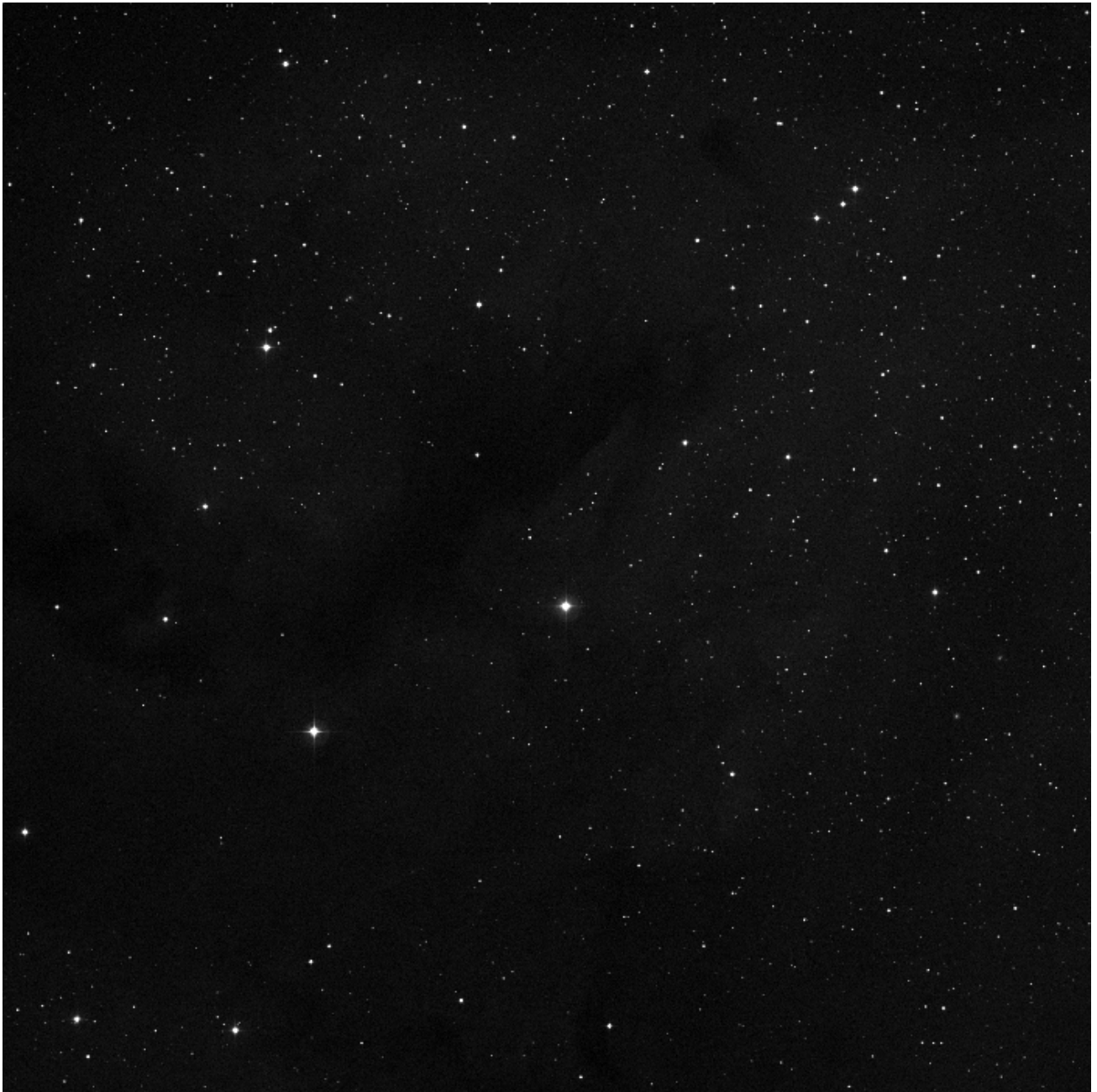
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 205	03 28 32.0	+31 06 00	15 x 2	5	40 x 40	60

Barnard 1



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 1	03 32 57.4	+31 10 00	30 x 30	4	60 x 60	60

Barnard 3



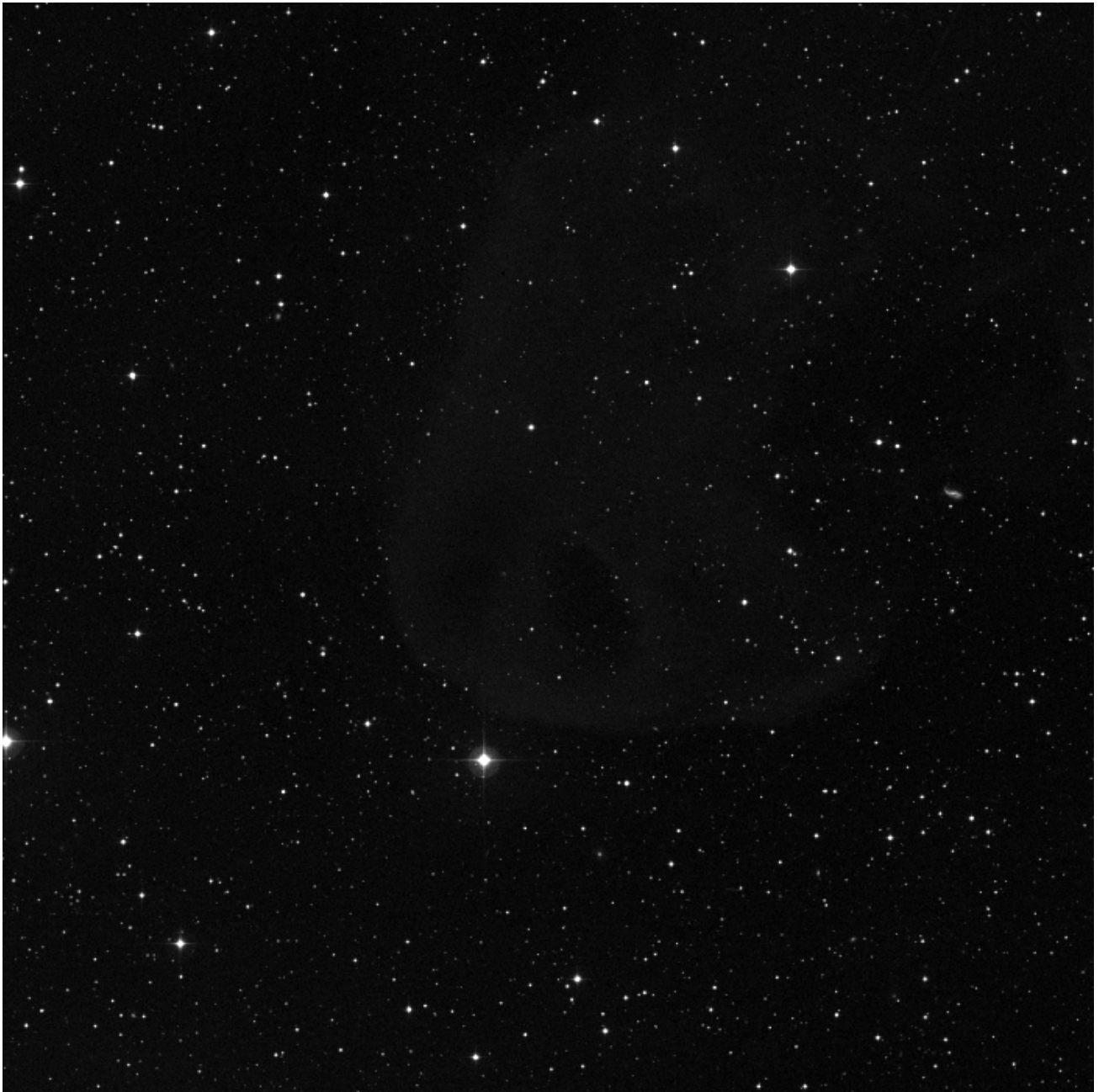
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 3	03 40 01.9	+31 59 00	20 x 20	5	50 x 50	60

Barnard 5



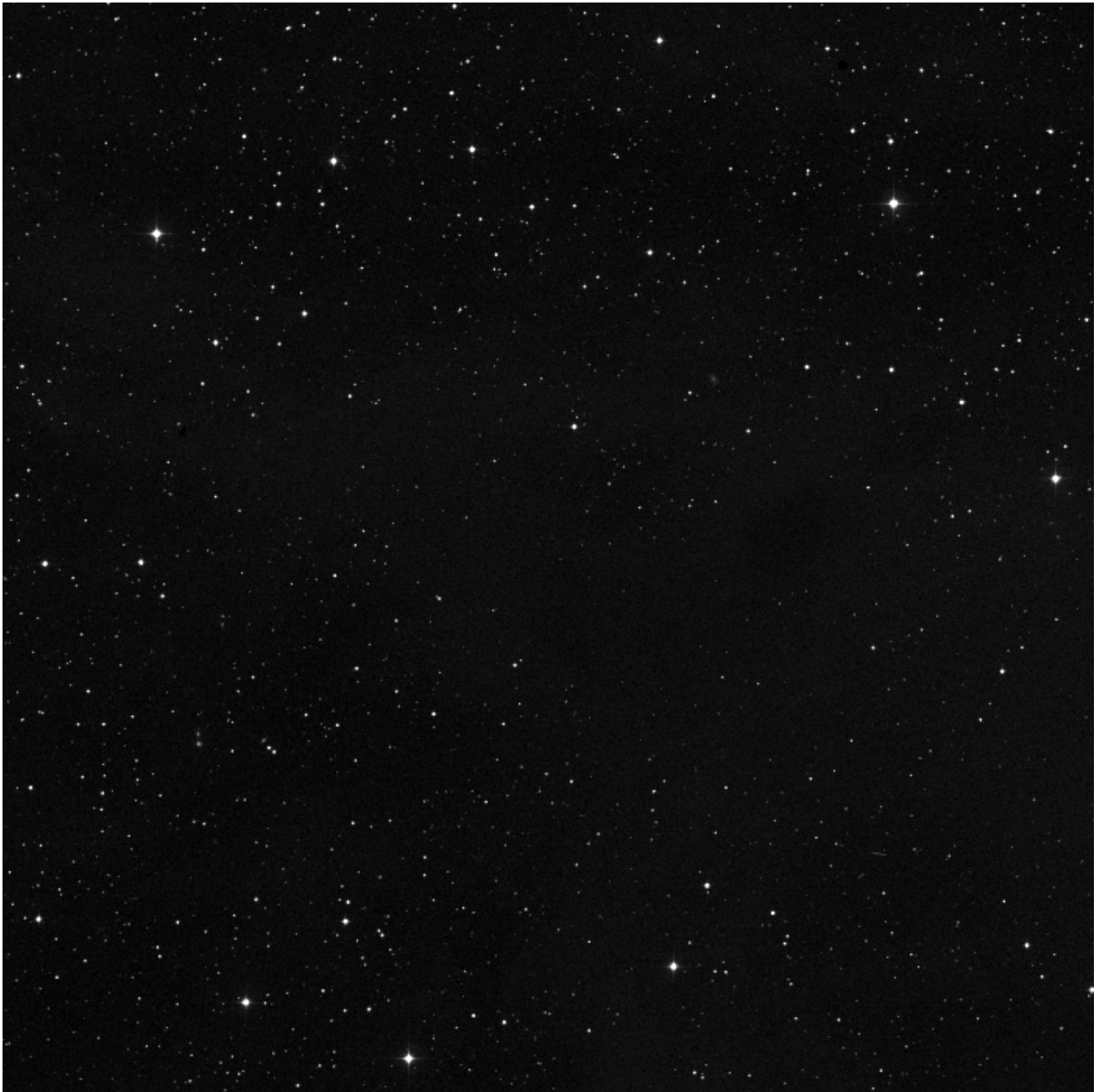
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 5	03 47 53.1	+32 53 00	60 x 60	5	60 x 60	60

Barnard 207



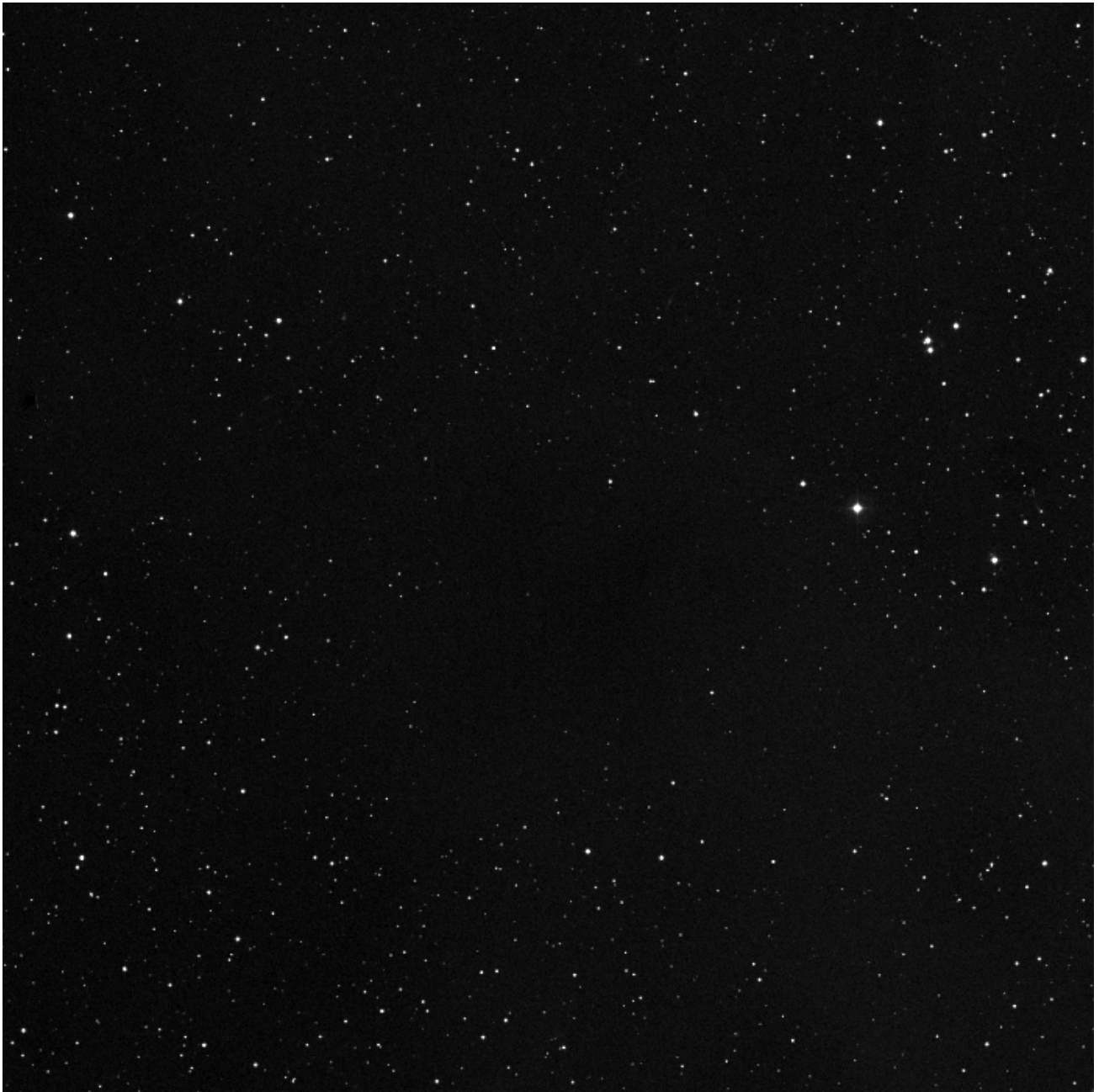
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 207	04 04 35.4	+26 21 00			40 x 40	78

Barnard 208



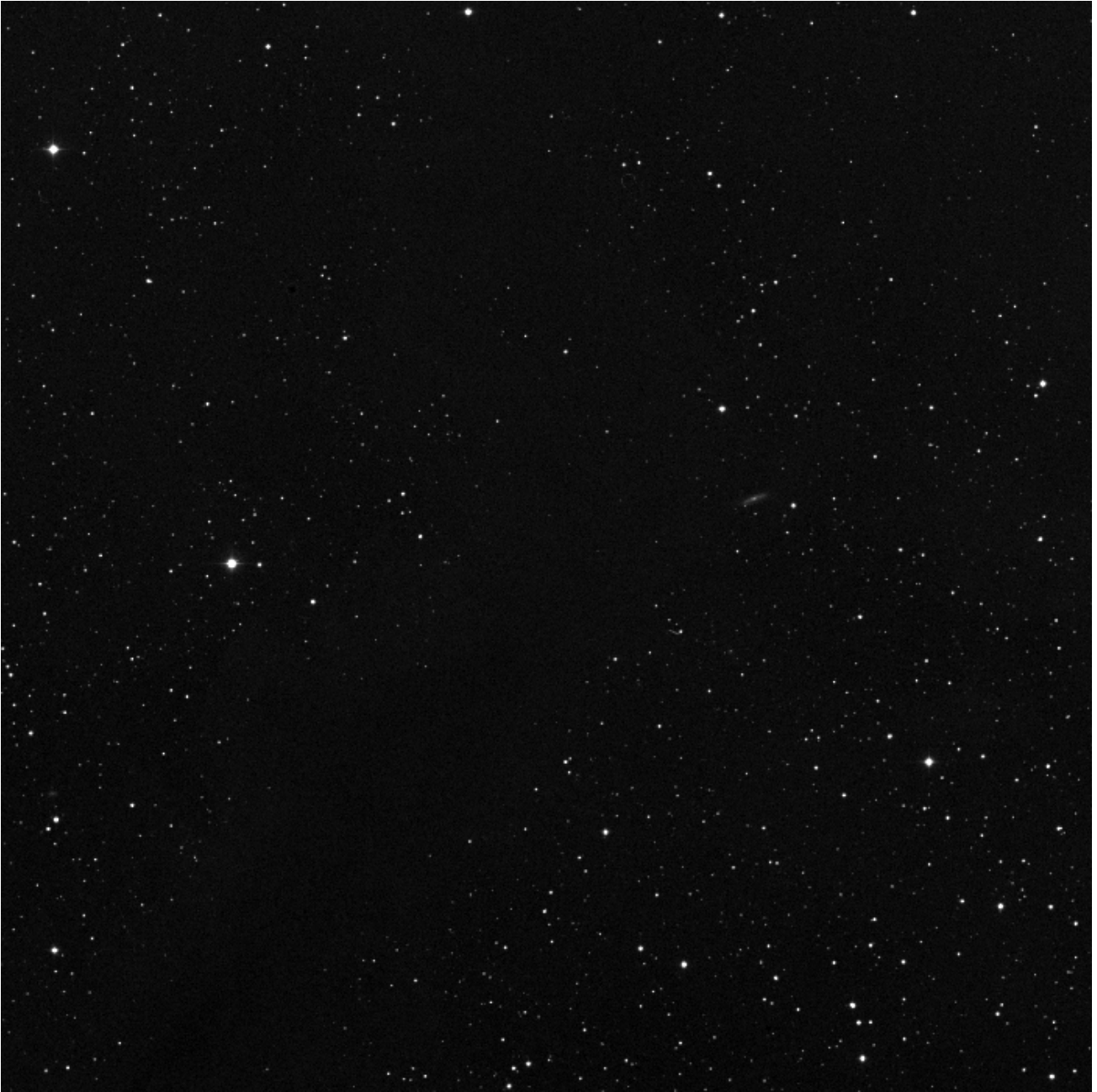
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 208	04 11 32.9	+25 10 00			40 x 40	78

Barnard 210



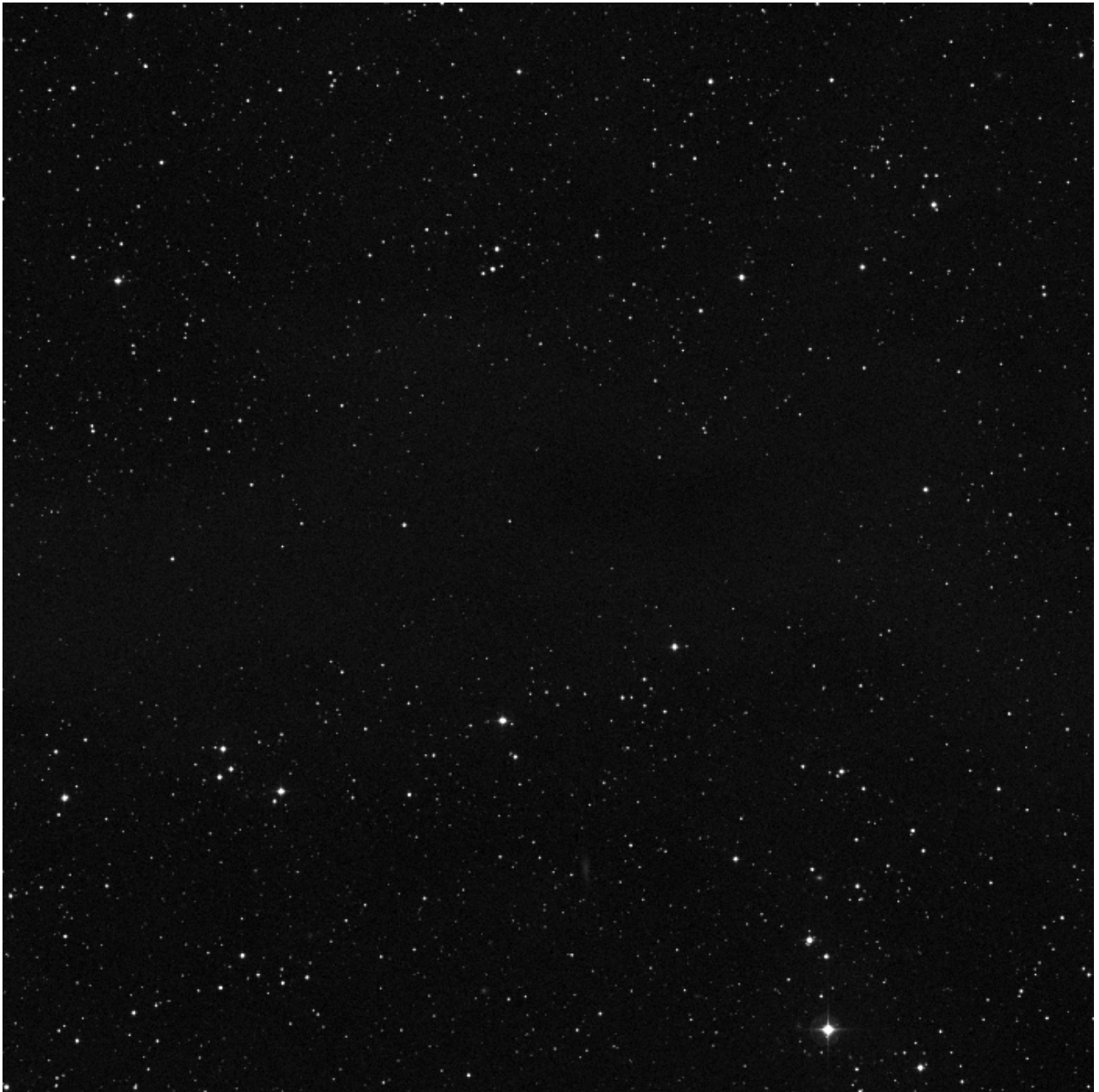
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 210	04 15 33.3	+25 04 00		5	40 x 40	78

Barnard 211



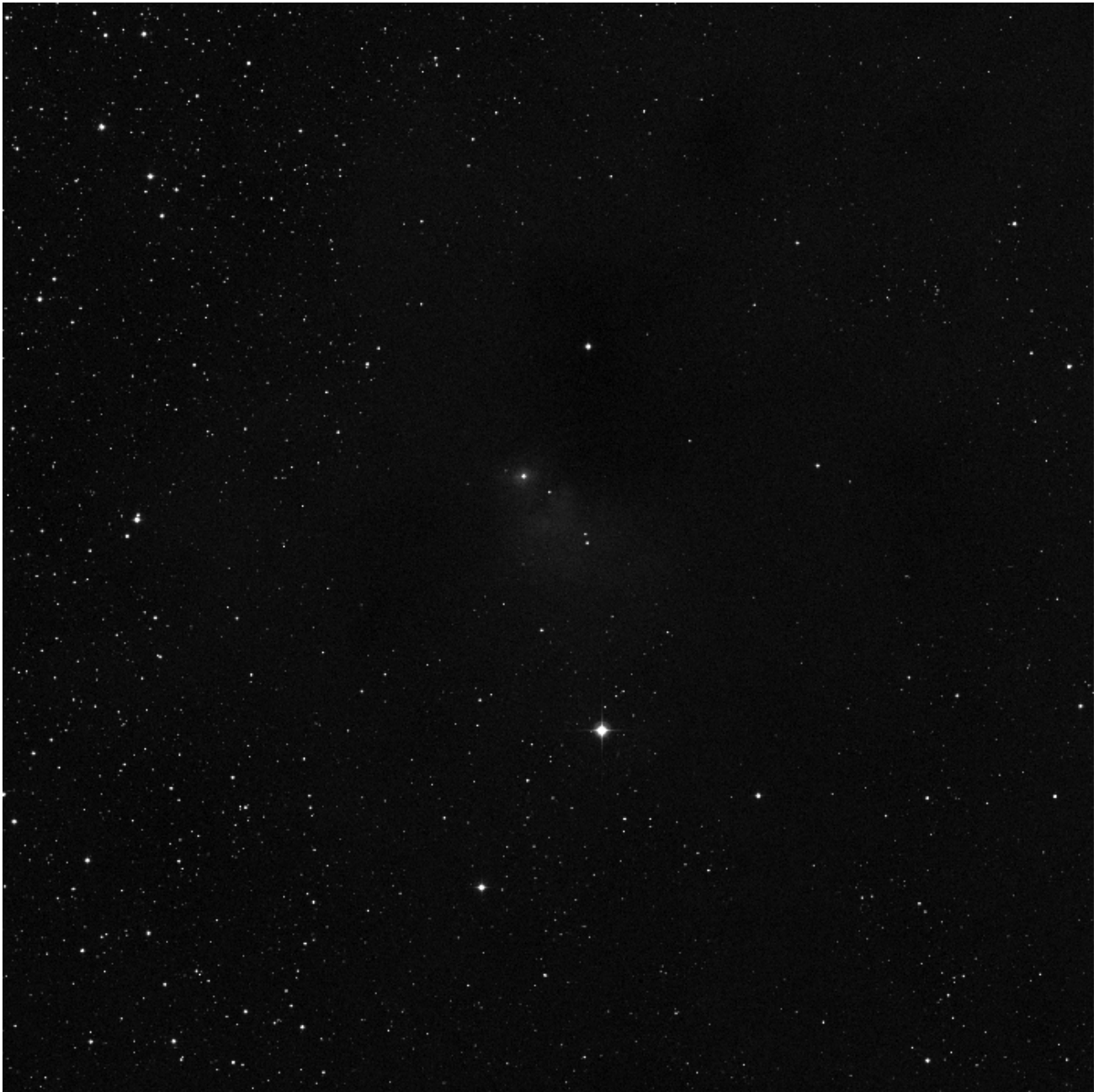
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 211	04 17 12.4	+27 49 00		5	40 x 40	78

Barnard 212



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 212	04 19 14.6	+25 18 00		5	40 x 40	78

Barnard 10



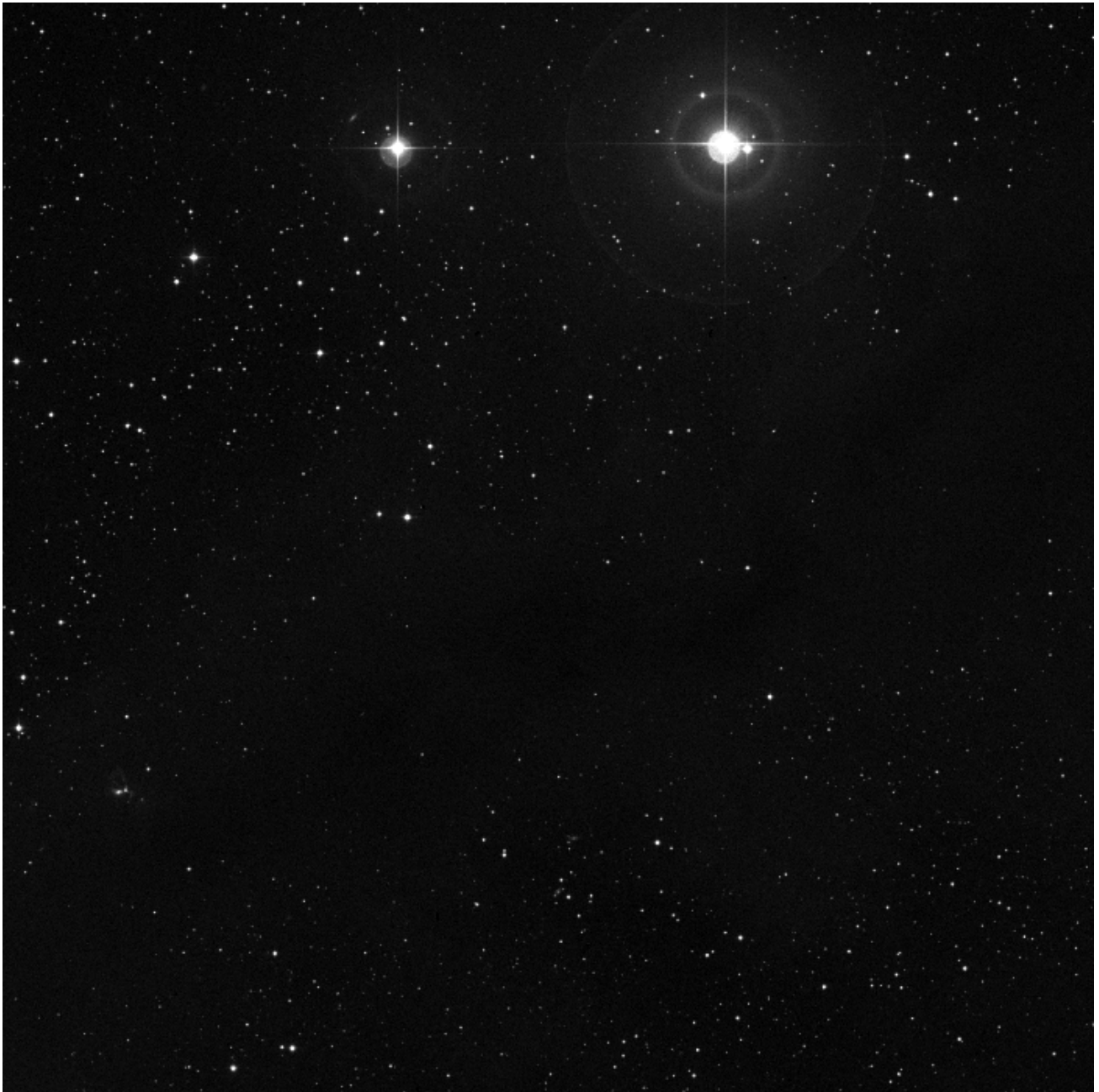
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 10	04 18 41.2	+28 17 00	8 x 8	5	60 x 60	78

Barnard 9



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 9	04 18 56.9	+55 04 00			60 x 60	28

Barnard 213



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 213	04 21 10.6	+27 03 00			40 x 40	78

Barnard 214



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 214	04 21 55.7	+28 33 00	5 x 5		40 x 40	78

Barnard 215



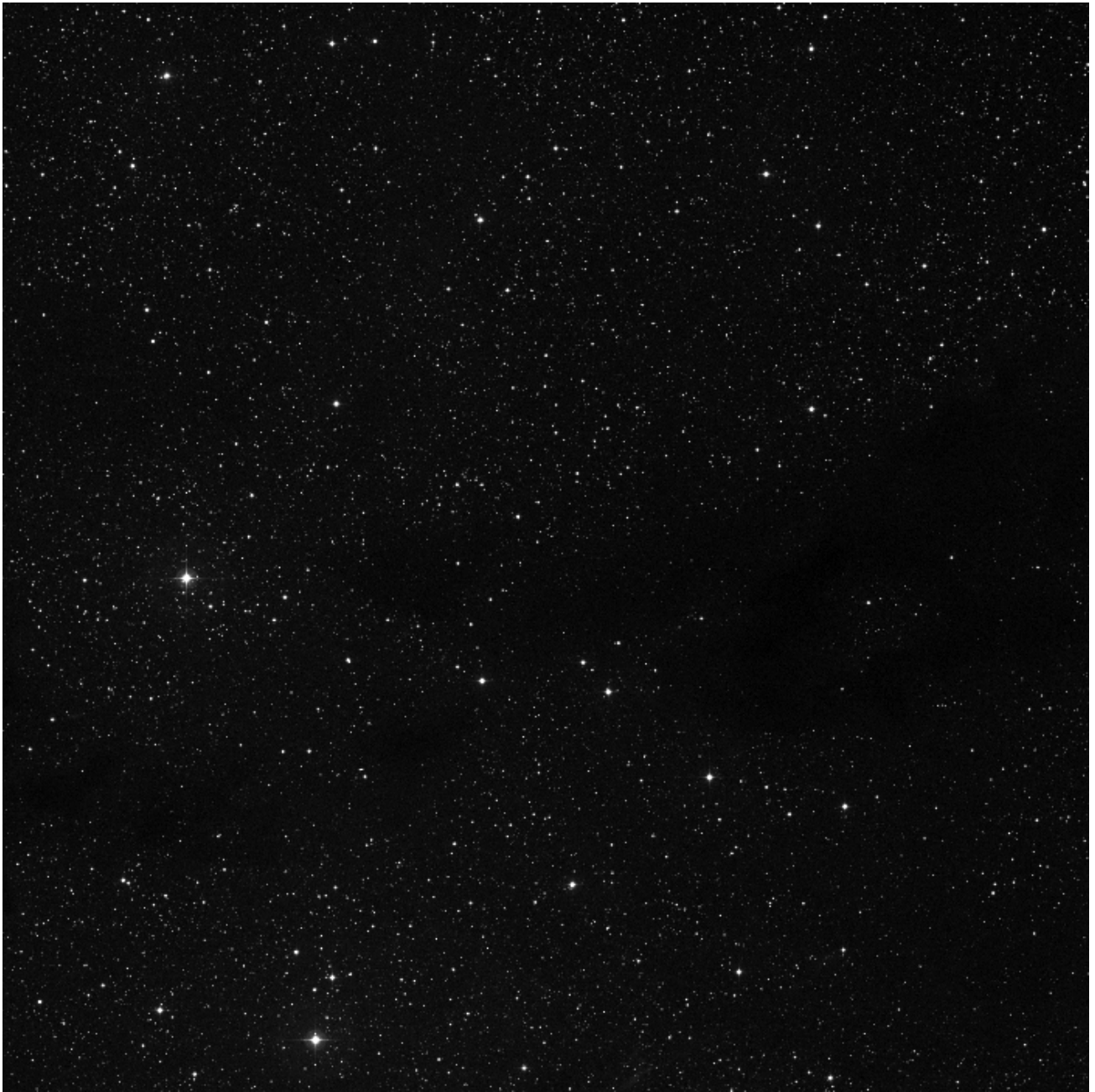
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 215	04 23 34.4	+25 03 00		5	50 x 50	78

Barnard 216



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 216	04 23 59.6	+26 38 00			40 x 40	78

Barnard 11



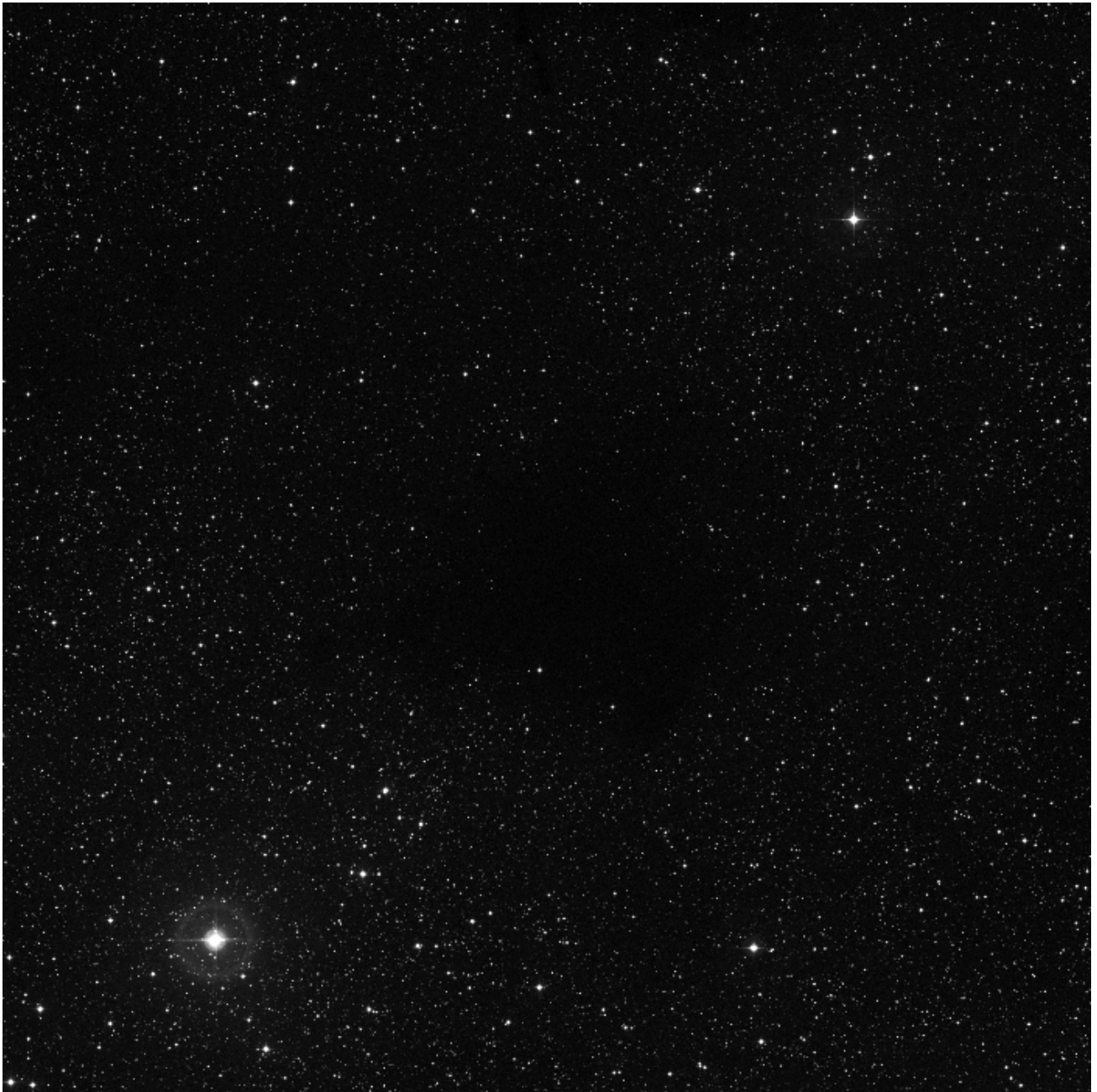
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 11	04 26 37.3	+55 02 00	10 x 10	3	60 x 60	28

Barnard 217-218



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 217	04 27 38.5	+26 07 00	15 x 15		60 x 60	78
Barnard 218	04 28 06.0	+26 20 00				

Barnard 12



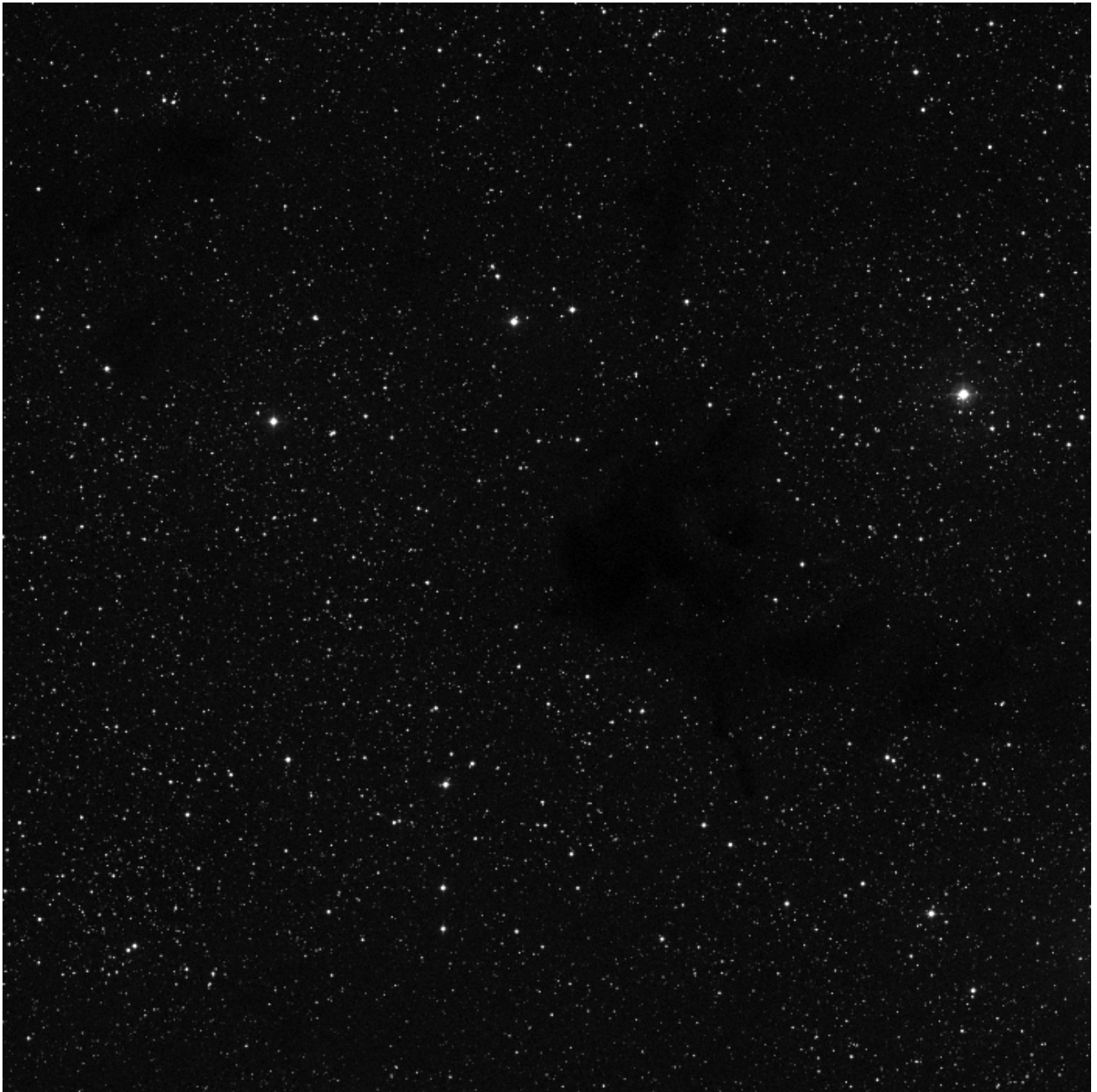
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 12	04 29 47.4	+54 15 00	24 x 24	5	60 x 60	28

Barnard 18



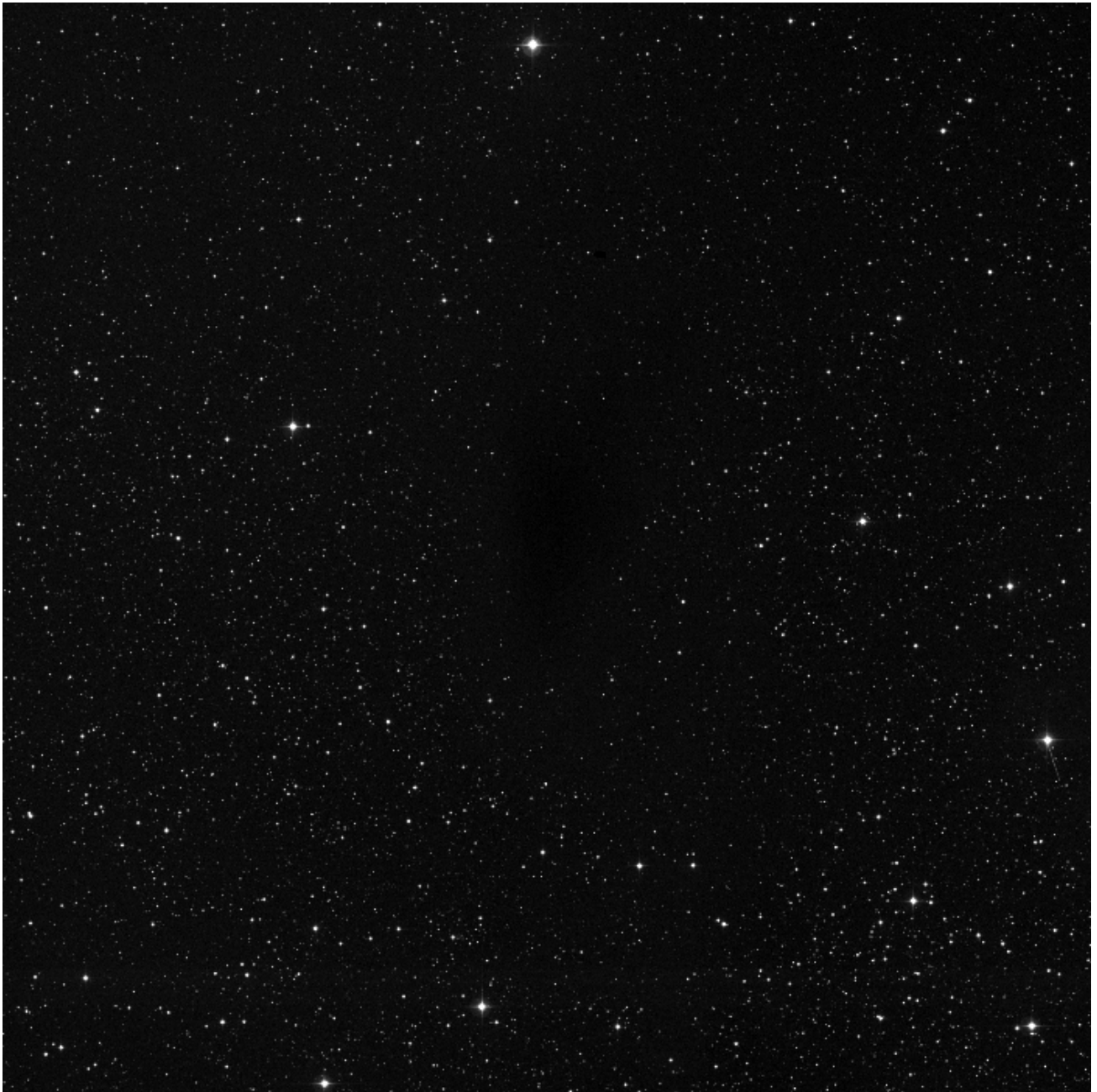
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 18	04 31 13.3	+24 21 00	60 x 60	5	60 x 60	78

Barnard 13



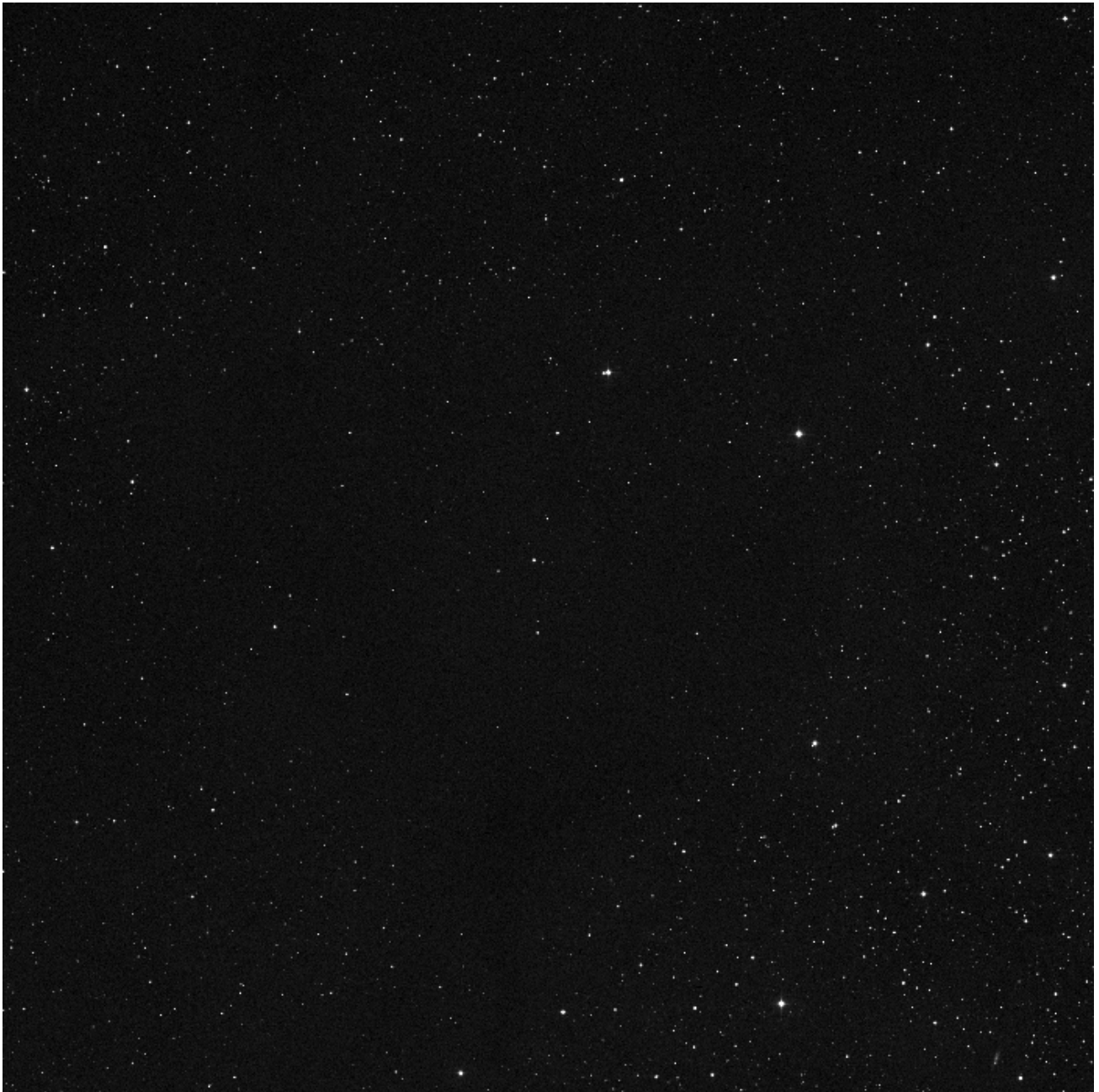
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 13	04 31 18.1	+54 54 00	11 x 11	4	50 x 50	28

Barnard 15



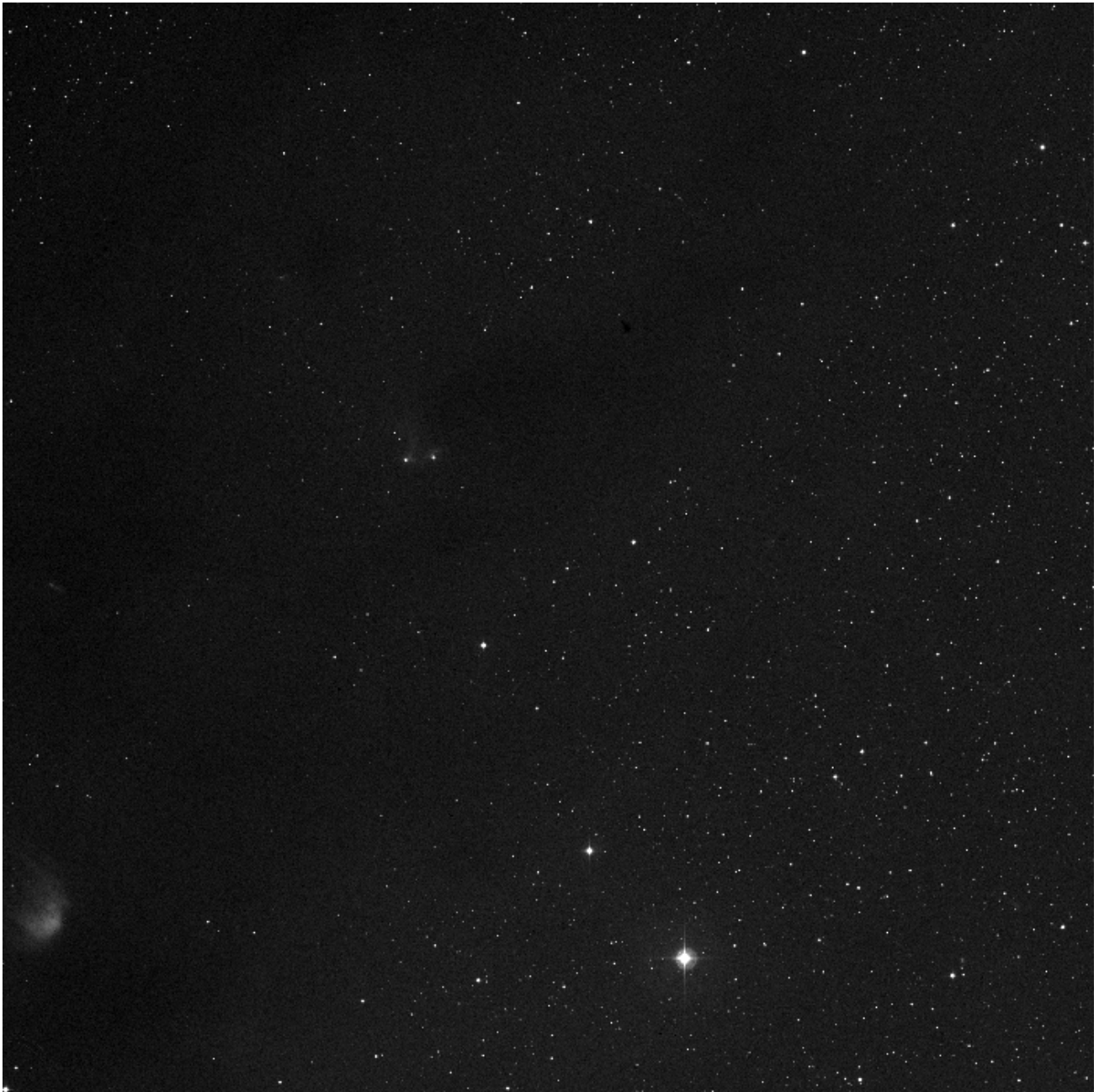
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 15	04 31 56.0	+46 37 00	10 x 15	5	50 x 50	42

Barnard 19



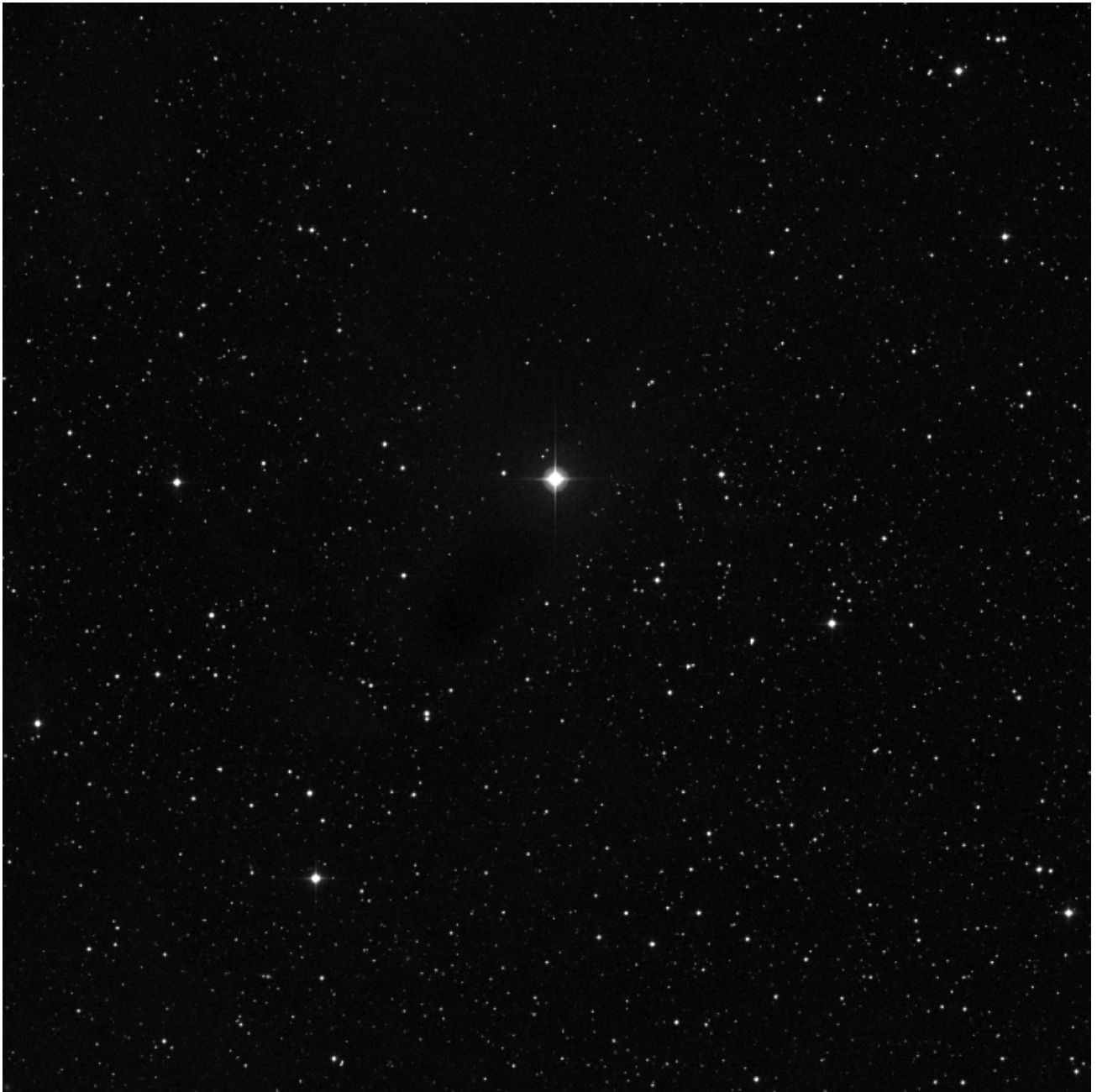
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 19	04 33 39.9	+26 16 00	60 x 60		60 x 60	78

Barnard 22



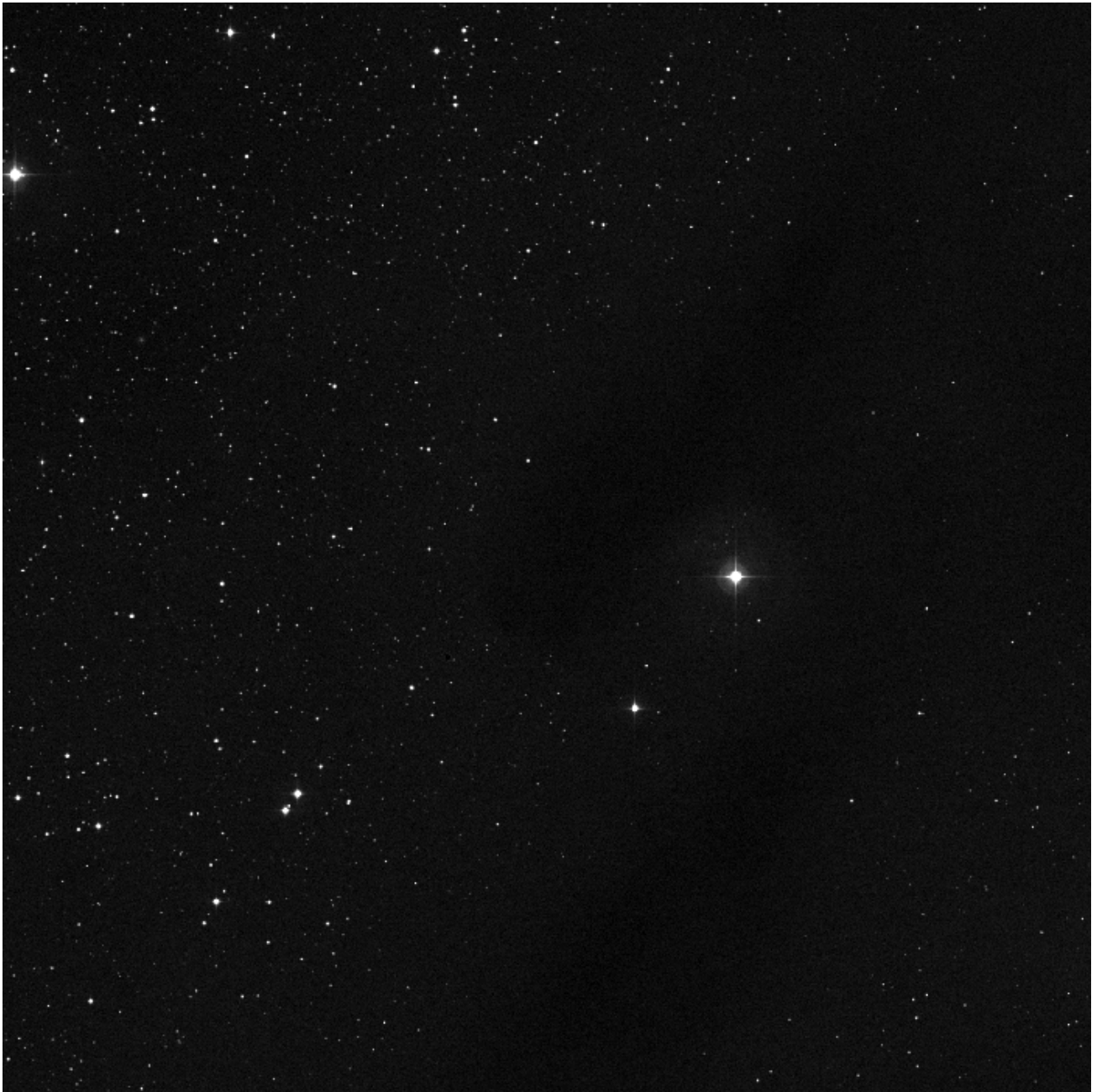
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 22	04 38 39.9	+26 03 00	120 x 120	4	60 x 60	78

Barnard 23



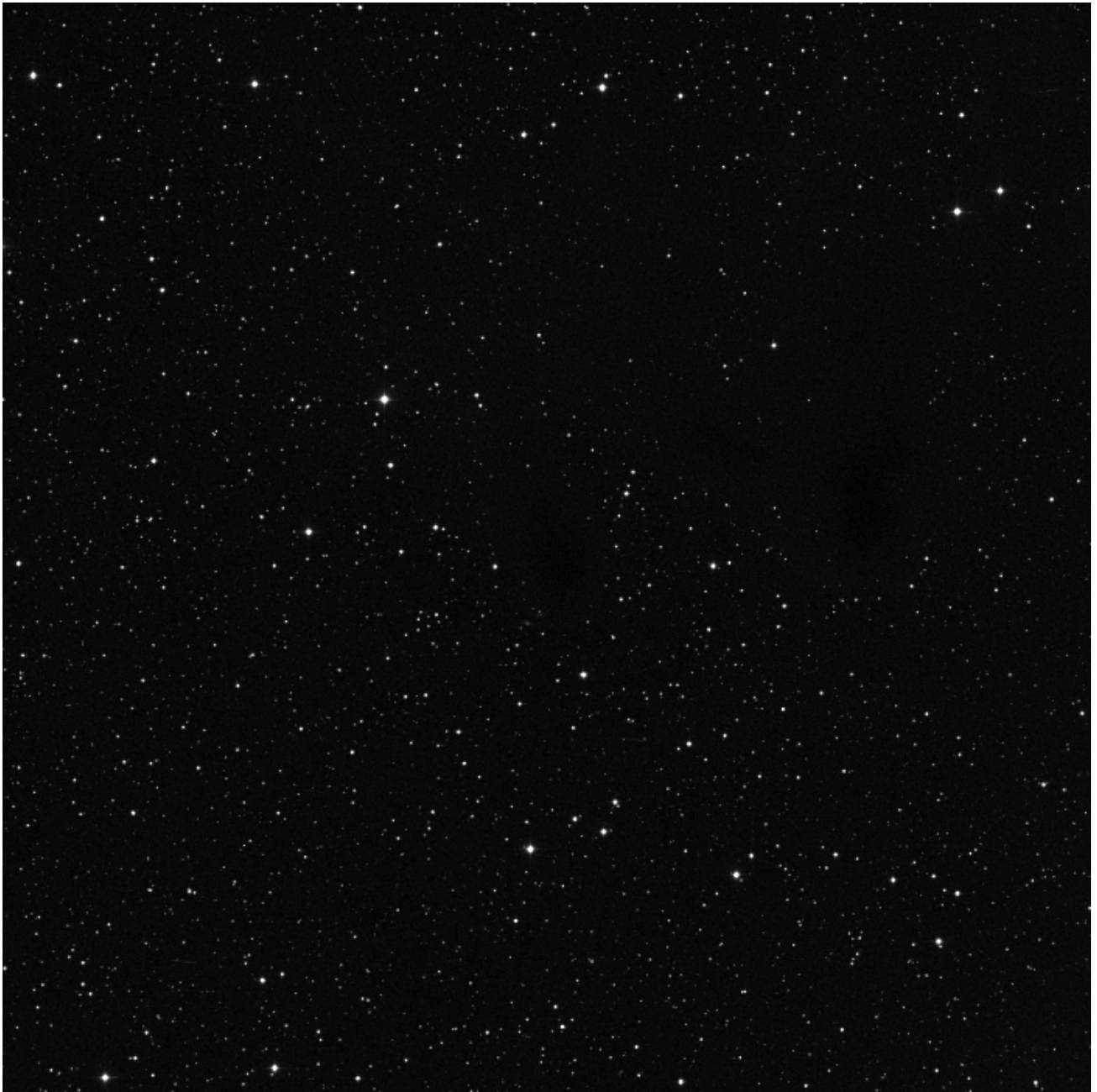
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 23	04 40 33.4	+29 53 00	5 x 5	5	40 x 40	59

Barnard 220



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 220	04 41 30.0	+26 00 00	7 x 7		40 x 40	77

Barnard 24



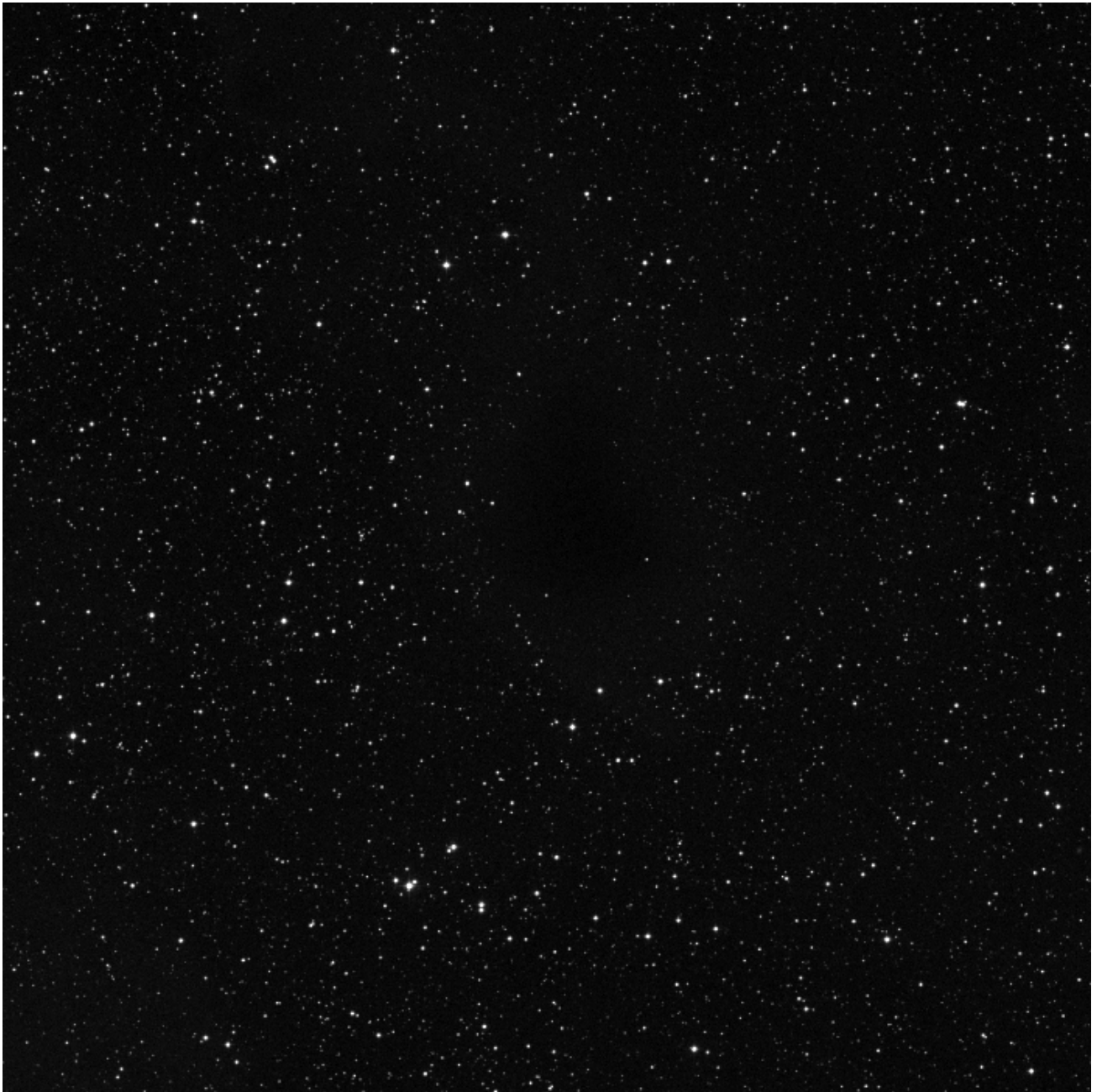
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 24	04 42 53.3	+29 44 00	8 x 8	5	40 x 40	59

Barnard 26-27-28



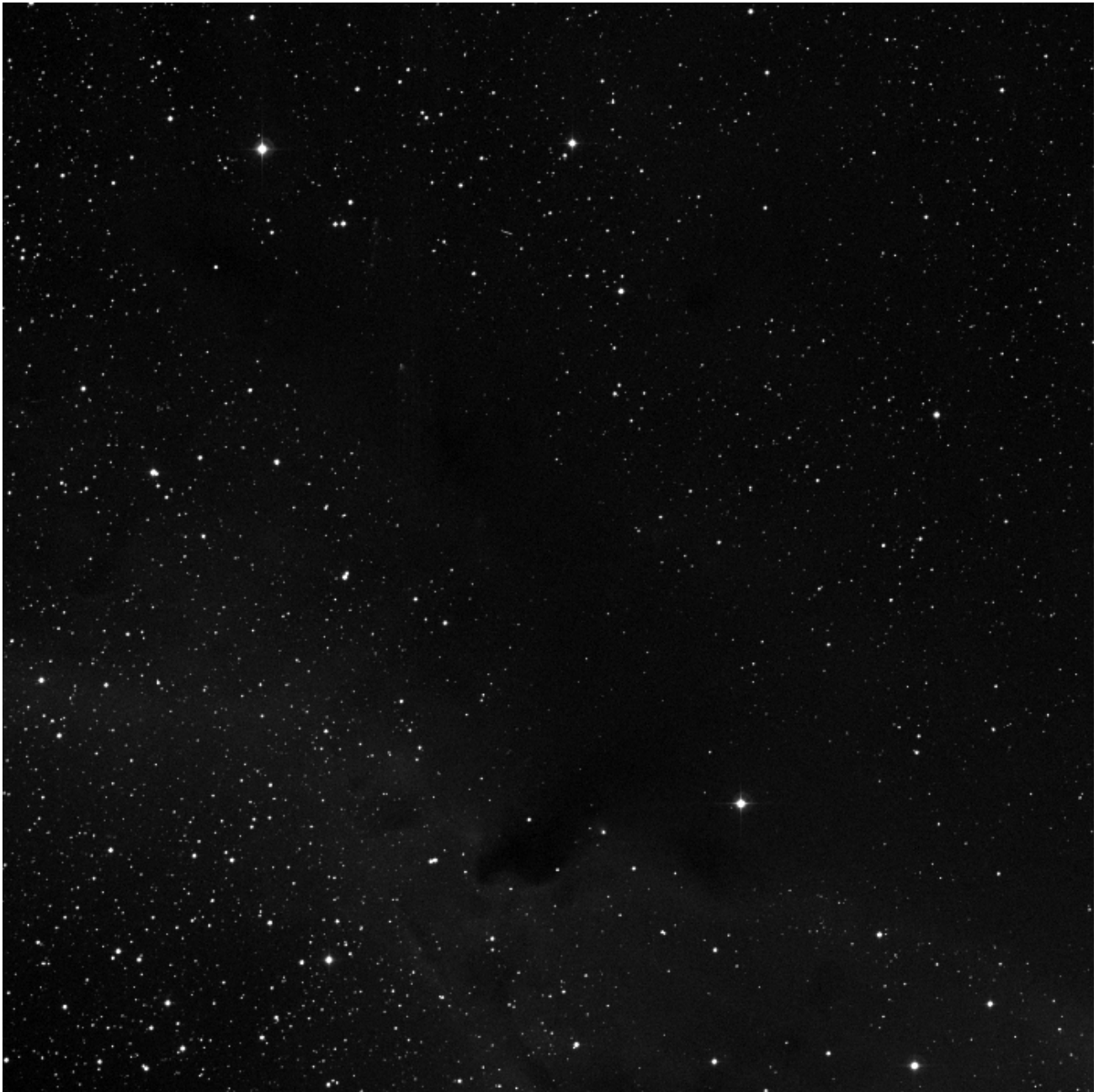
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 26	04 54 38.2	+30 37 00	5 x 5	6	50 x 50	59
Barnard 27	04 55 08.0	+30 33 00	5 x 5	6		
Barnard 28	04 55 52.4	+30 38 00	4 x 4	6		

Barnard 29



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 29	05 06 23.4	+31 35 00	10 x 10	6	40 x 40	59

Barnard 31



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 31	05 32 01.5	+12 46 00	30 x 30	4	50 x 50	96

Barnard 32



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 32	05 32 08.5	+12 26 00		3	40 x 40	96

Barnard 33



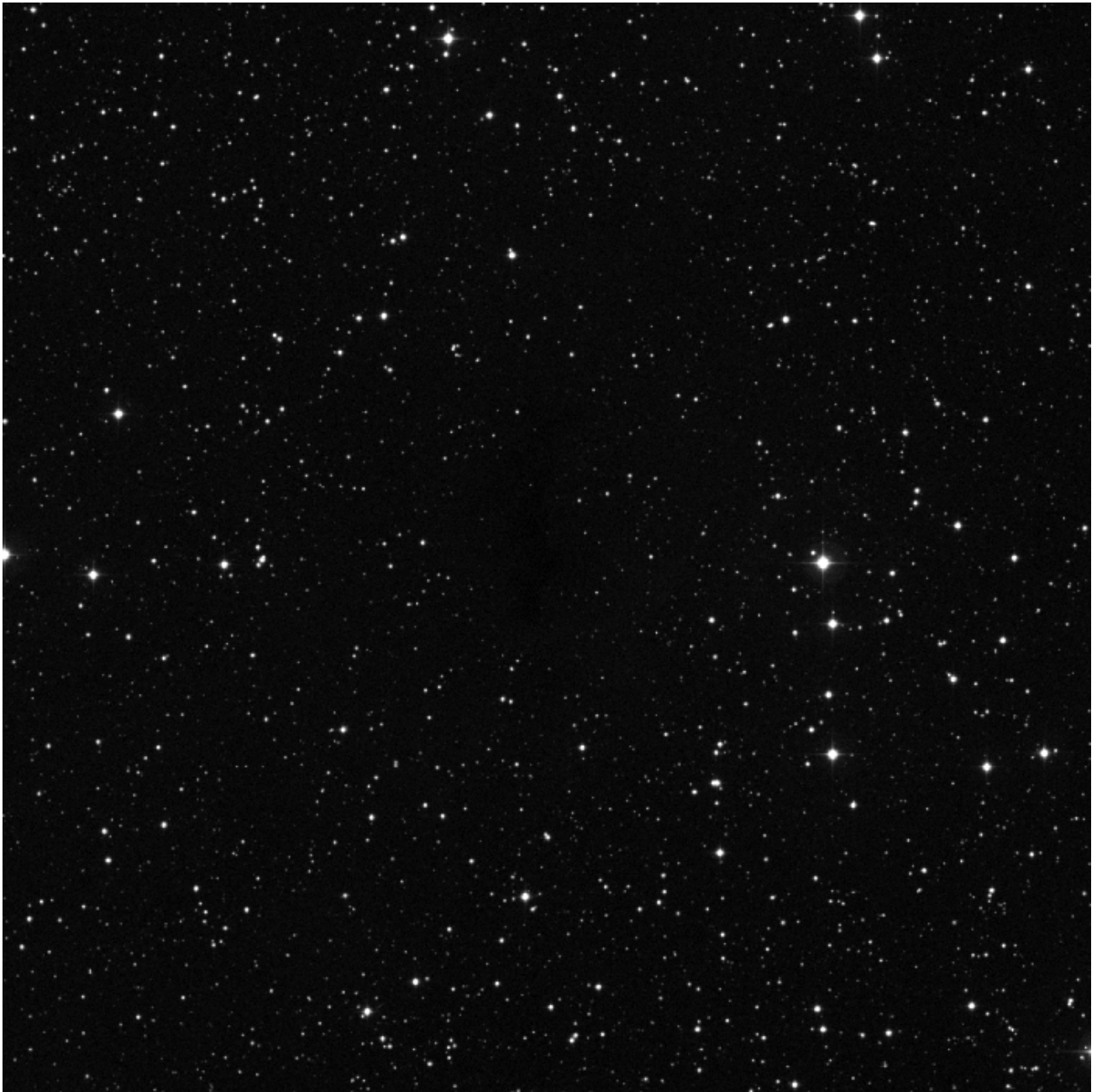
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 33	05 40 52.9	-02 28 00	6 x 4	4	40 x 40	116

Barnard 35



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 35	05 45 30.7	+09 03 00	20 x 10	2	50 x 50	96

Barnard 227



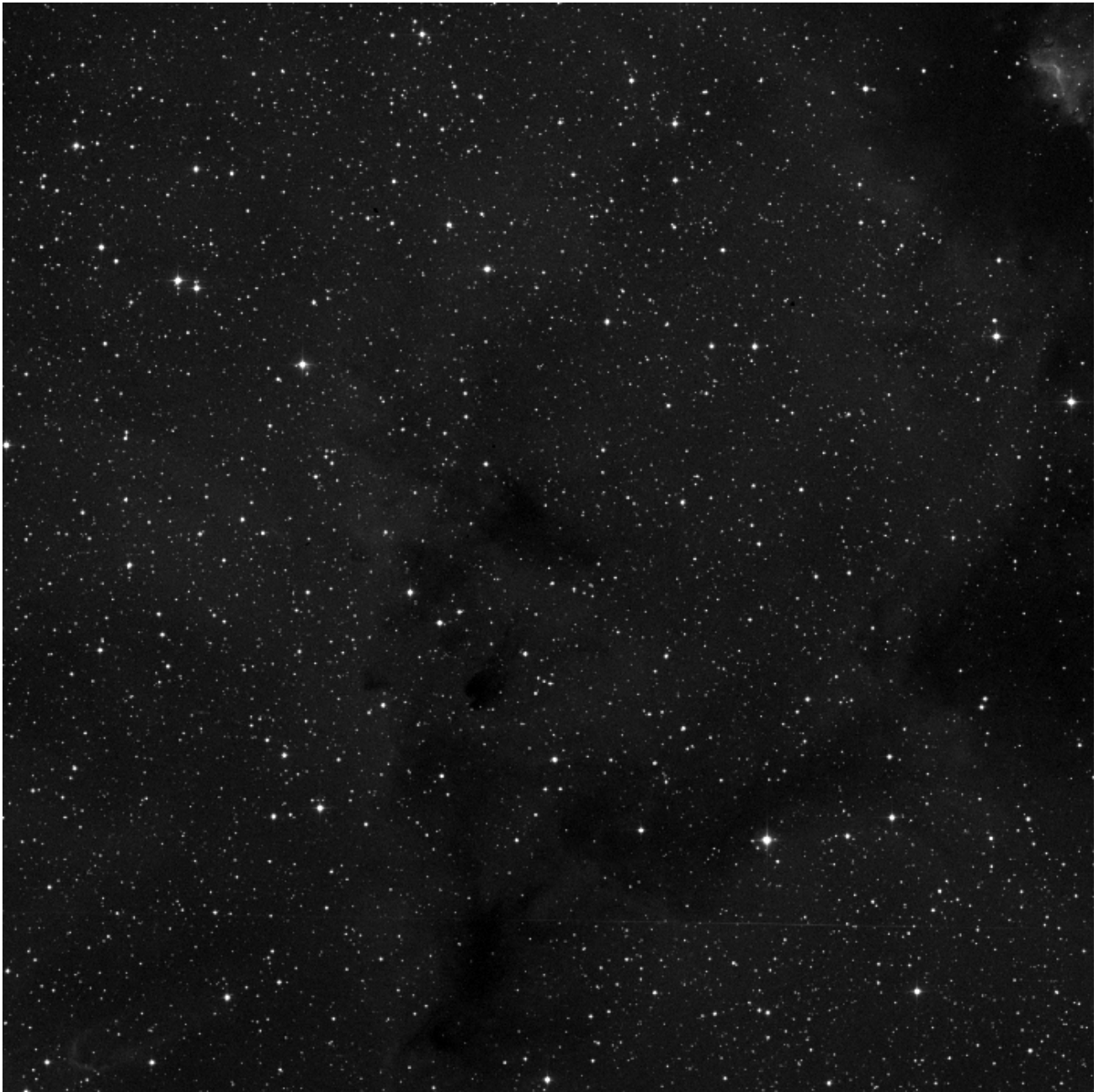
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 227	06 07 23.9	+19 39 00	12 x 12		30 x 30	76

Barnard 37



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 37	06 32 55.0	+10 29 00	180 x 150	4	60 x 60	95

Barnard 39



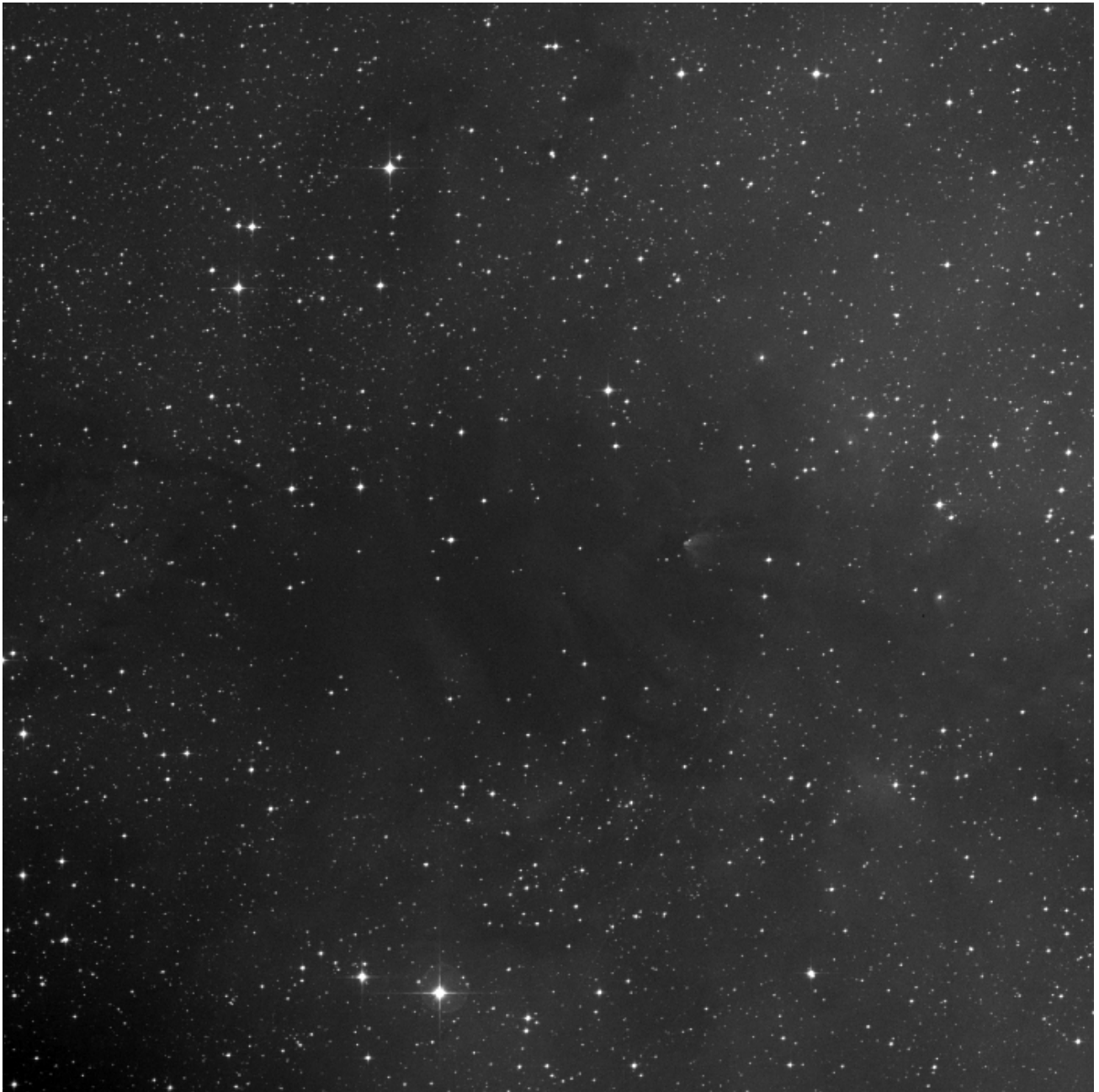
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 39	06 38 02.5	+10 20 00		5	40 x 40	95

Be 135



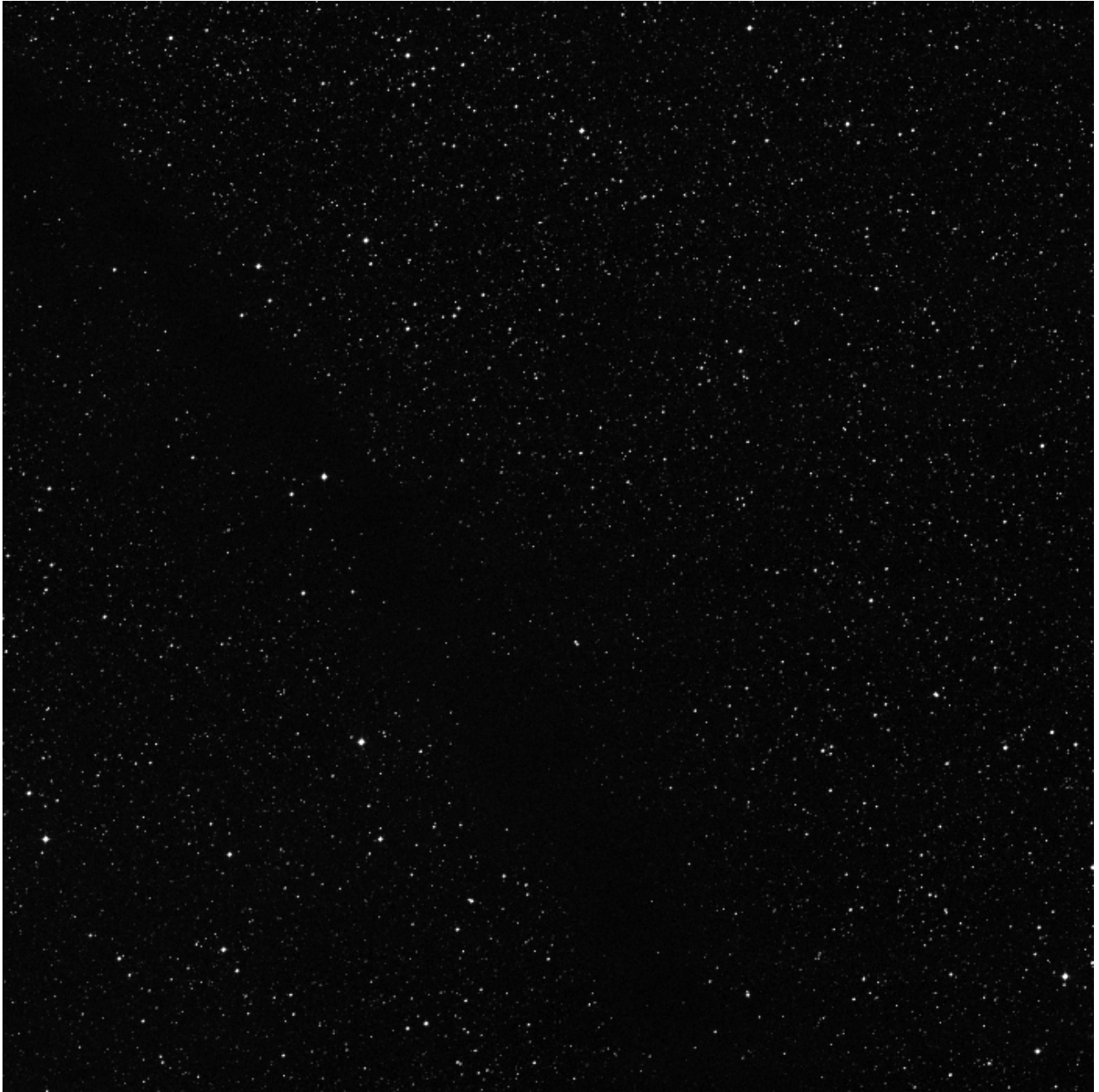
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Be 135	07 19 00.0	-44 35 00	13 x 5	6	30 x 30	186

SI 4



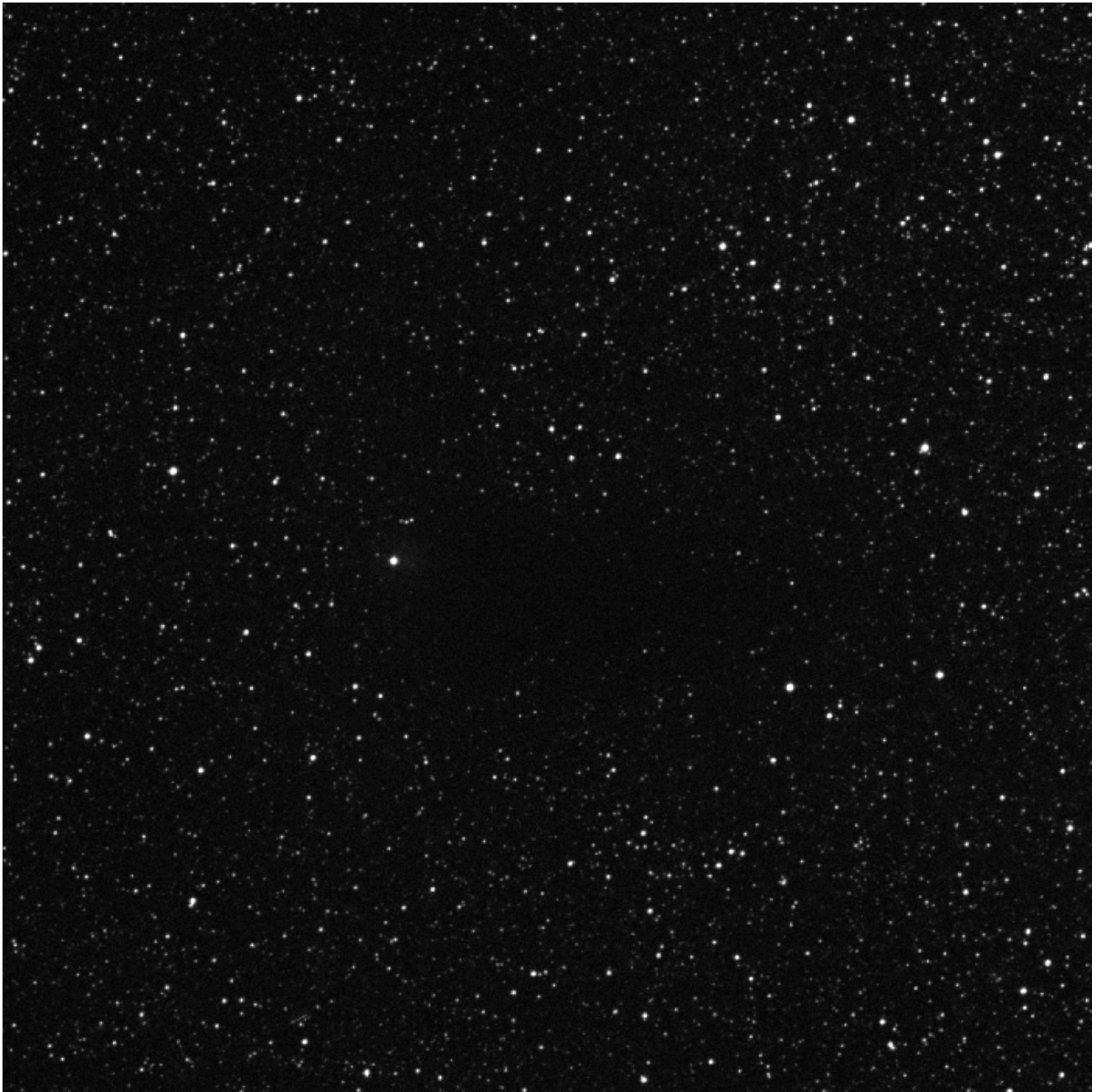
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
SI 4	08 53 36.0	-42 13 00	15 x 7	5	40 x 40	186

Dark Dooddad



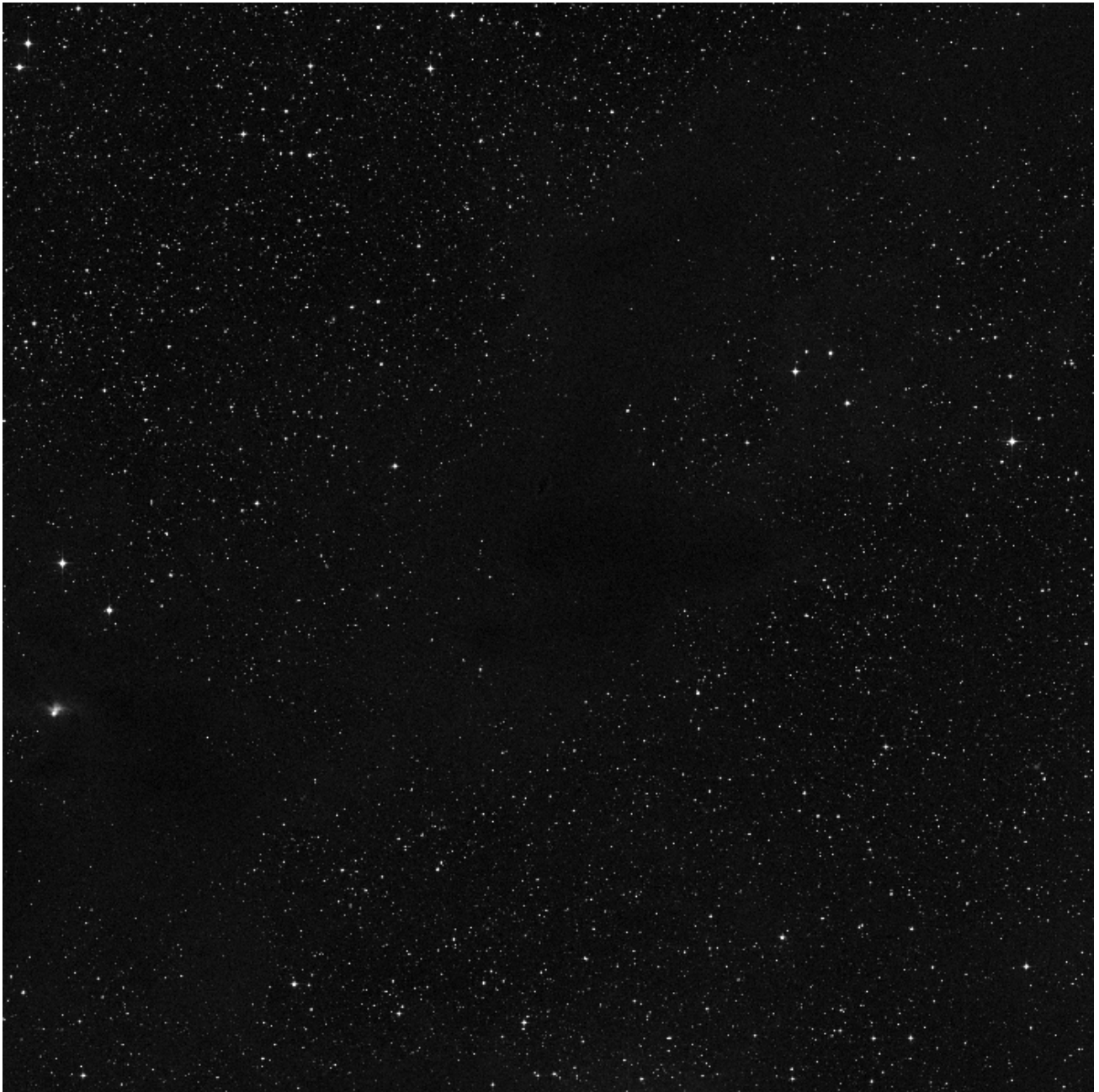
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Dark Dooddad	12 25 00.0	-71 30 00	150 x 15		60 x 60	209

Be 145



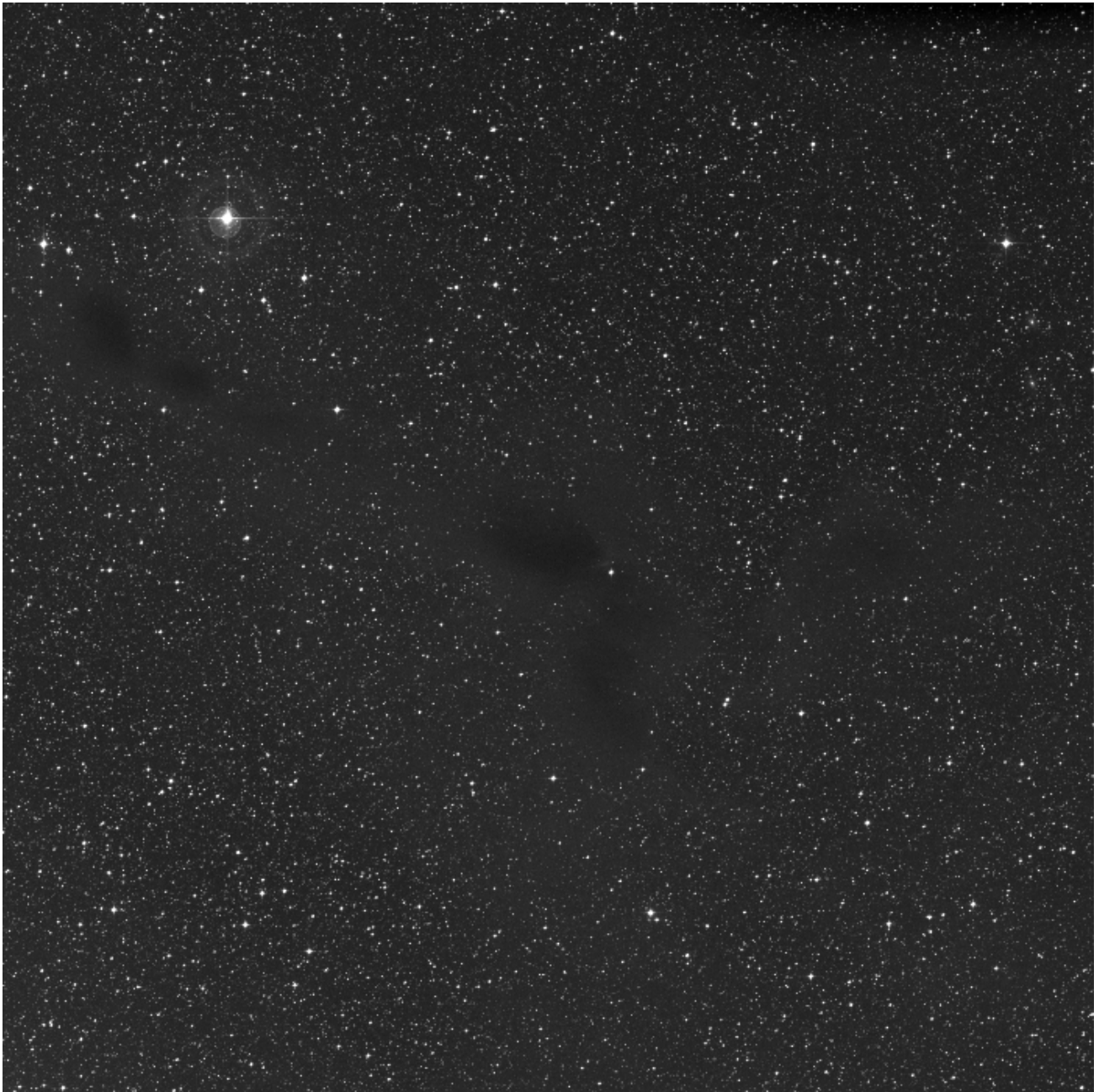
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Be 145	14 48 36.0	-65 15 00		4	30 x 30	208

Barnard 228



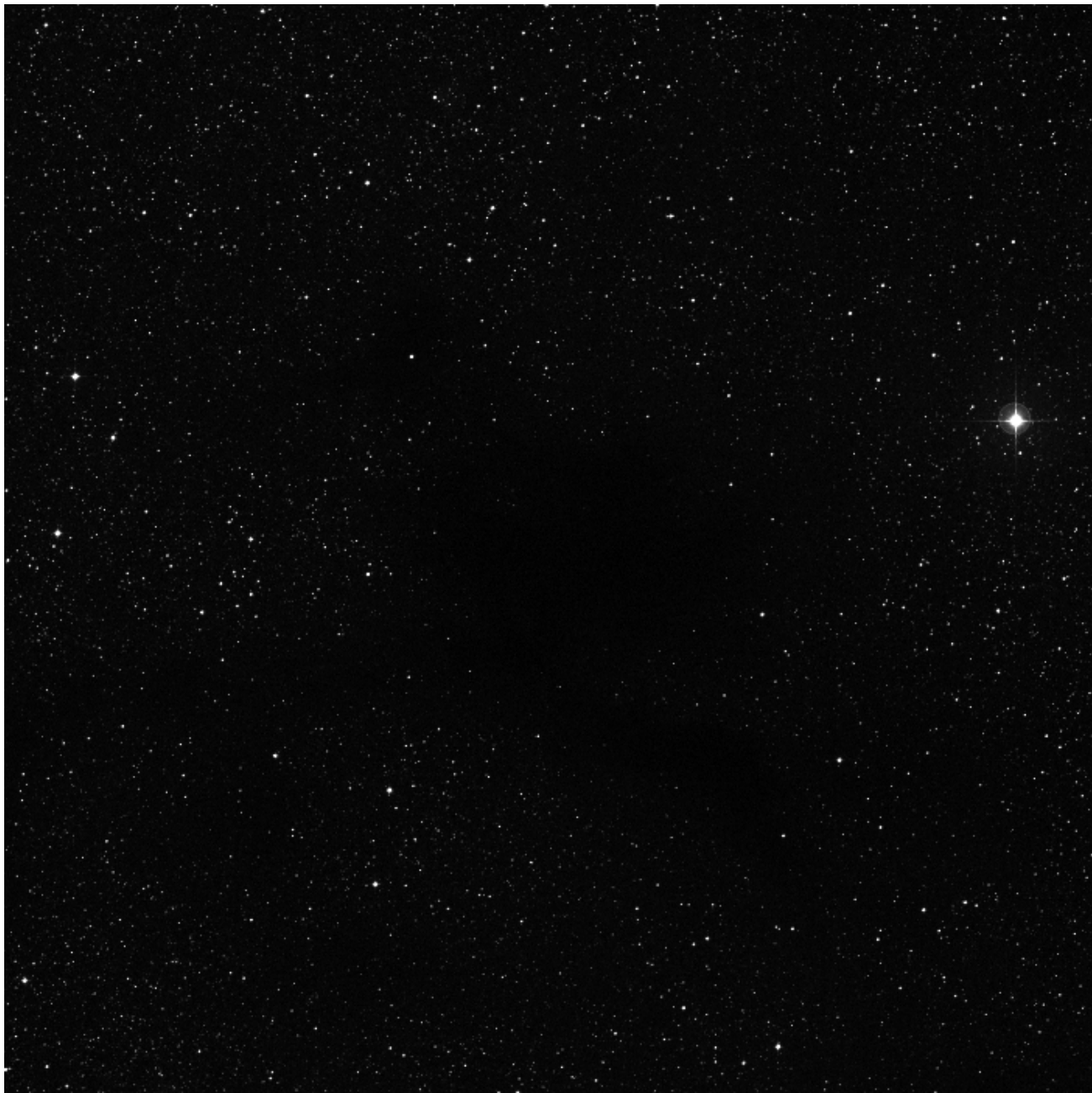
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 228	15 44 57.9	-34 31 00	240 x 20	6	60 x 60	165

SI 11



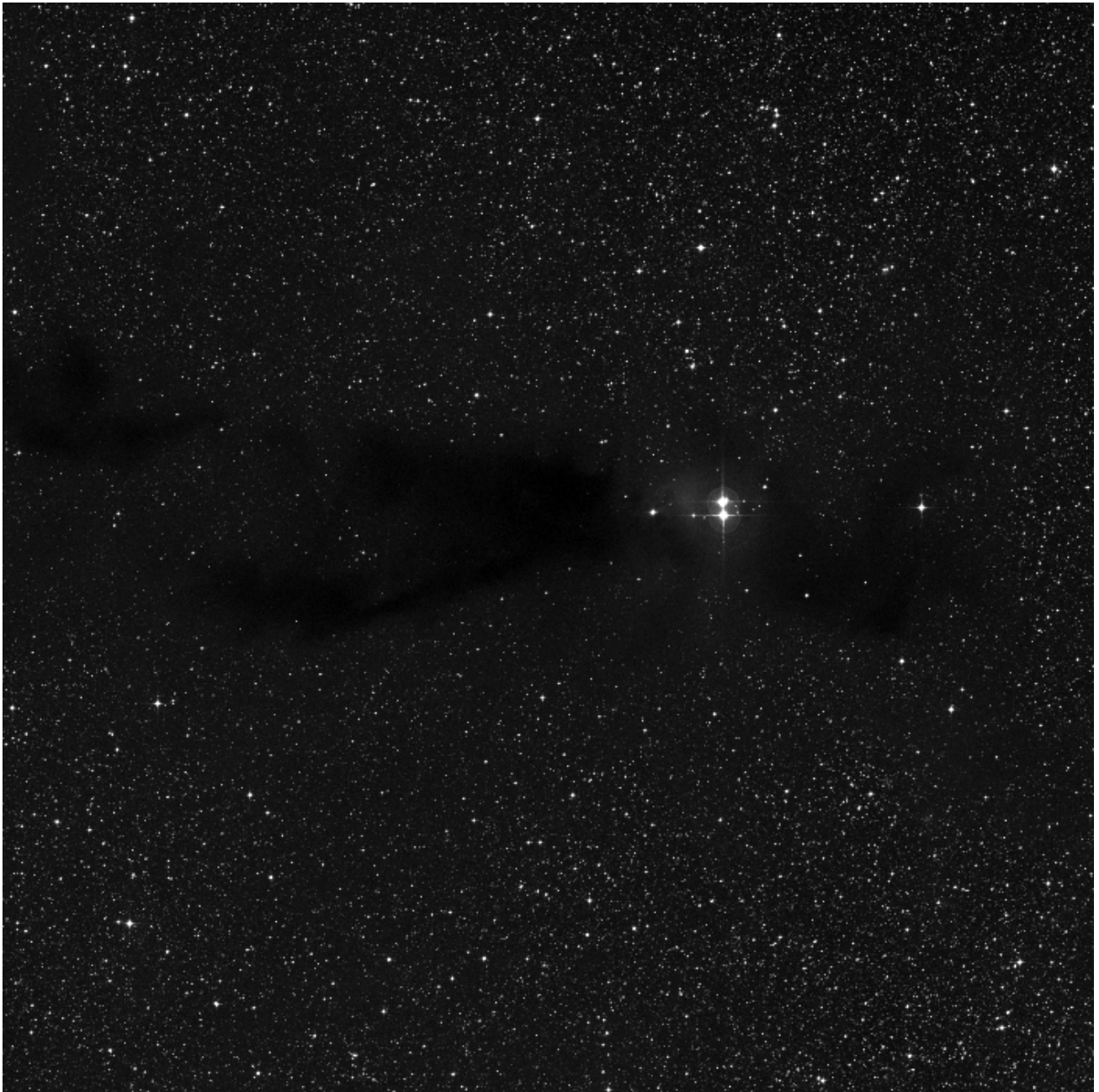
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
SI 11	15 57 00.0	-37 48 00	150 x 40	6	60 x 60	165

SI 7



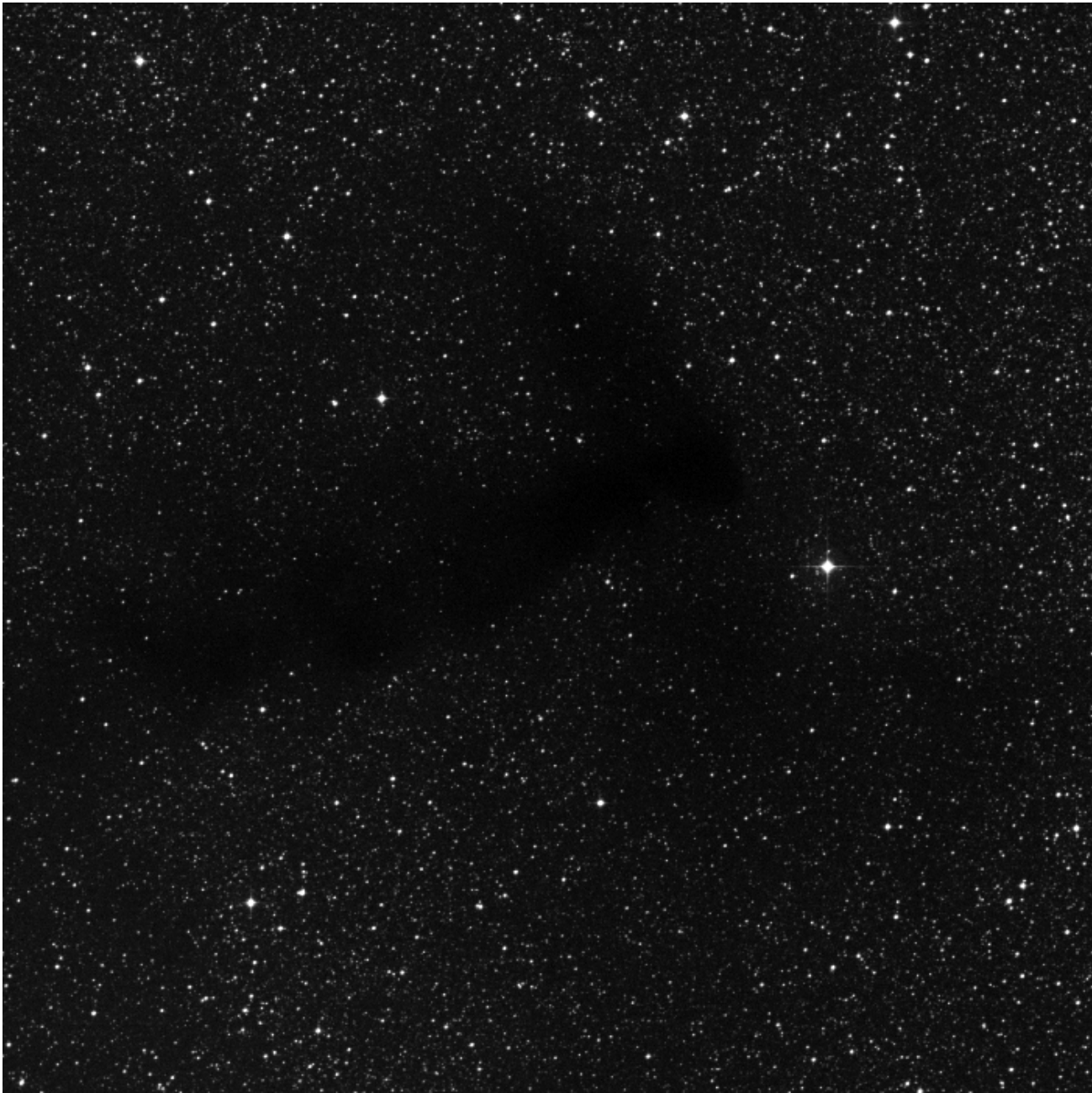
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
SI 7	16 01 48.0	-41 52 00	60 x 10	6	60 x 60	182

Be 149



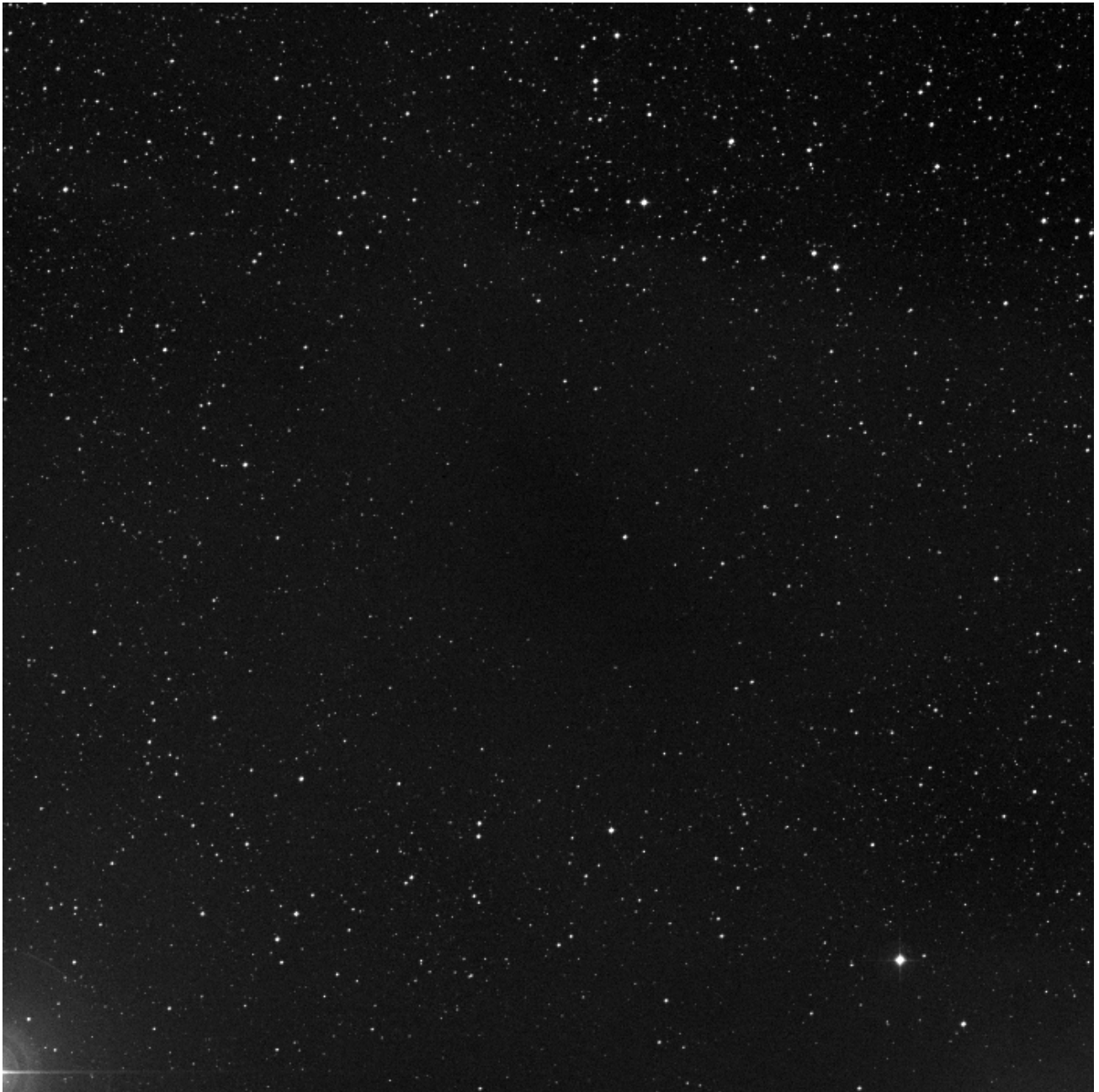
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Be 149	16 09 24.0	-39 08 00	60 x 12	6	60 x 60	165

Sl 8



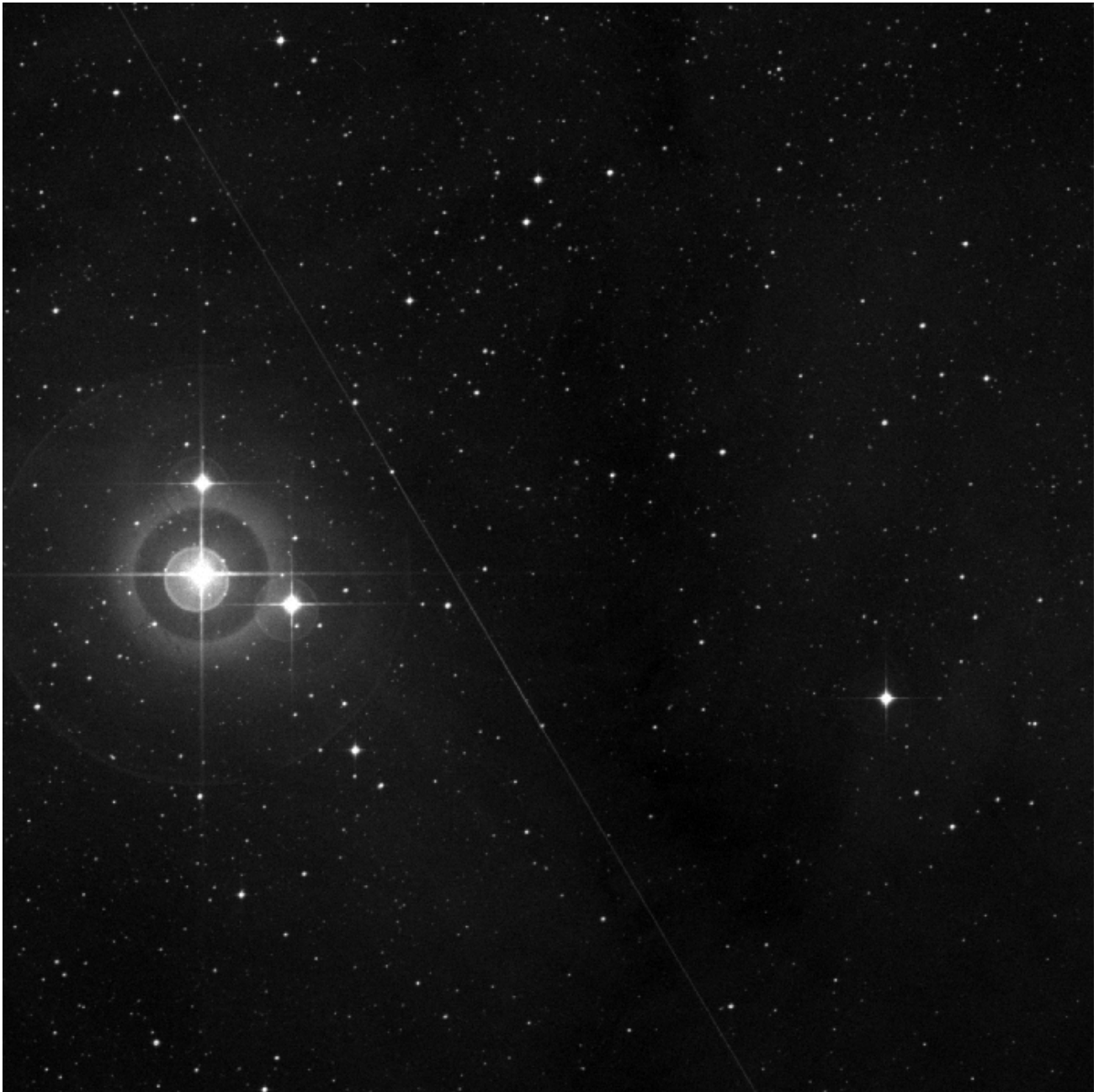
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Sl 8	16 14 12.0	-44 04 00	25 x 5	6	40 x 40	182

Barnard 41



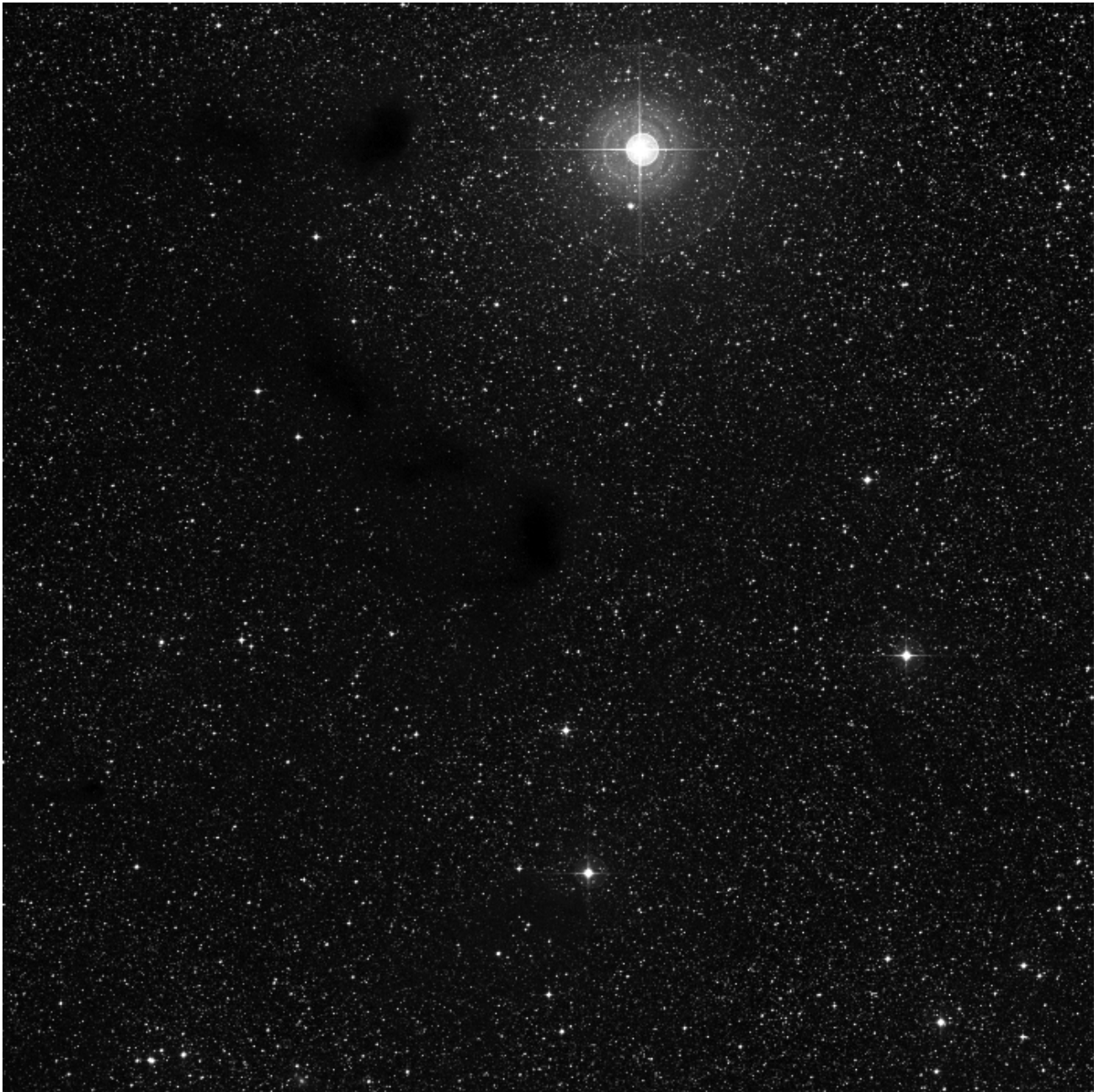
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 41	16 22 17.6	-19 38 00	40 x 40	3	50 x 50	147

Barnard 42



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 42	16 25 29.6	-23 26 00	20 x 6	6	30 x 30	147

Barnard 231



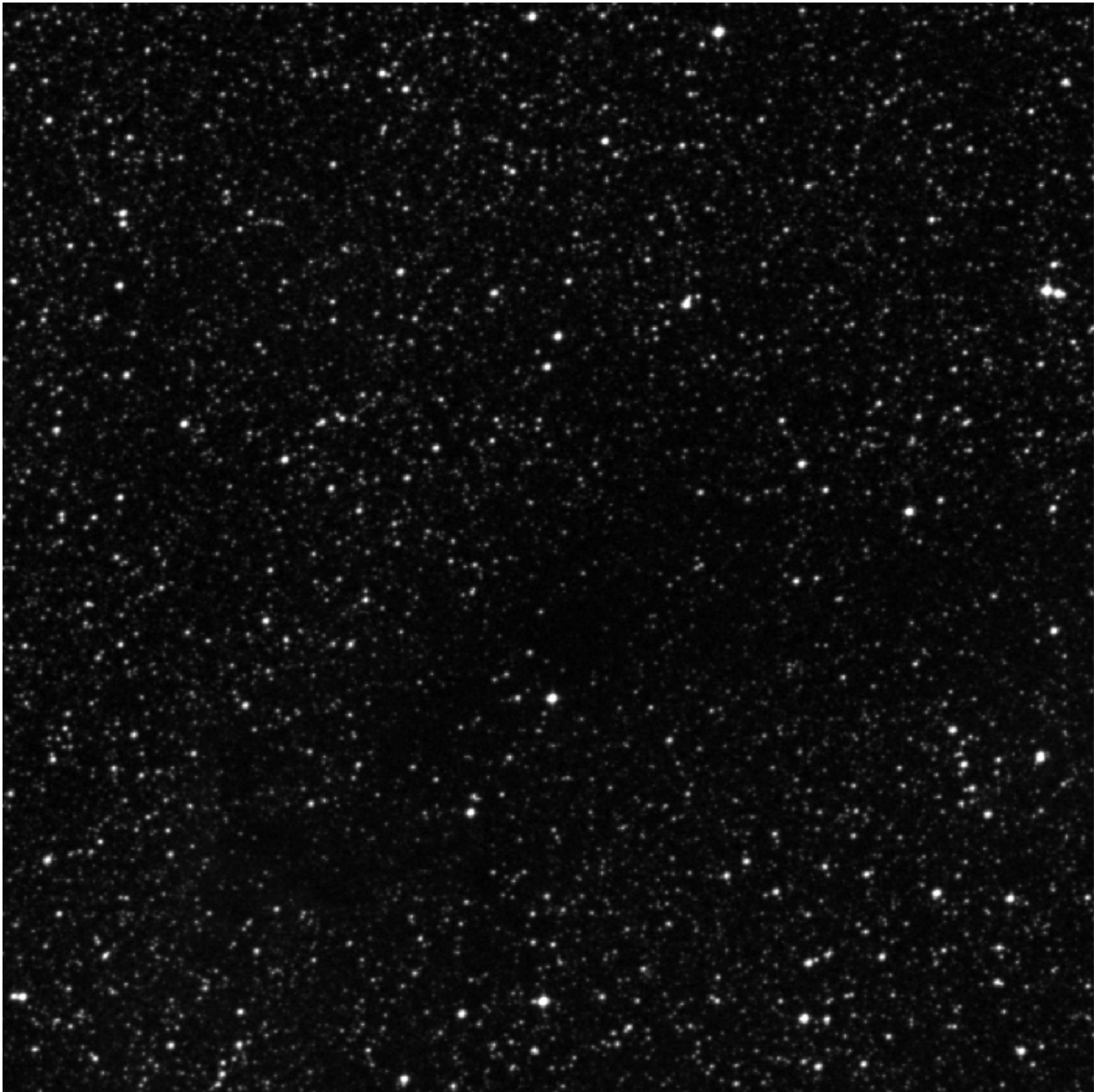
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 231	16 38 24.3	-35 25 00	50 x 40	6	60 x 60	164

Barnard 44



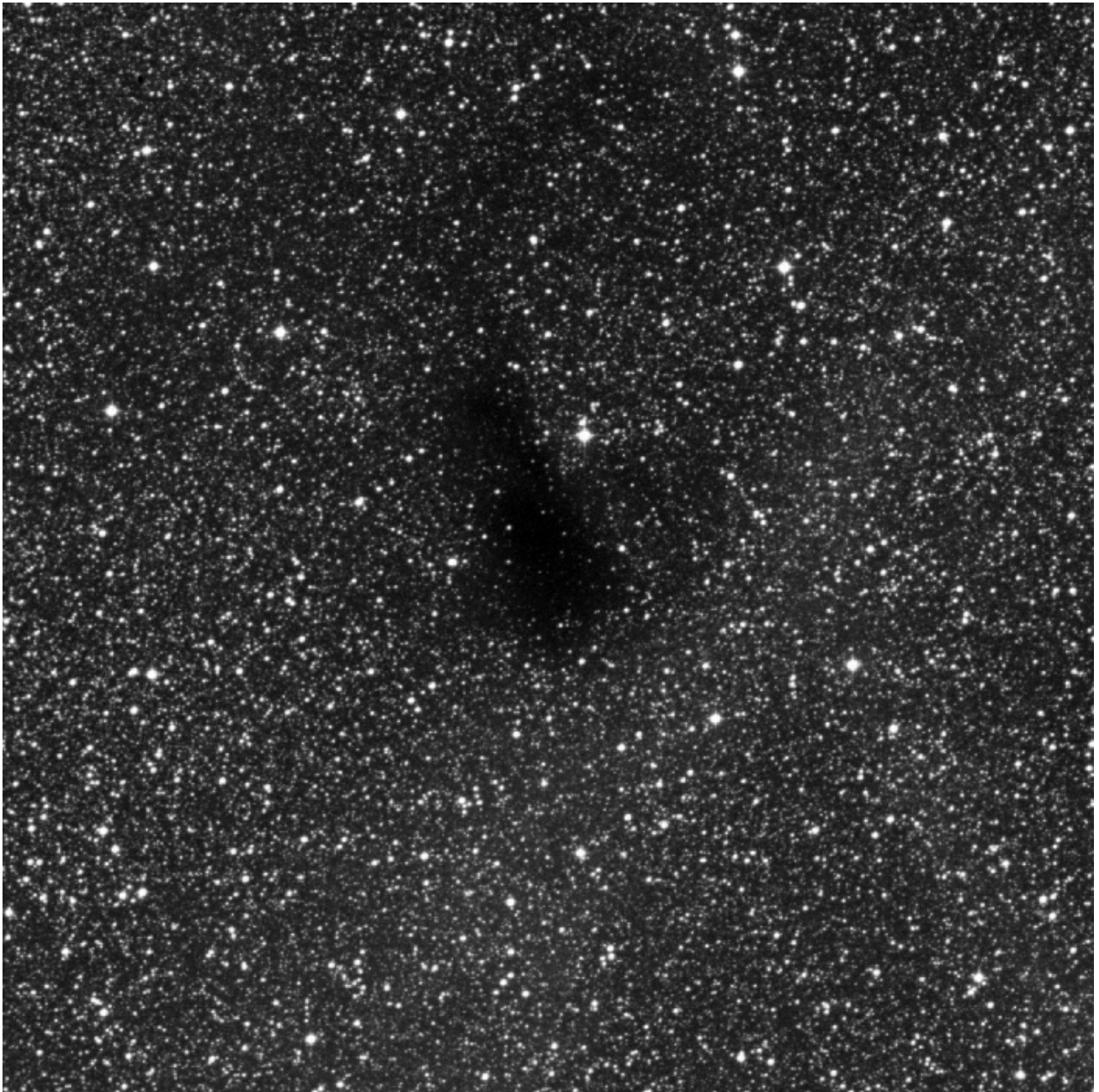
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 44	16 40 33.6	-24 04 00		5	60 x 60	146

Barnard 232



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 232	16 43 44.4	-39 49 00	10 x 10		20 x 20	164

Barnard 44a



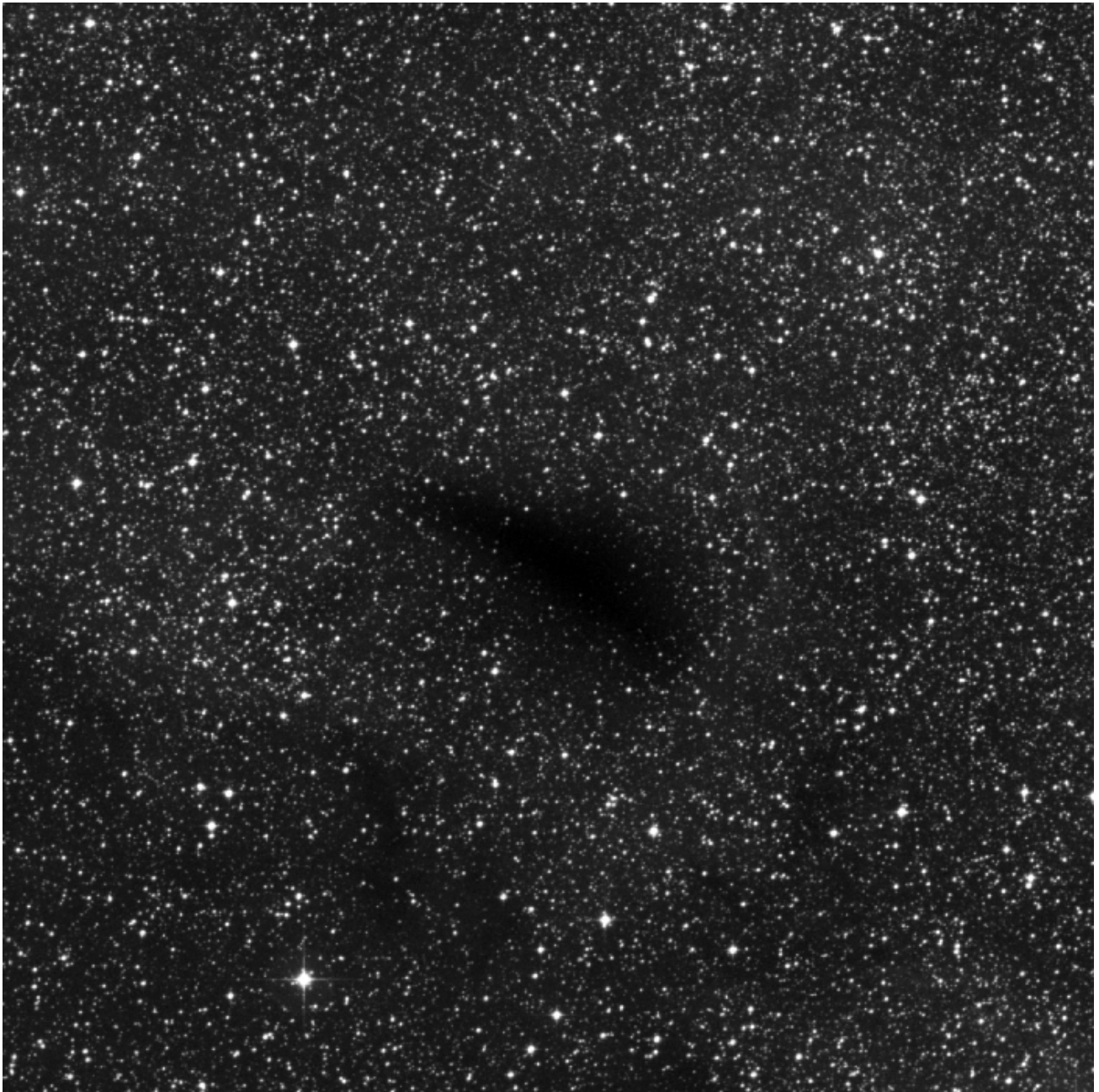
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 44a	16 44 45.0	-40 20 00	5 x 5	5	30 x 30	164

Barnard 233



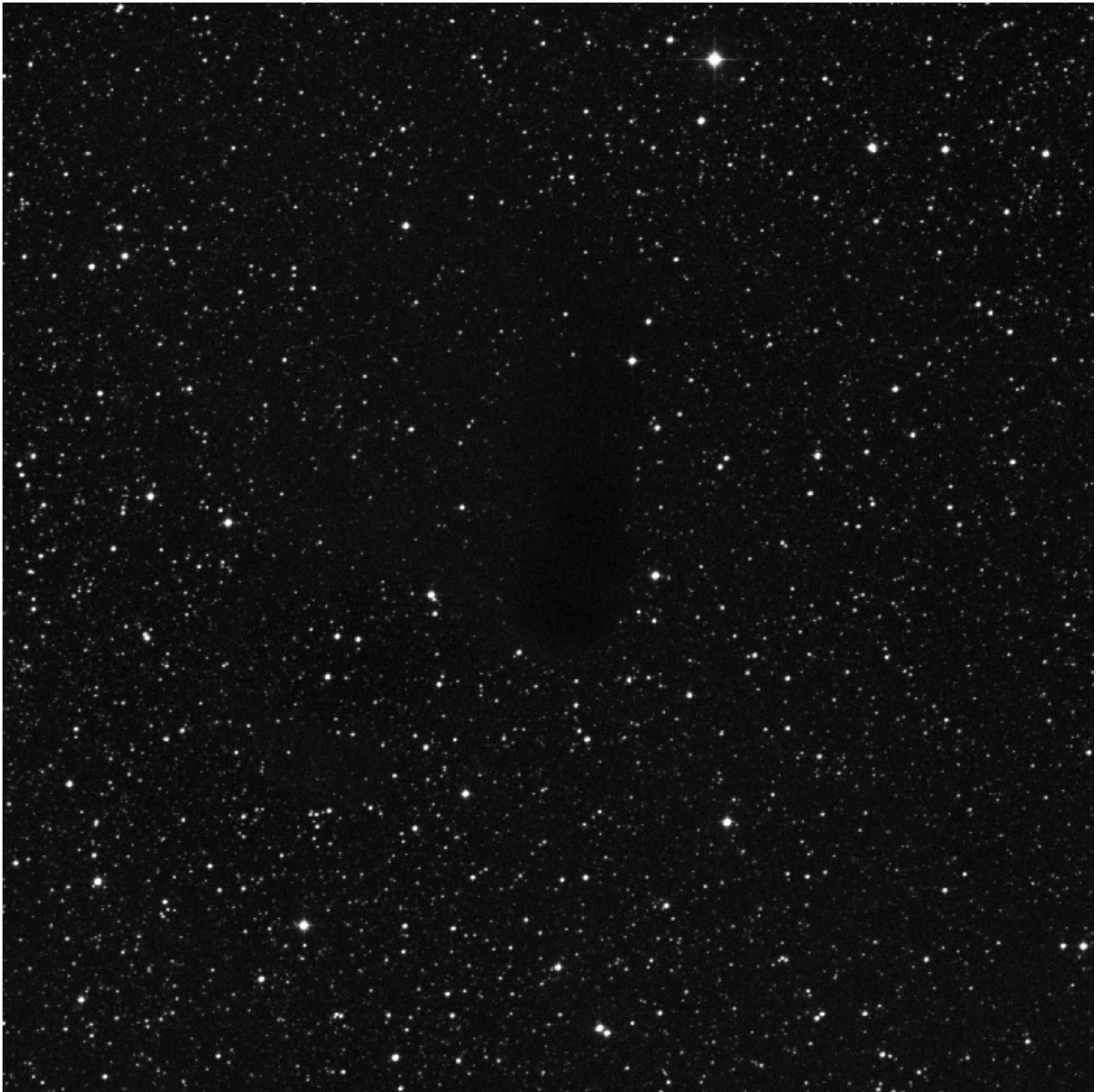
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 233	16 44 45.4	-35 24 00	55 x 20	5	50 x 50	164

Barnard 235



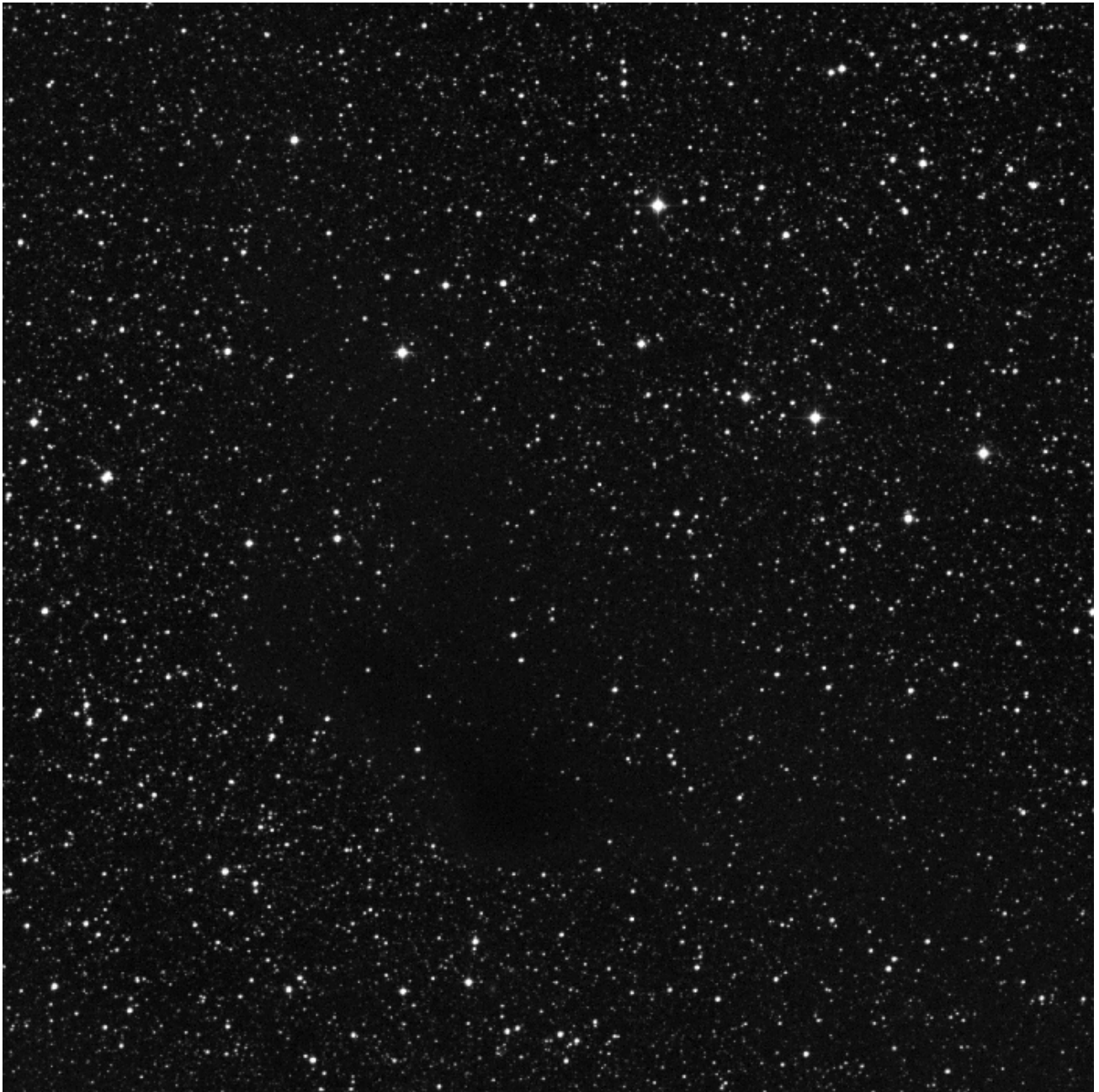
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 235	16 47 06.4	-44 29 00	7 x 7	6	30 x 30	181

Barnard 238



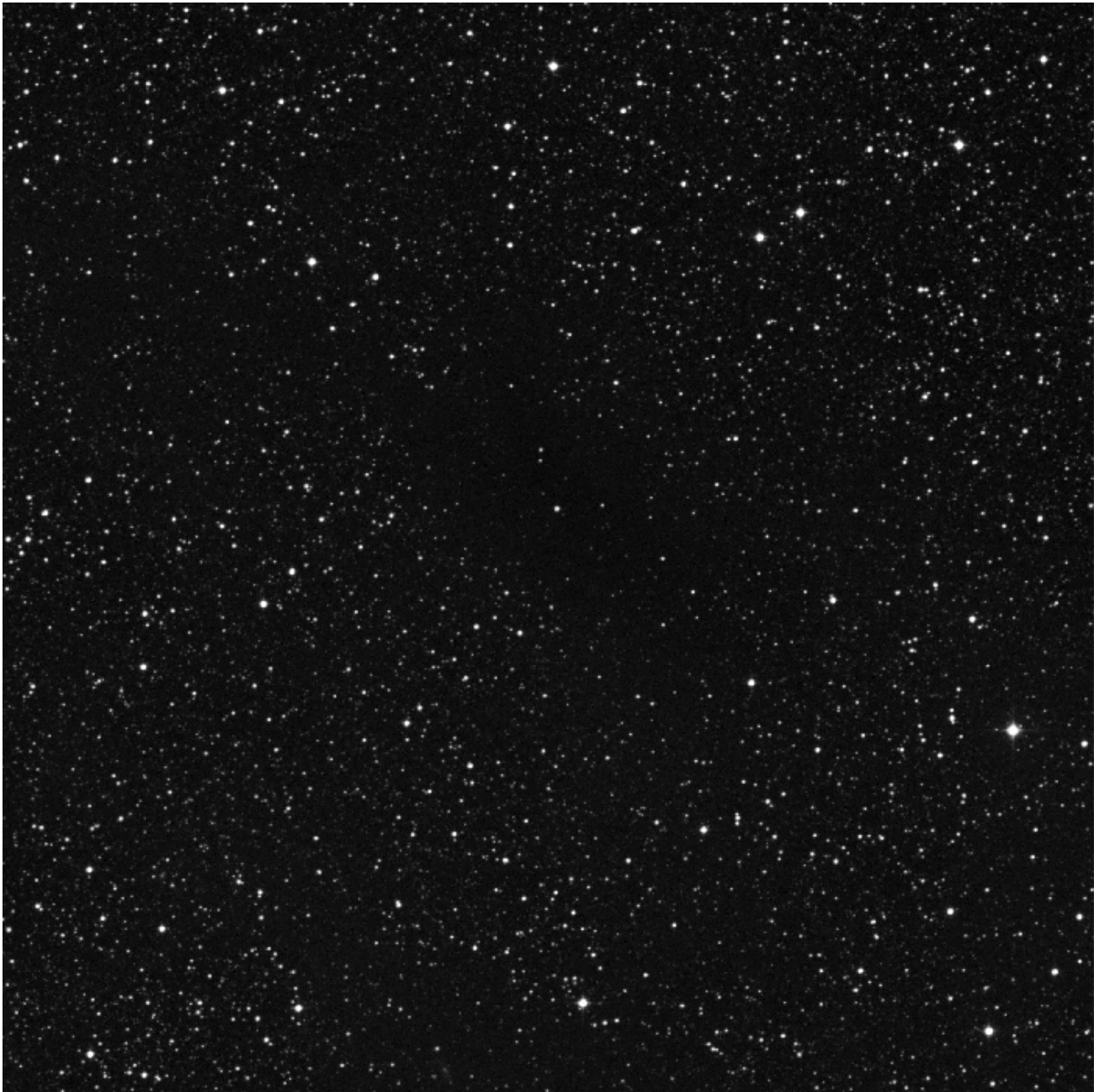
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 238	16 52 21.8	-23 08 00	13 x 13	6	30 x 30	146

Barnard 46



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 46	16 57 12.9	-22 44 00	12 x 12	6	30 x 30	146

Barnard 47



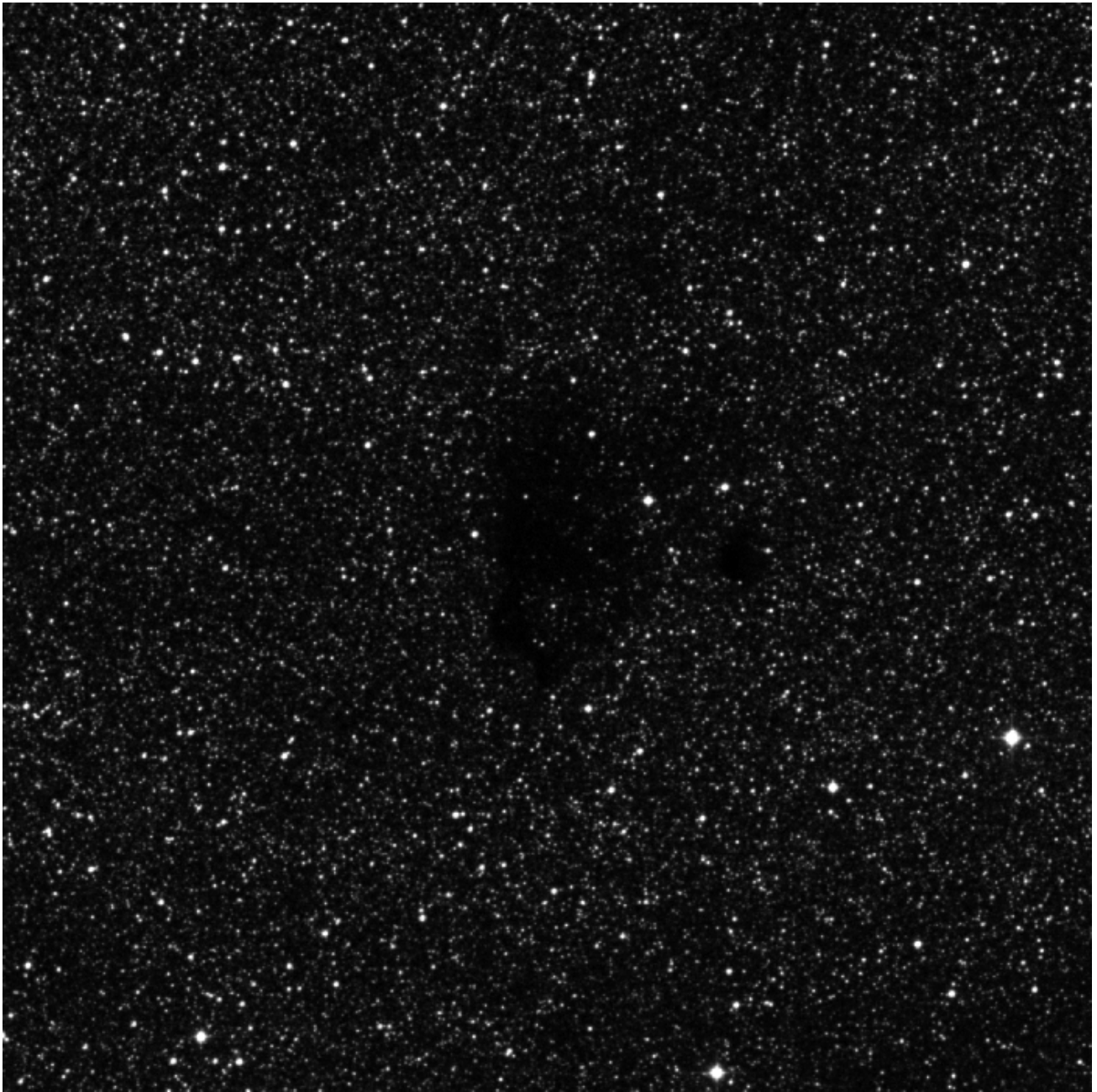
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 47	16 59 42.9	-22 39 00	15 x 15	5	30 x 30	146

Barnard 48



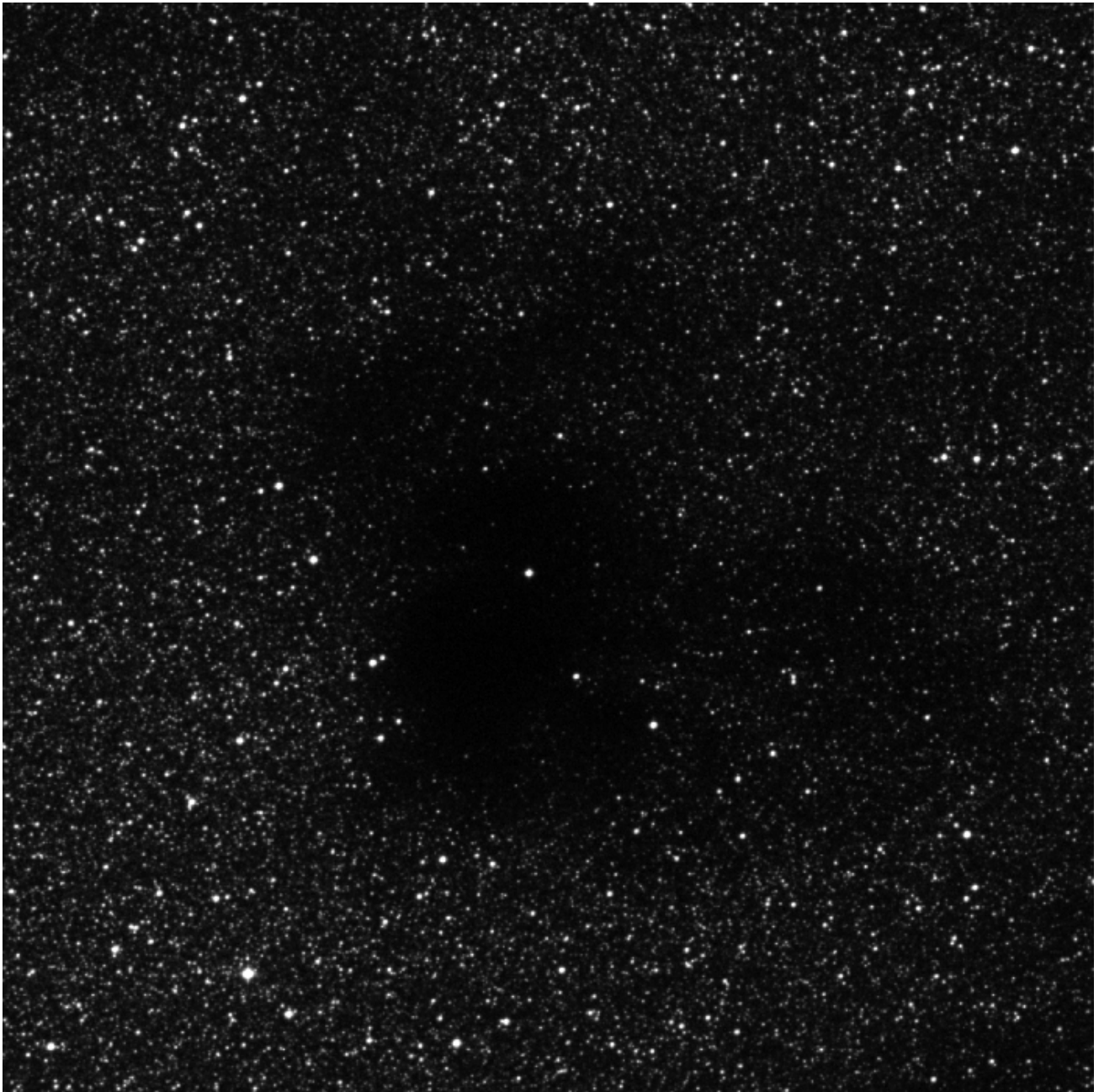
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 48	17 01 42.0	-40 41 00	40 x 15	5	50 x 50	164

Barnard 49



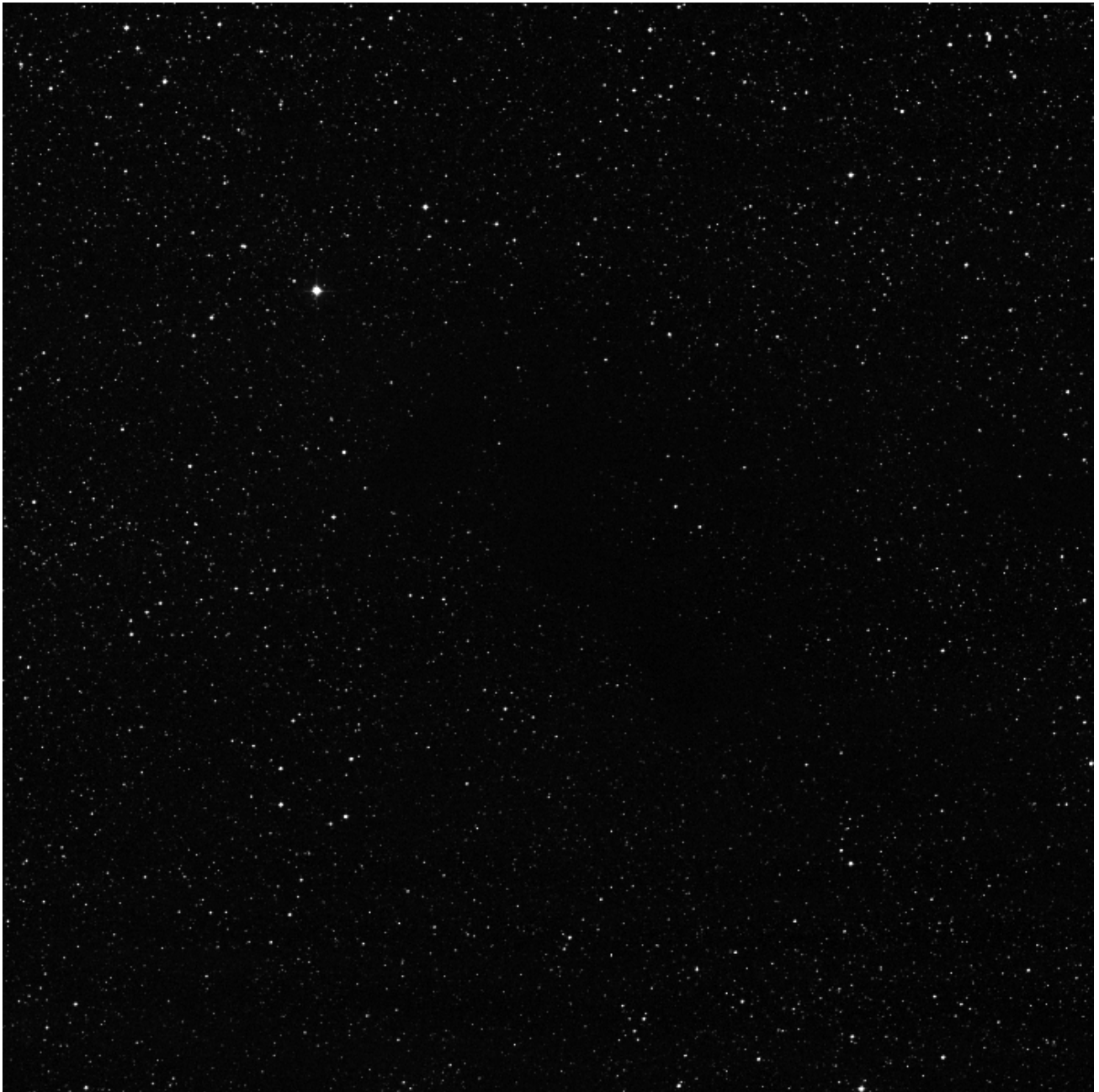
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 49	17 02 39.5	-33 16 00		3	30 x 30	164

Barnard 50



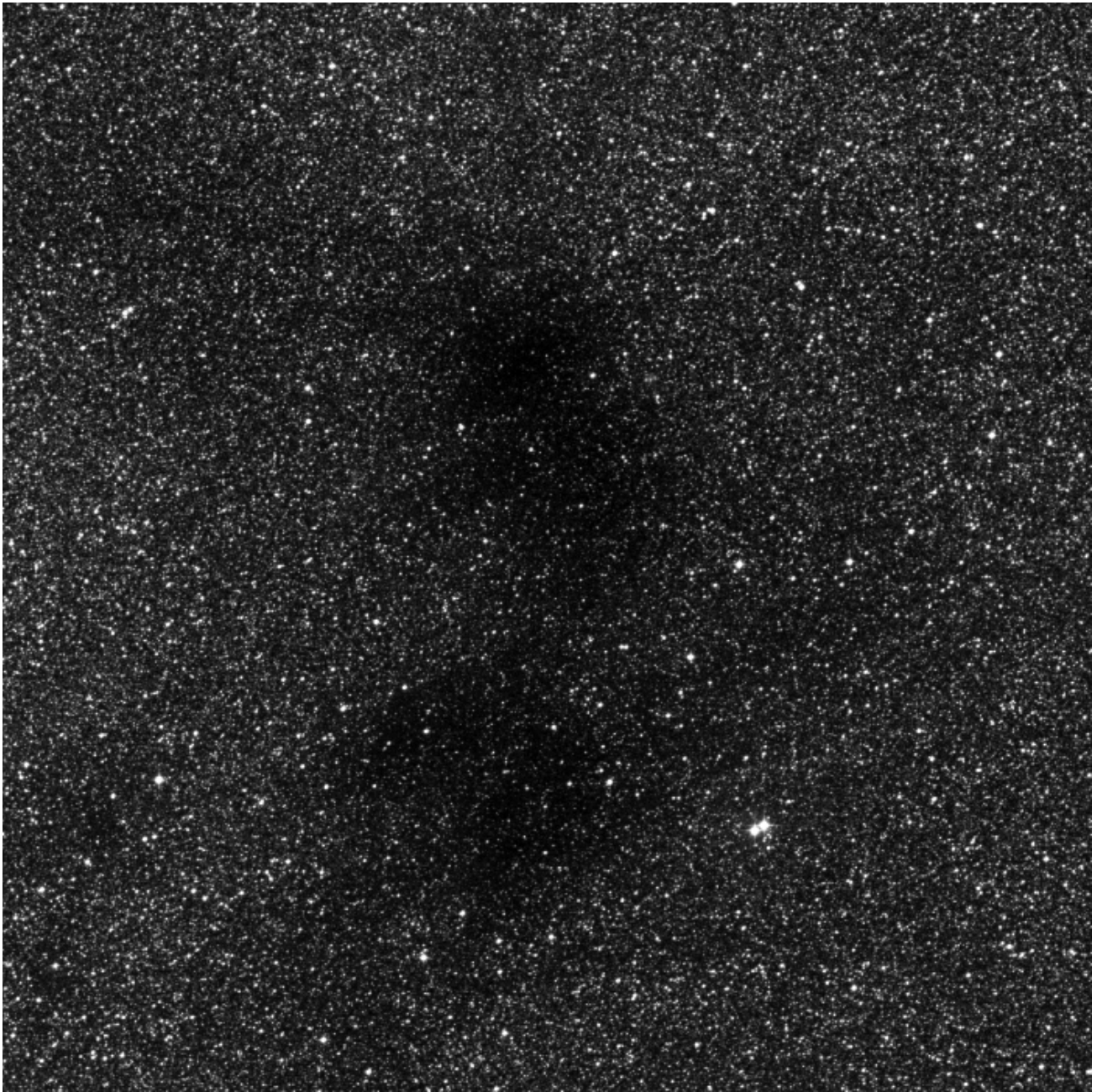
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 50	17 02 54.1	-34 23 00	15 x 15	6	30 x 30	164

Barnard 51



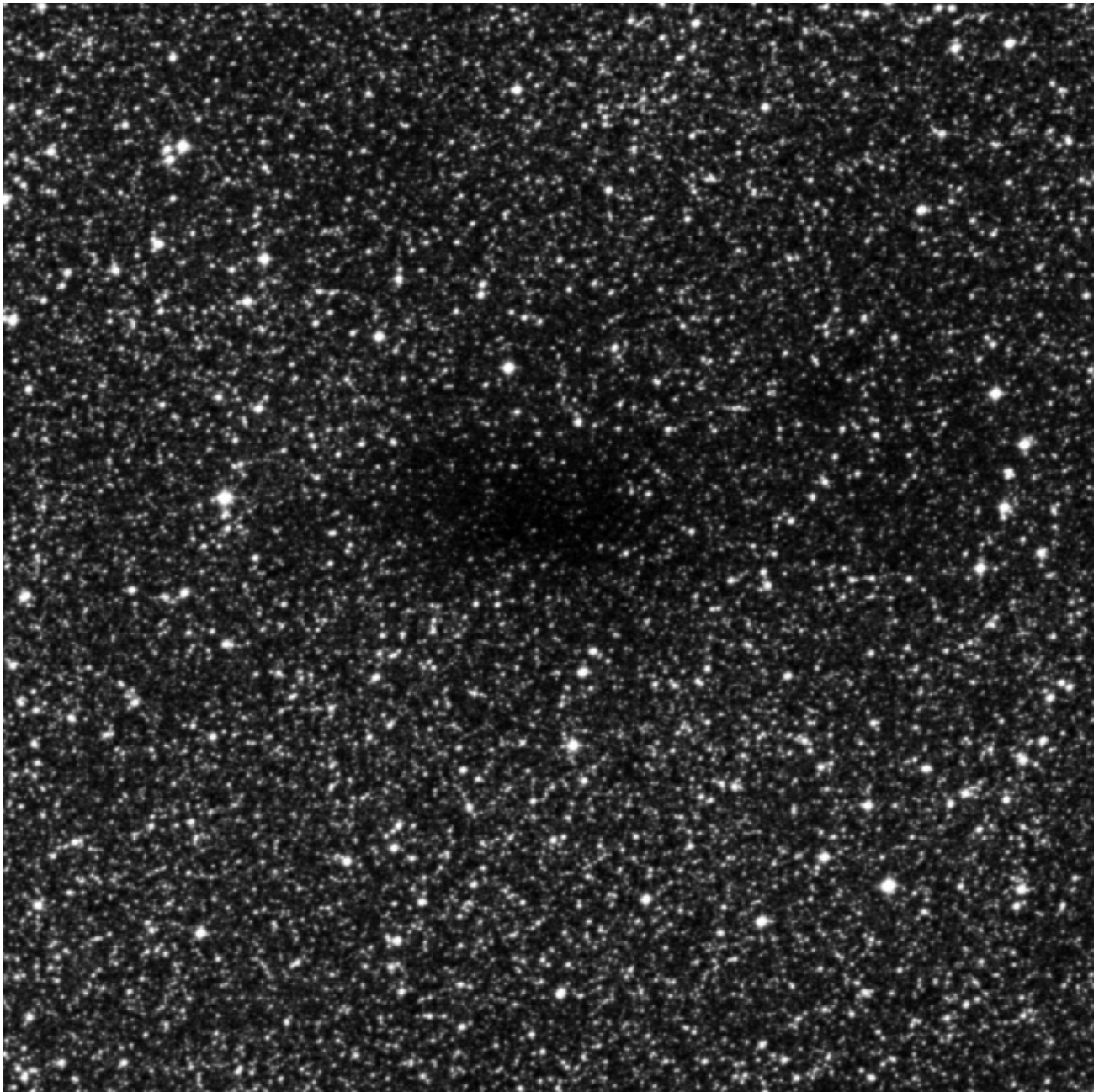
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 51	17 04 44.0	-22 16 00	20 x 20	6	50 x 50	146

Barnard 53



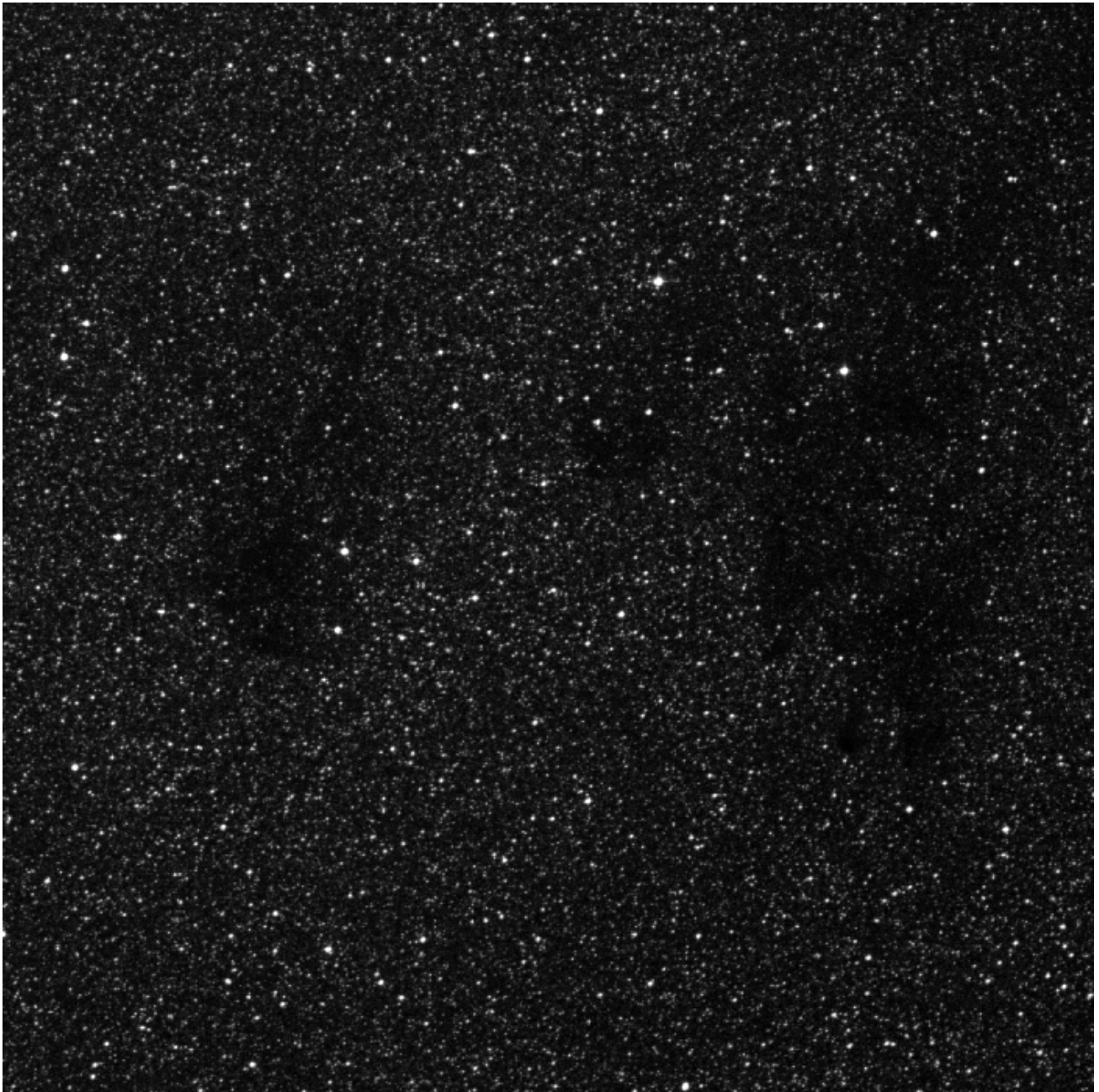
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 53	17 06 11.3	-33 35 00	30 x 10	4	40 x 40	164

Barnard 54



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 54	17 06 34.0	-34 15 00	5 x 5	5	20 x 20	164

Barnard 55-56



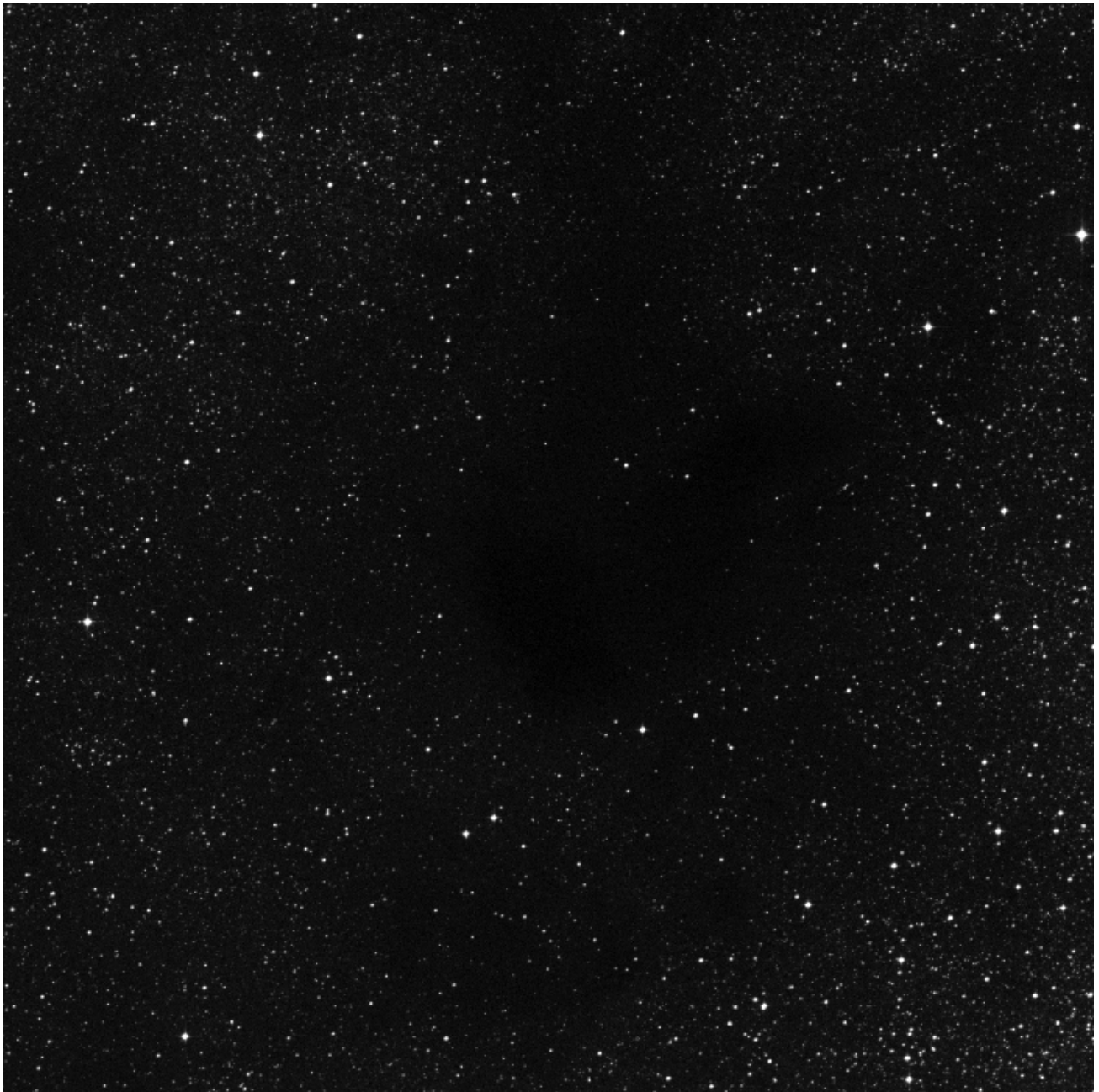
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 55	17 07 33.1	-32 00 00	16 x 16	5	30 x 30	164
Barnard 56	17 08 48.6	-32 06 00	3 x 3	5		

Barnard 244



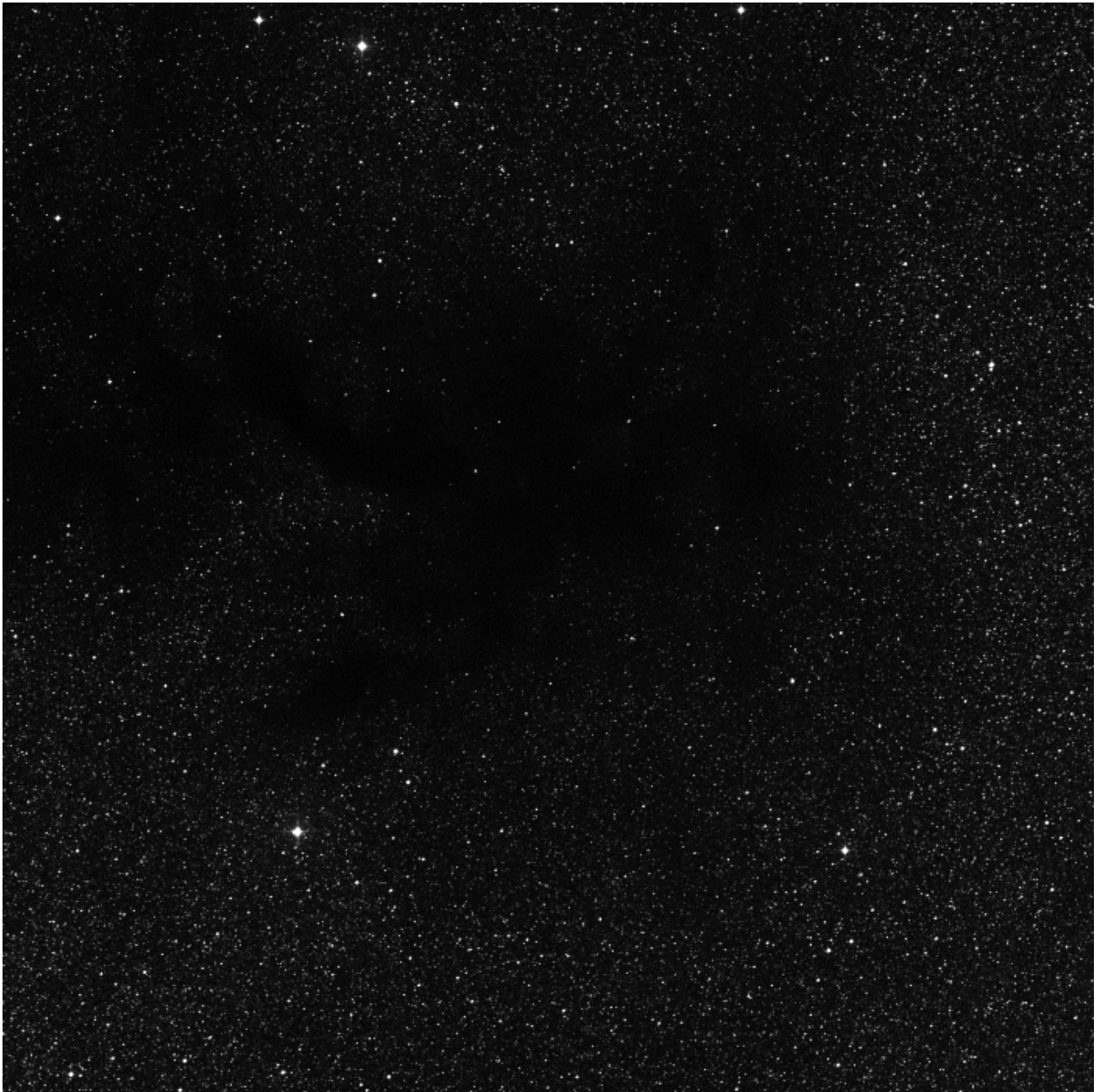
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 244	17 10 51.8	-28 25 00	30 x 20	5	40 x 40	146

Barnard 58



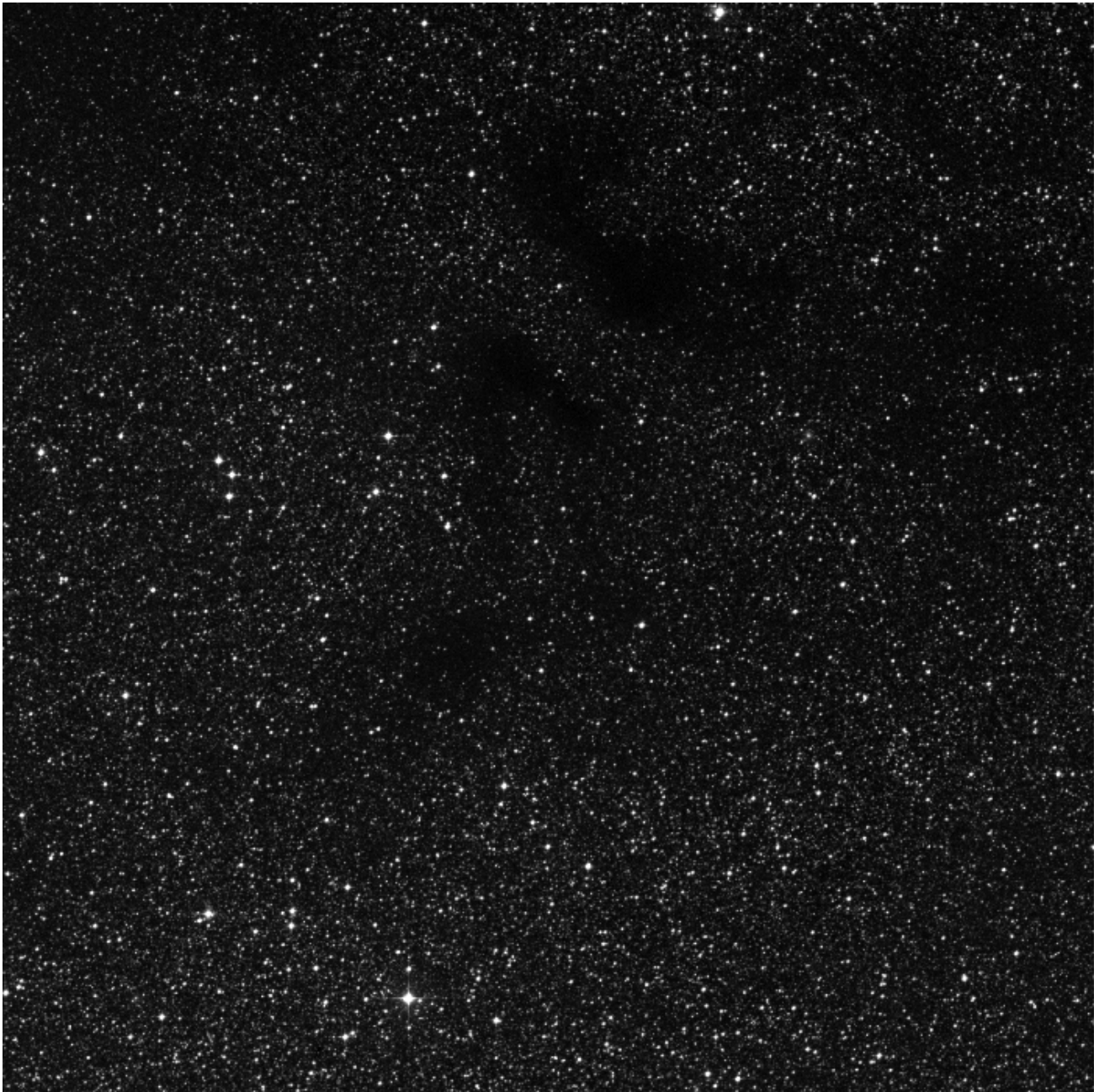
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 58	17 11 12.2	-40 25 00	30 x 20	6	40 x 40	164

Barnard 59



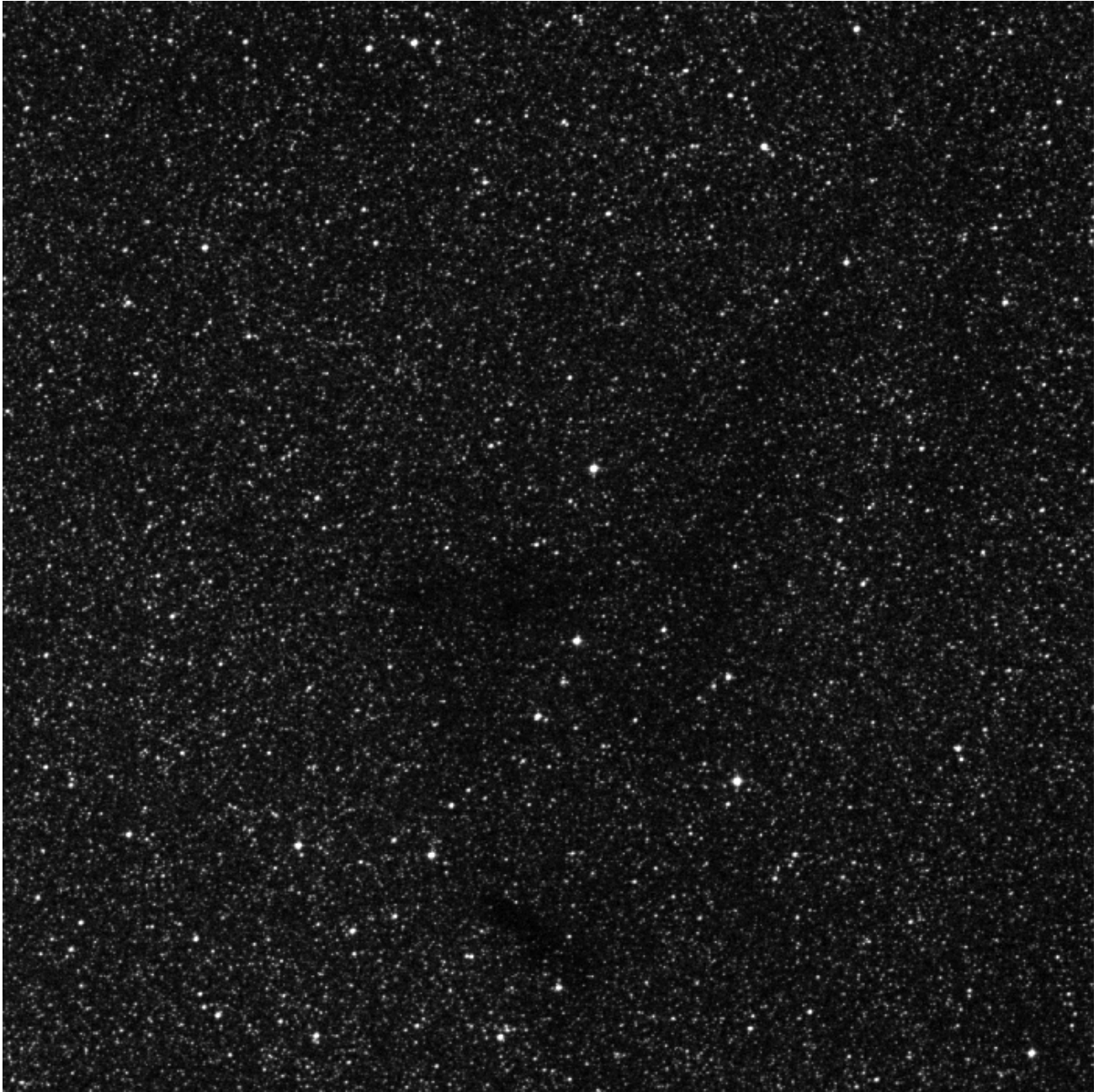
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 59	17 11 23.6	-27 30 00	60 x 60	5	60 x 60	146

Barnard 60-246



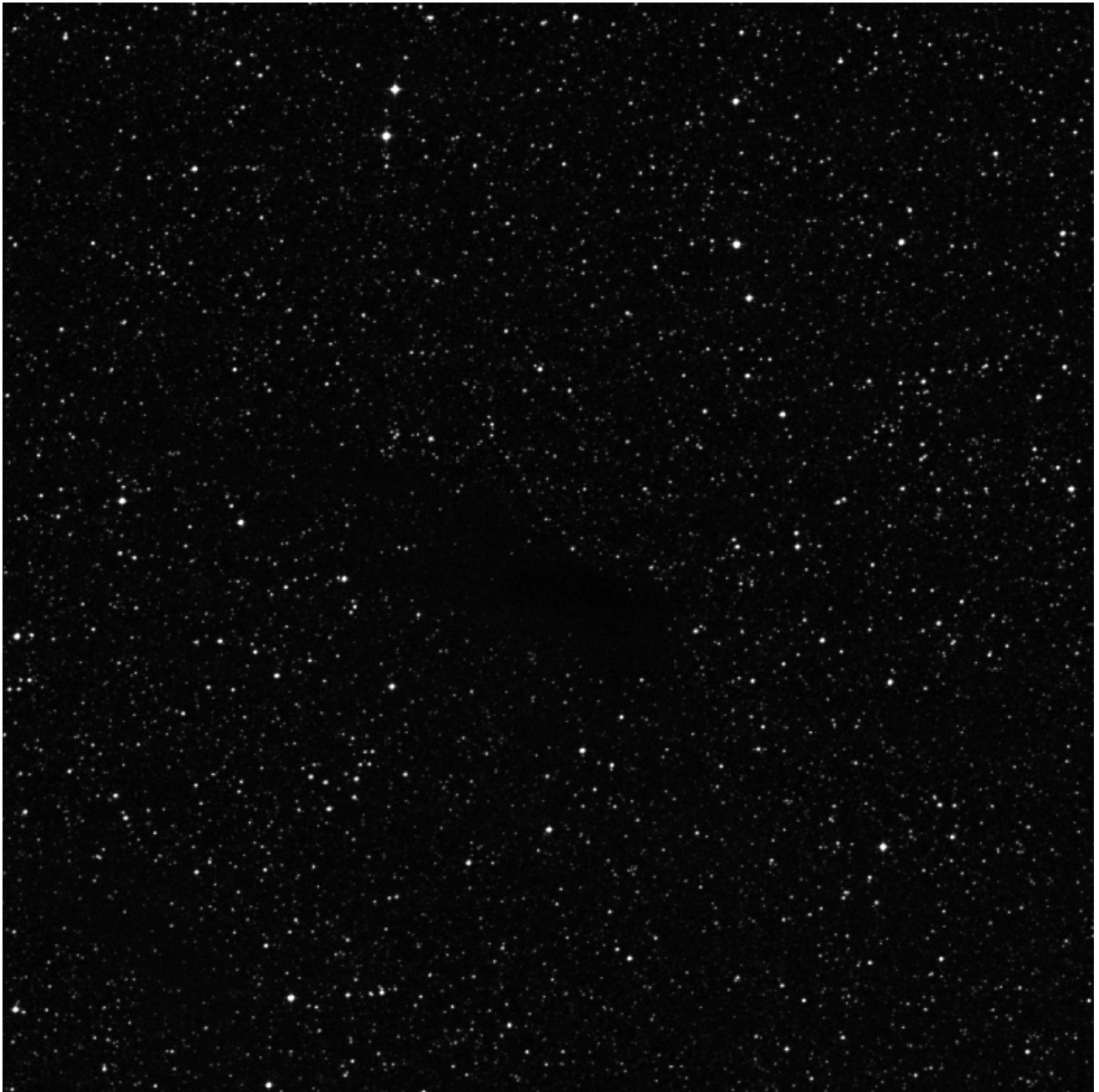
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 60	17 11 51.2	-22 26 00	13 x 13	3	40 x 40	146
Barnard 246	17 12 01.9	-22 39 00	20 x 20	3		

Barnard 248-249



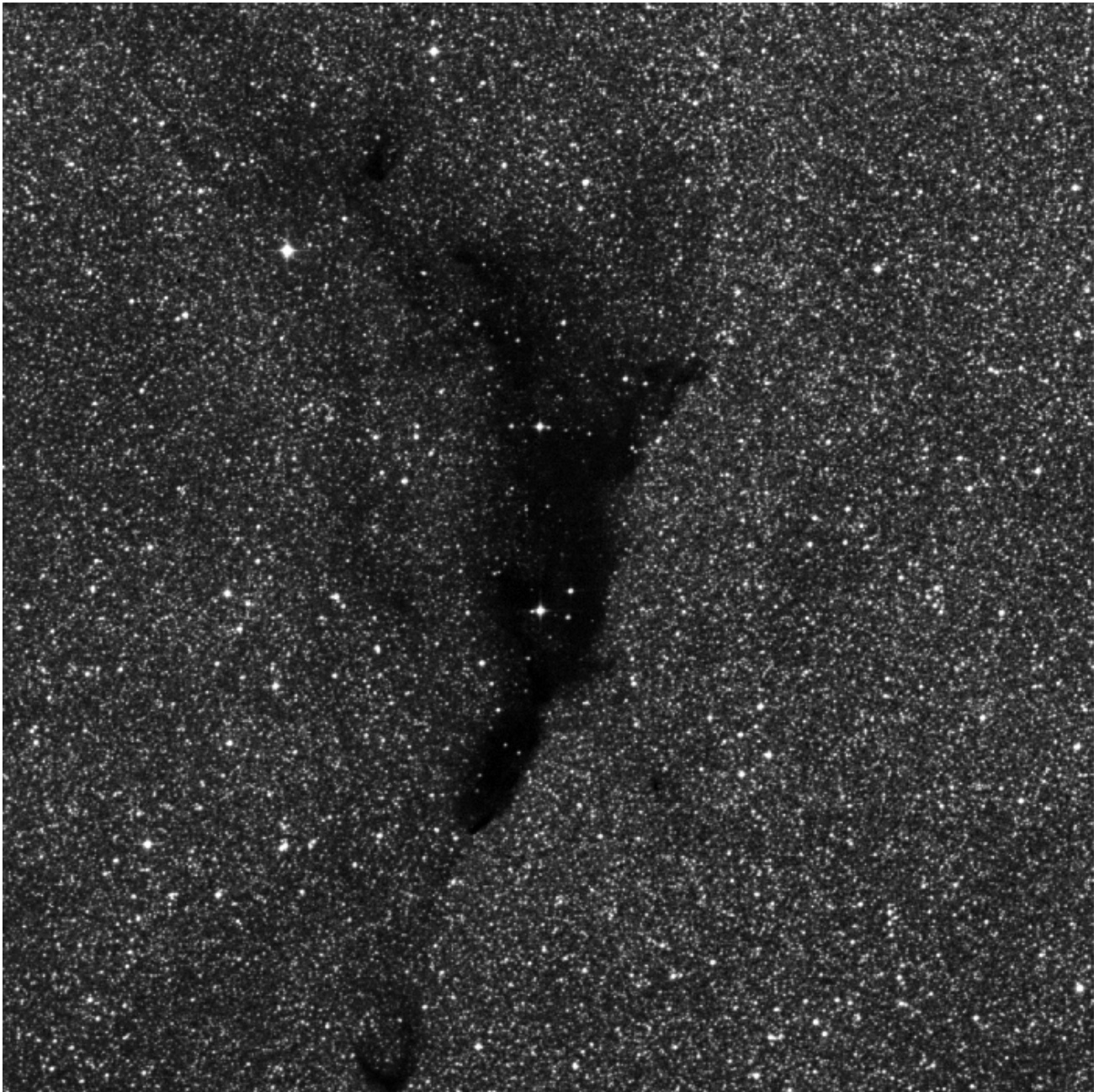
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 248	17 13 04.2	-28 59 00	10 x 3	5	30 x 30	146
Barnard 249	17 13 04.8	-29 09 00	5.0 x 0.3	5		

Barnard 61



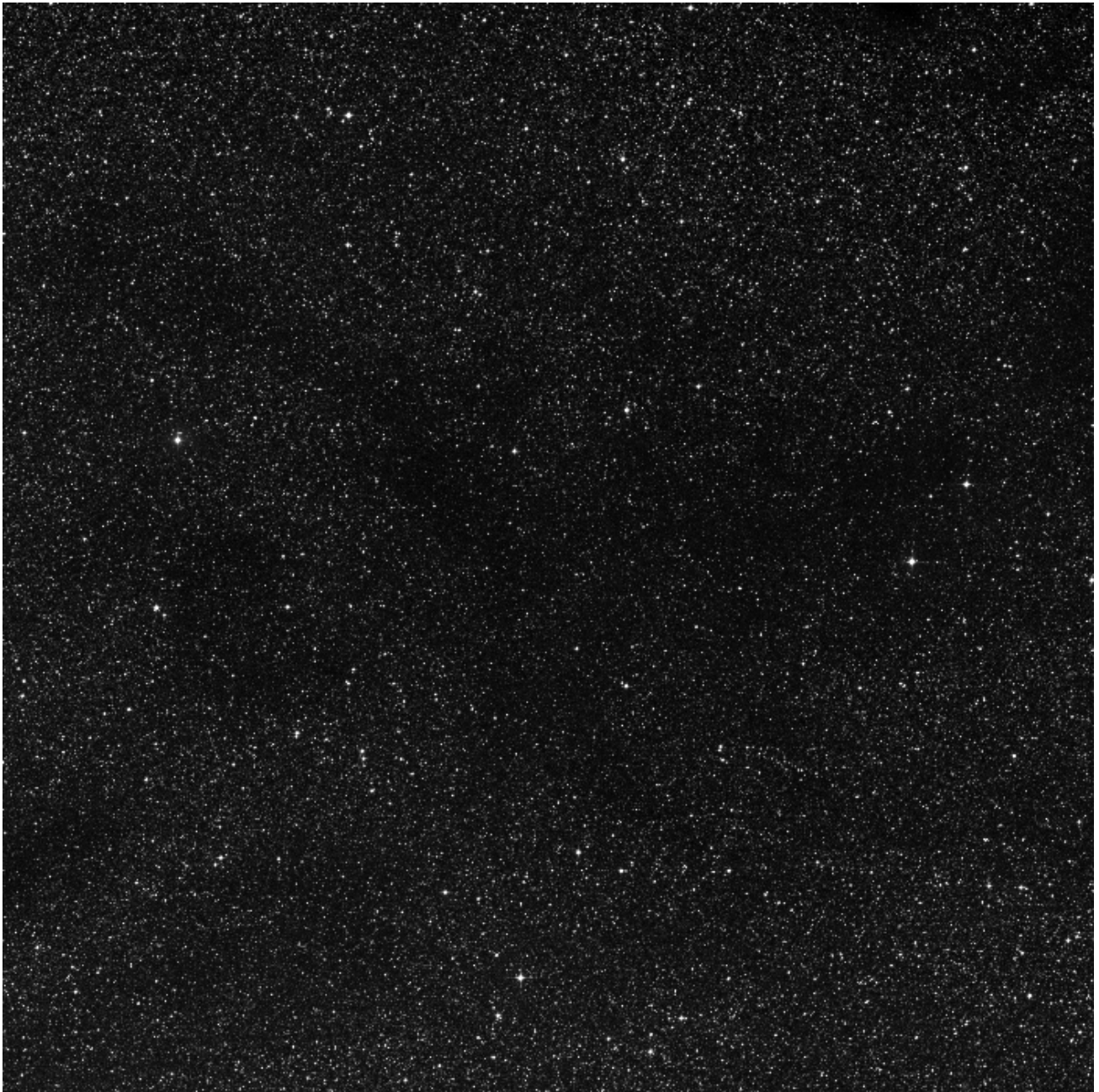
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 61	17 14 59.9	-20 29 00	10 x 4	6	30 x 30	146

Barnard 252



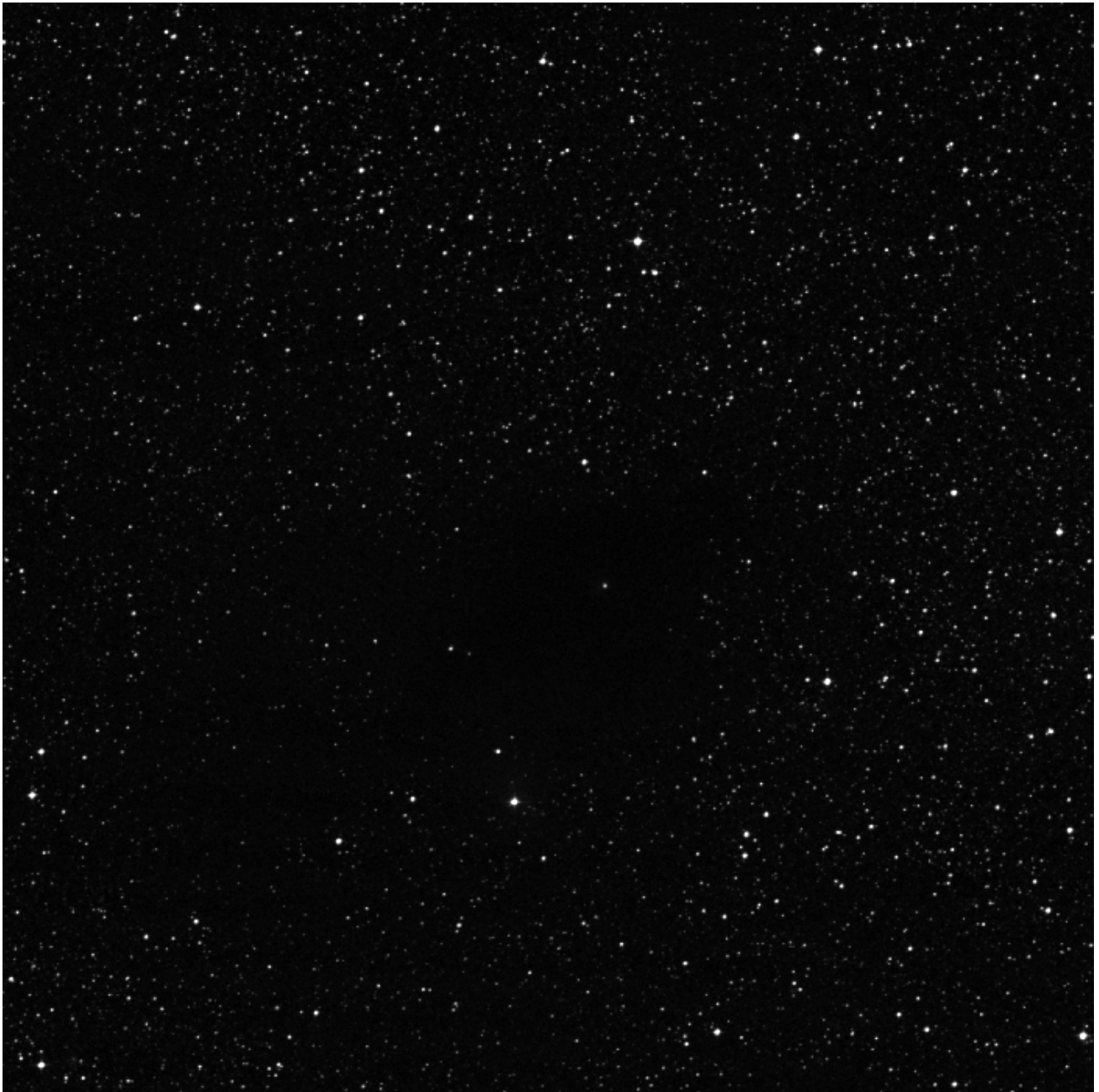
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 252	17 15 18.5	-32 09 00	20 x 5	5	30 x 30	164

Barnard 253



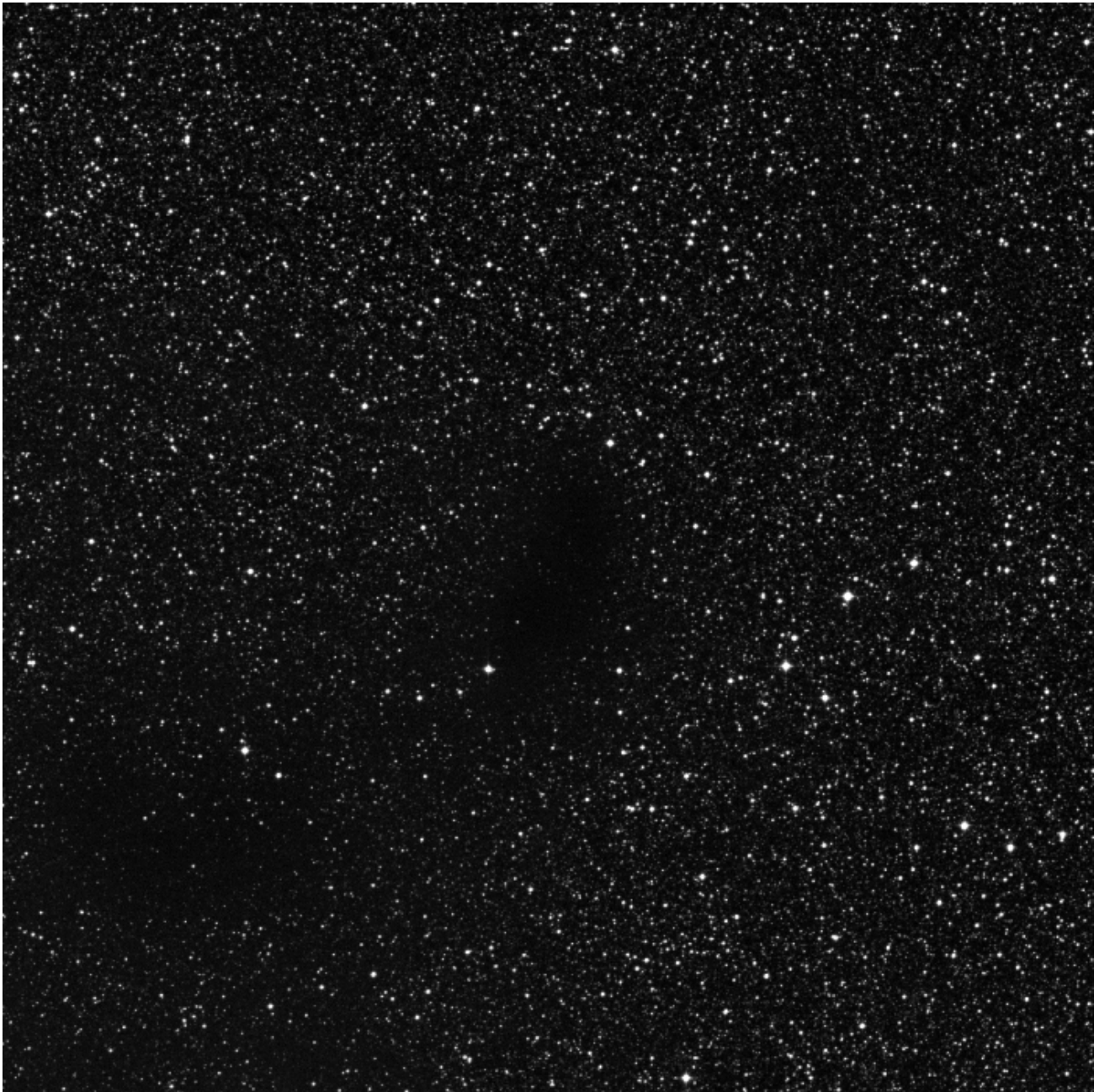
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 253	17 15 31.8	-22 34 00	60 x 60		60 x 60	146

Barnard 62



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 62	17 16 12.3	-20 53 00	19 x 19	6	30 x 30	146

Barnard 64



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 64	17 17 18.9	-18 29 00	20 x 20	6	40 x 40	146

Barnard 65-66-67



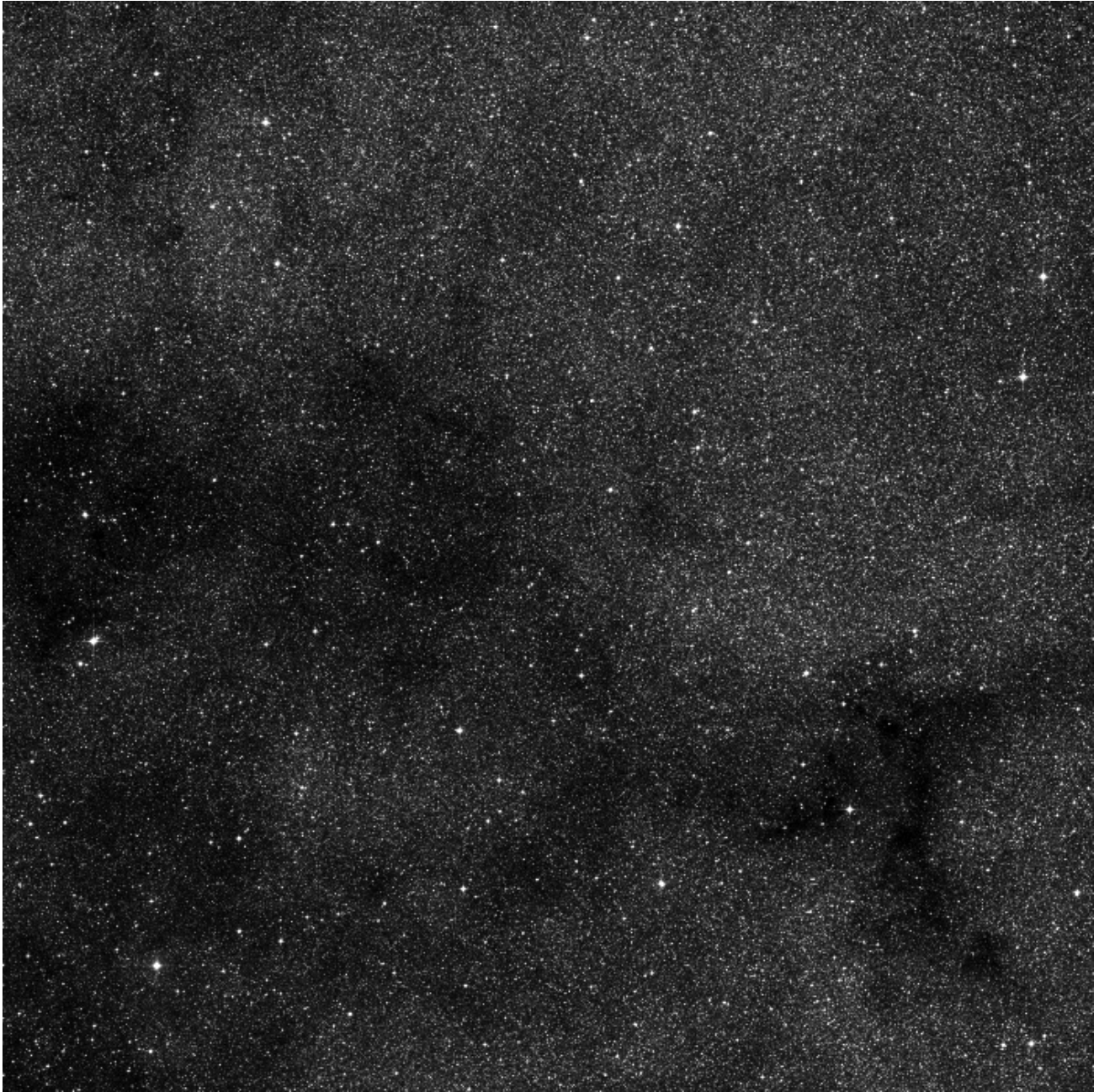
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 65	17 19 36.4	-26 42 00	12 x 12	6	60 x 60	146
Barnard 66	17 19 57.1	-26 54 00	8 x 8	6		
Barnard 67	17 20 57.1	-26 52 00		6		

LDN 1710



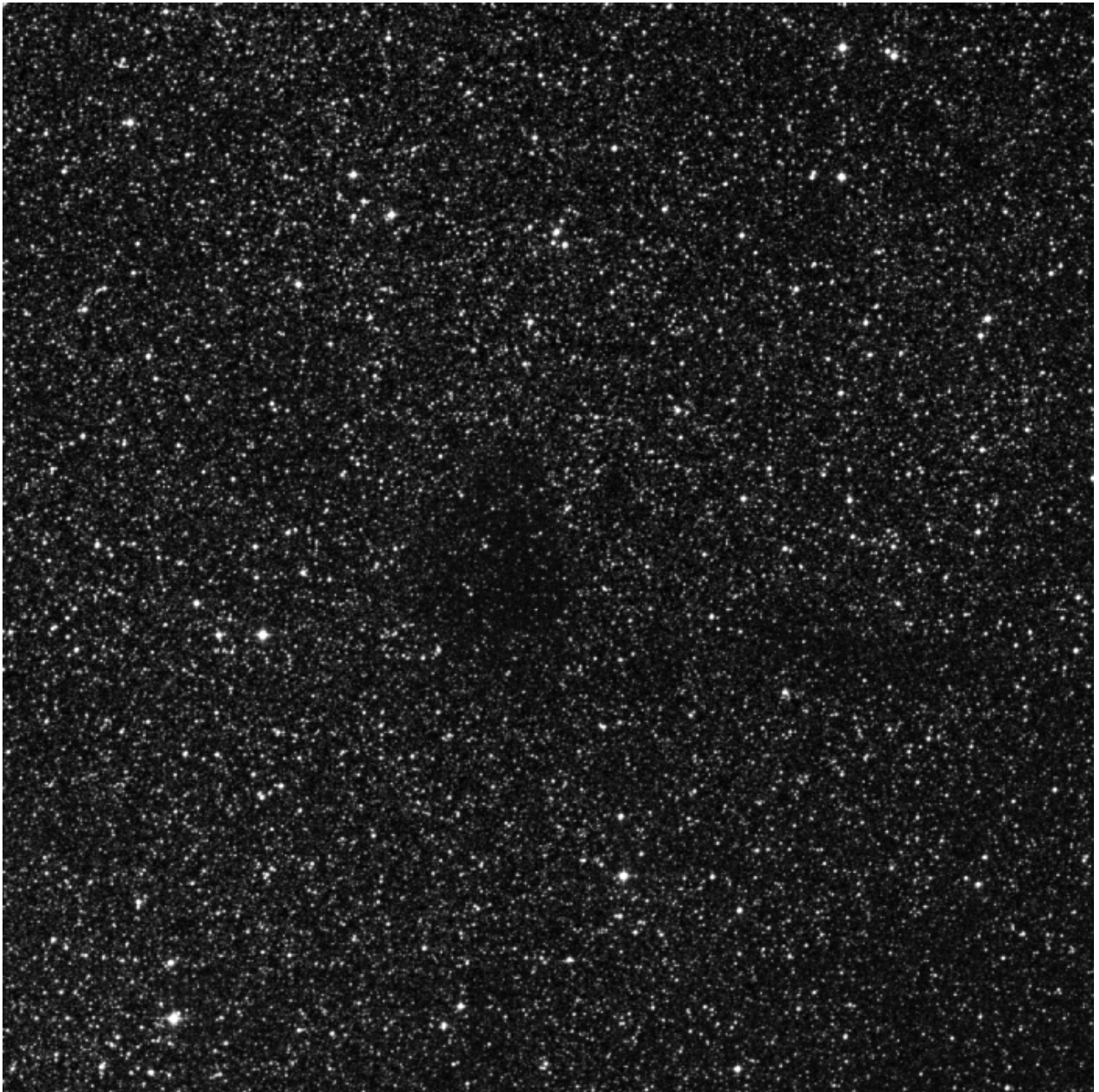
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
LDN 1710	17 20 42.0	-31 57 00	10 x 8	5	30 x 30	164

Barnard 254



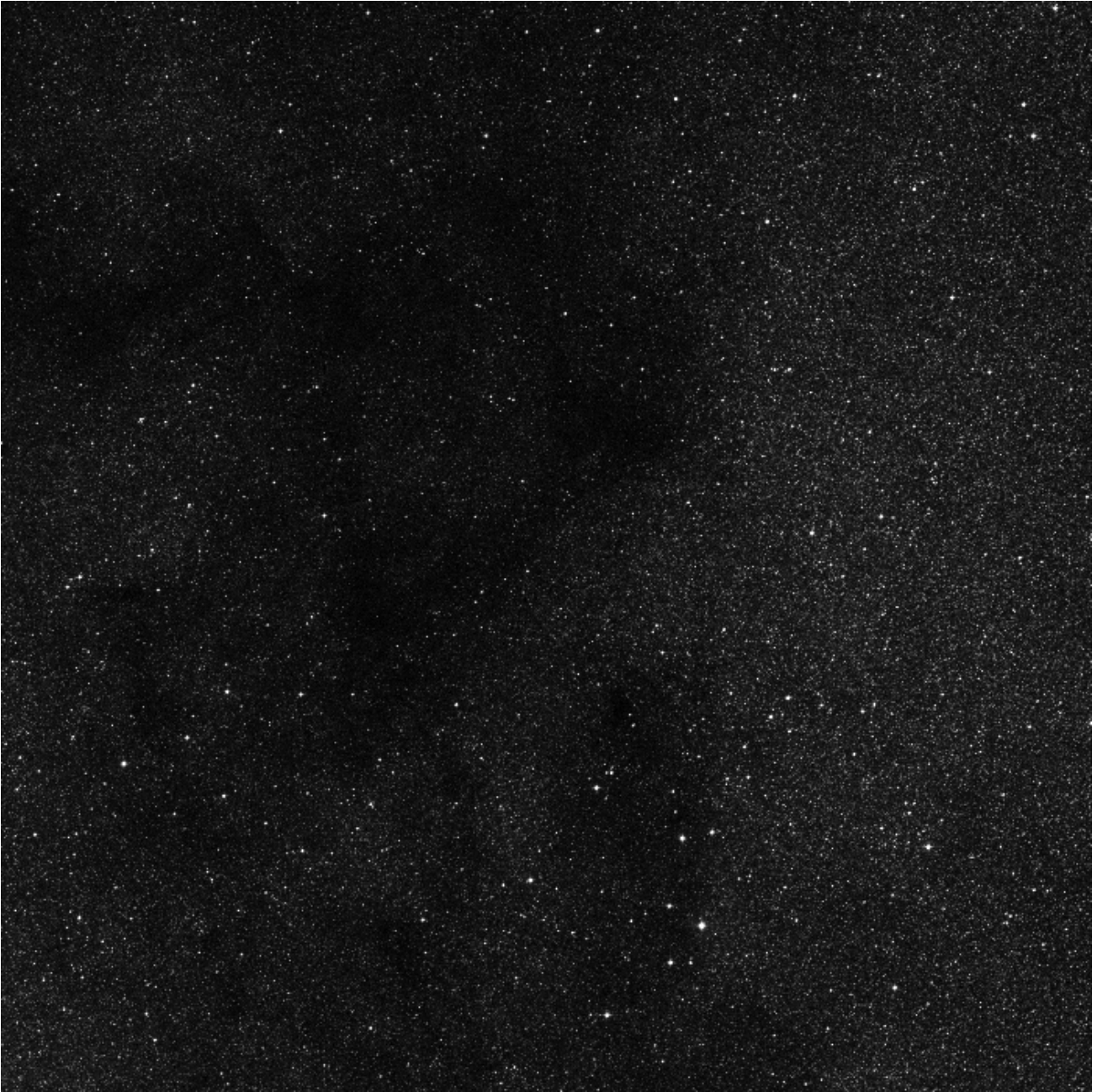
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 254	17 20 29.2	-30 08 00	60 x 29	5	60 x 60	164

Barnard 255



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 255	17 20 35.2	-23 28 00	5 x 5	5	30 x 30	146

LDN 1773



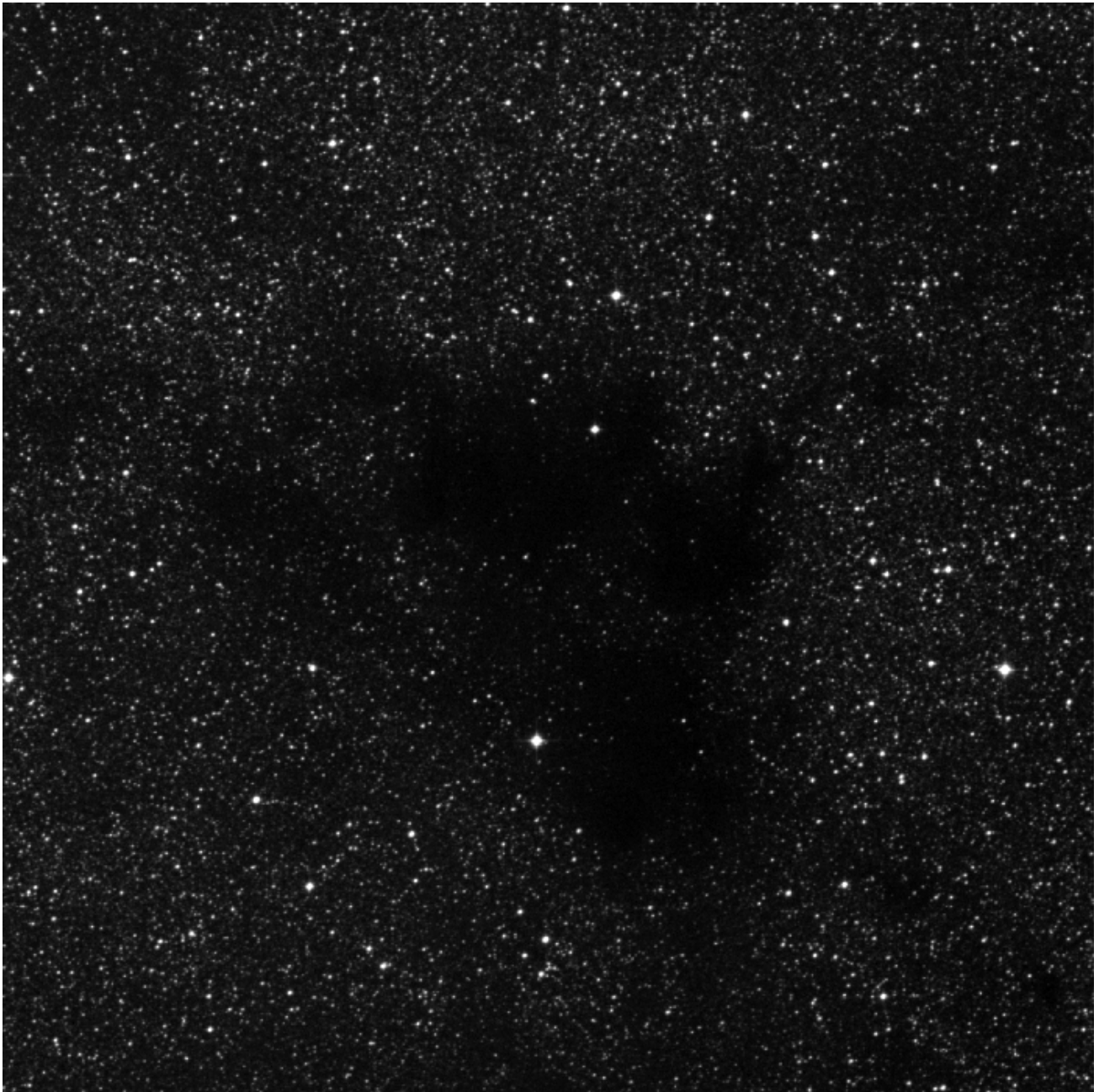
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
LDN 1773	17 21 06.0	-26 47 00	60 x 10	6	60 x 60	146

Barnard 256



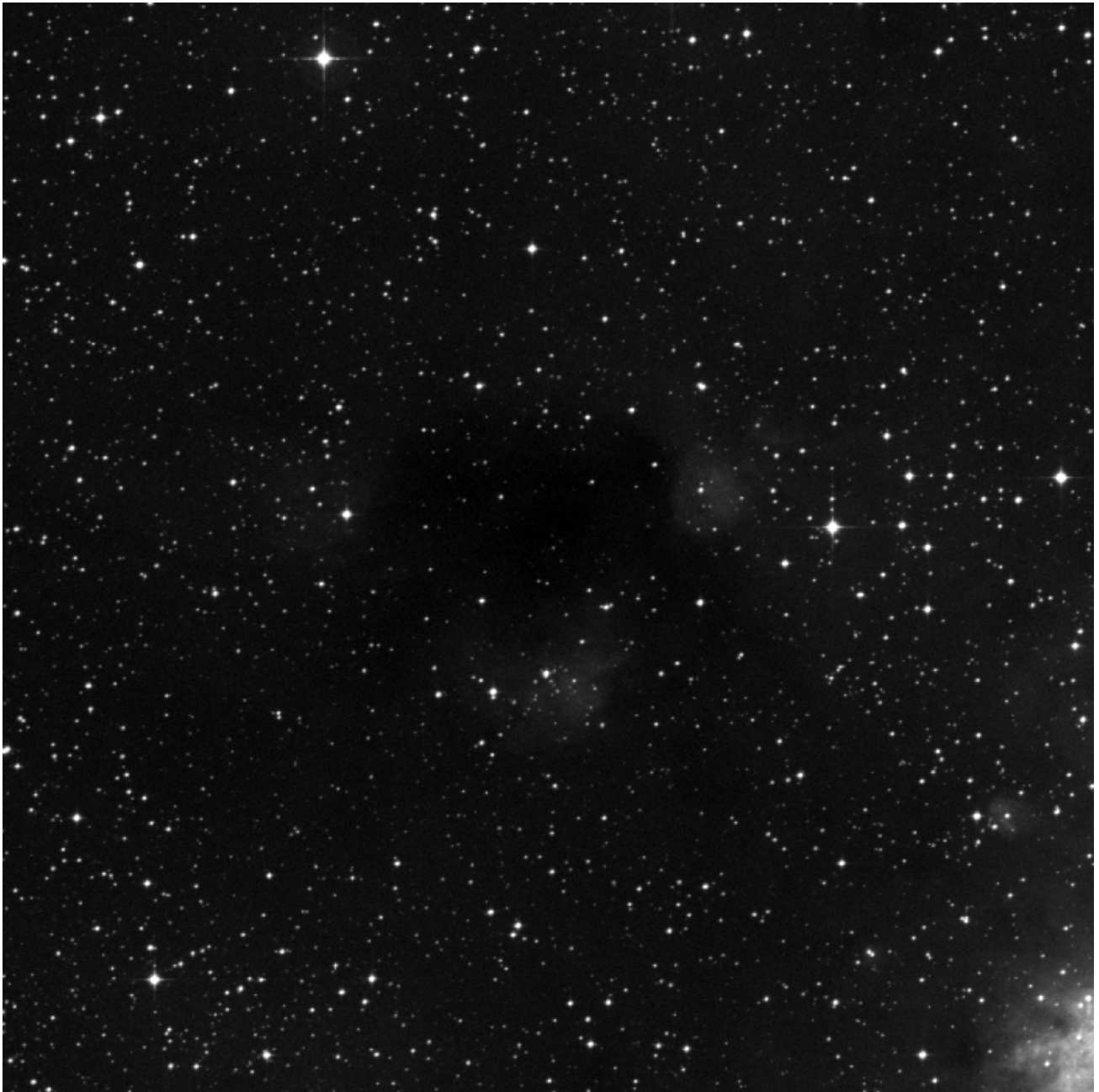
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 256	17 22 12.4	-28 50 00	50 x 10	5	60 x 60	146

Barnard 67a



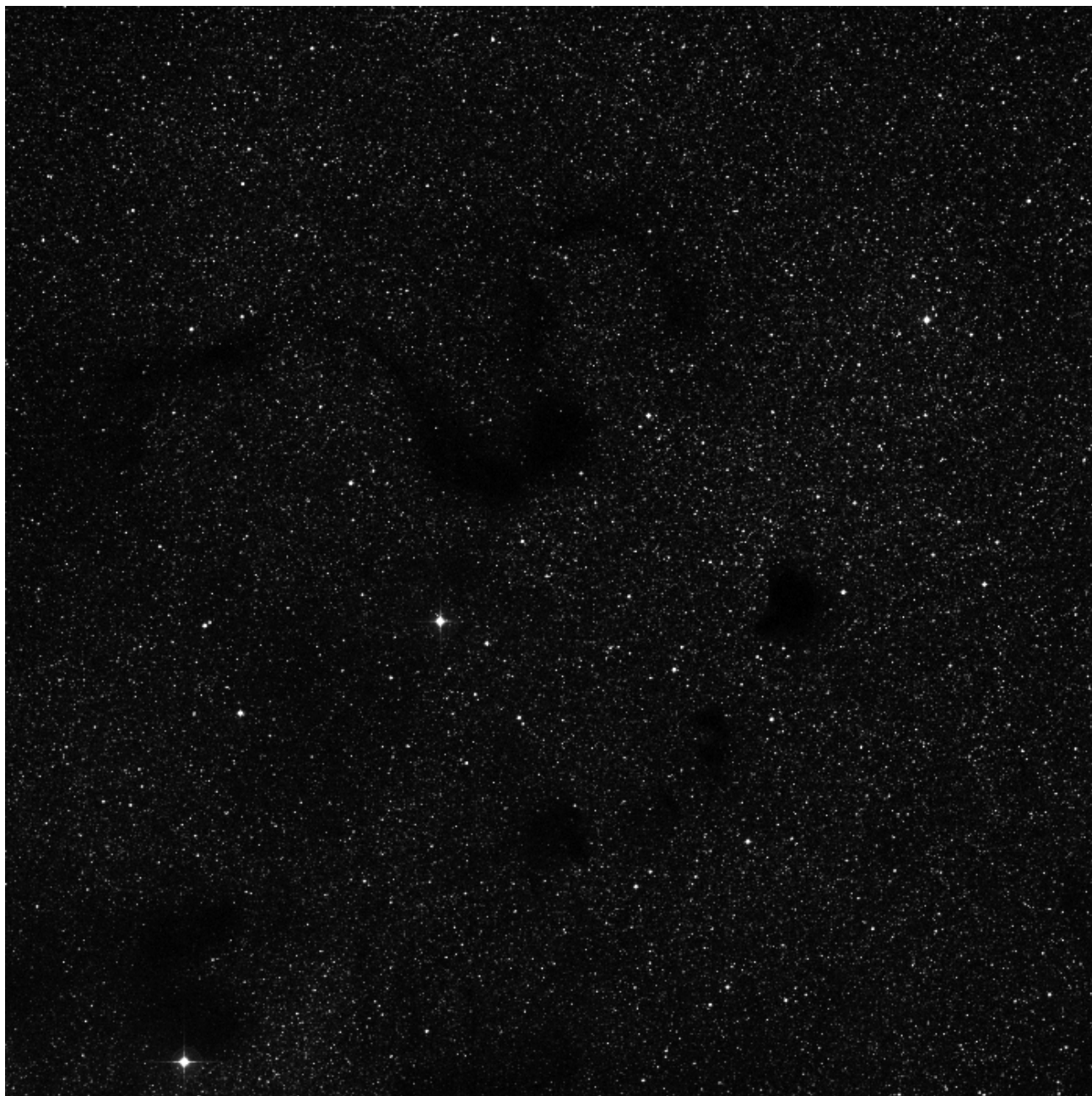
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 67a	17 22 30.0	-21 53 00	13 x 13	6	30 x 30	146

Barnard 257



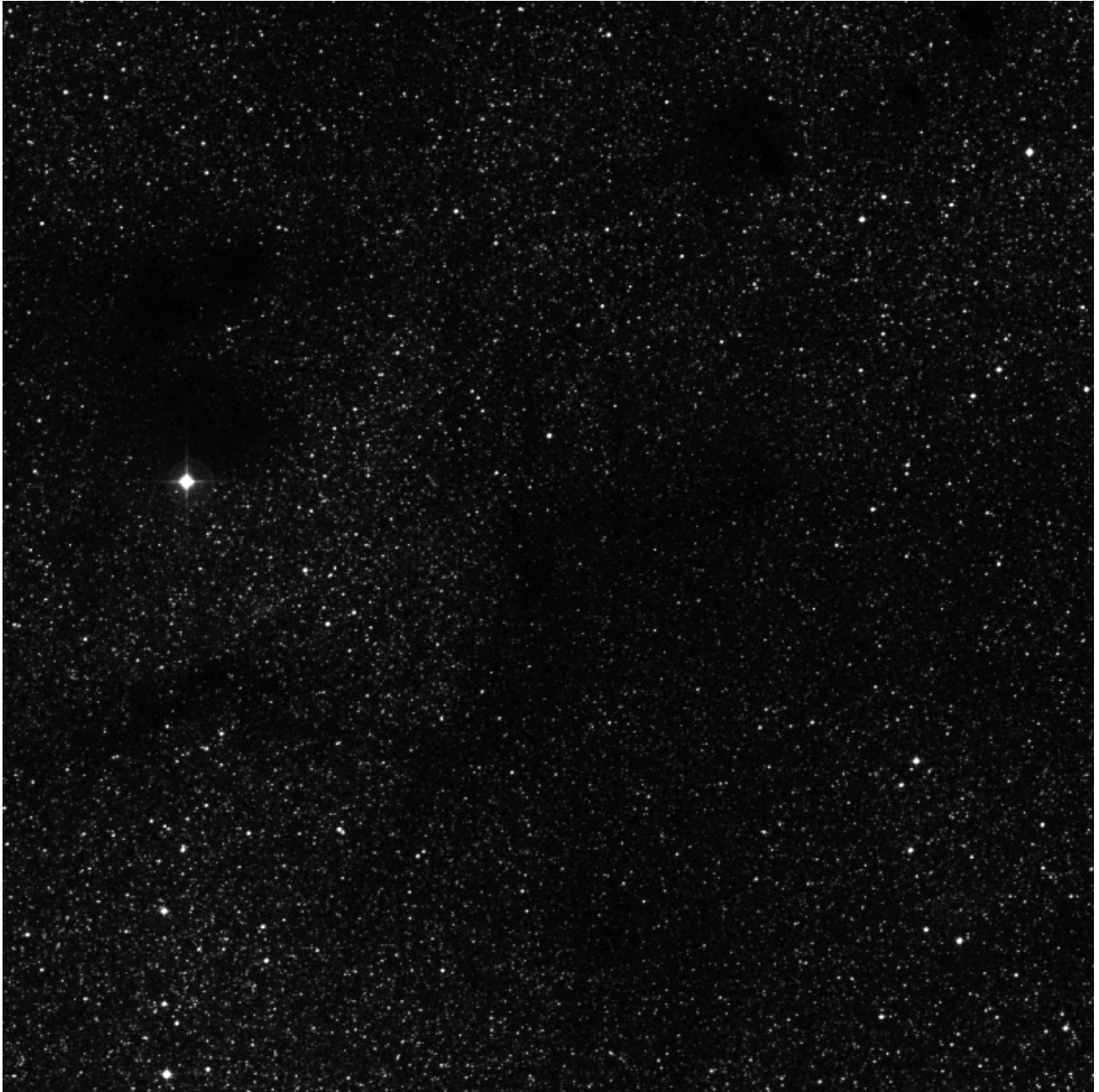
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 257	17 22 46.7	-35 38 00	10 x 7	5	30 x 30	164

Barnard 68-69-70-71-72-74



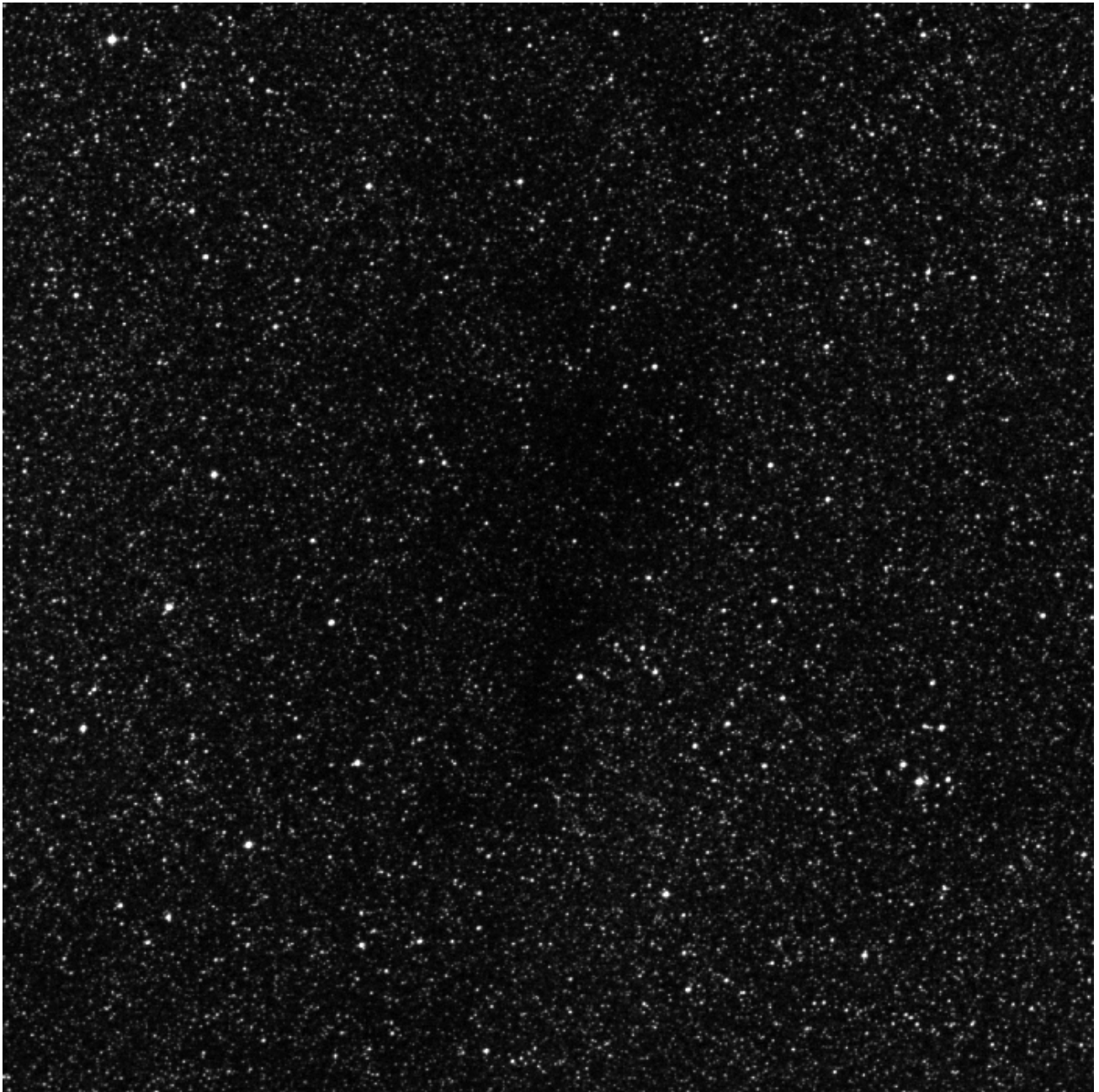
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 68	17 22 36.4	-23 47 00	4 x 4	6	60 x 60	146
Barnard 69	17 22 55.9	-23 55 00	4 x 4	6		
Barnard 70	17 23 32.3	-24 02 00	4 x 4	4		
Barnard 71	17 23 02.2	-24 00 00				
Barnard 72	17 23 35.9	-23 37 00	4 x 4	6		
Barnard 74	17 25 08.0	-24 12 00	15 x 10	5		

Barnard 73-76



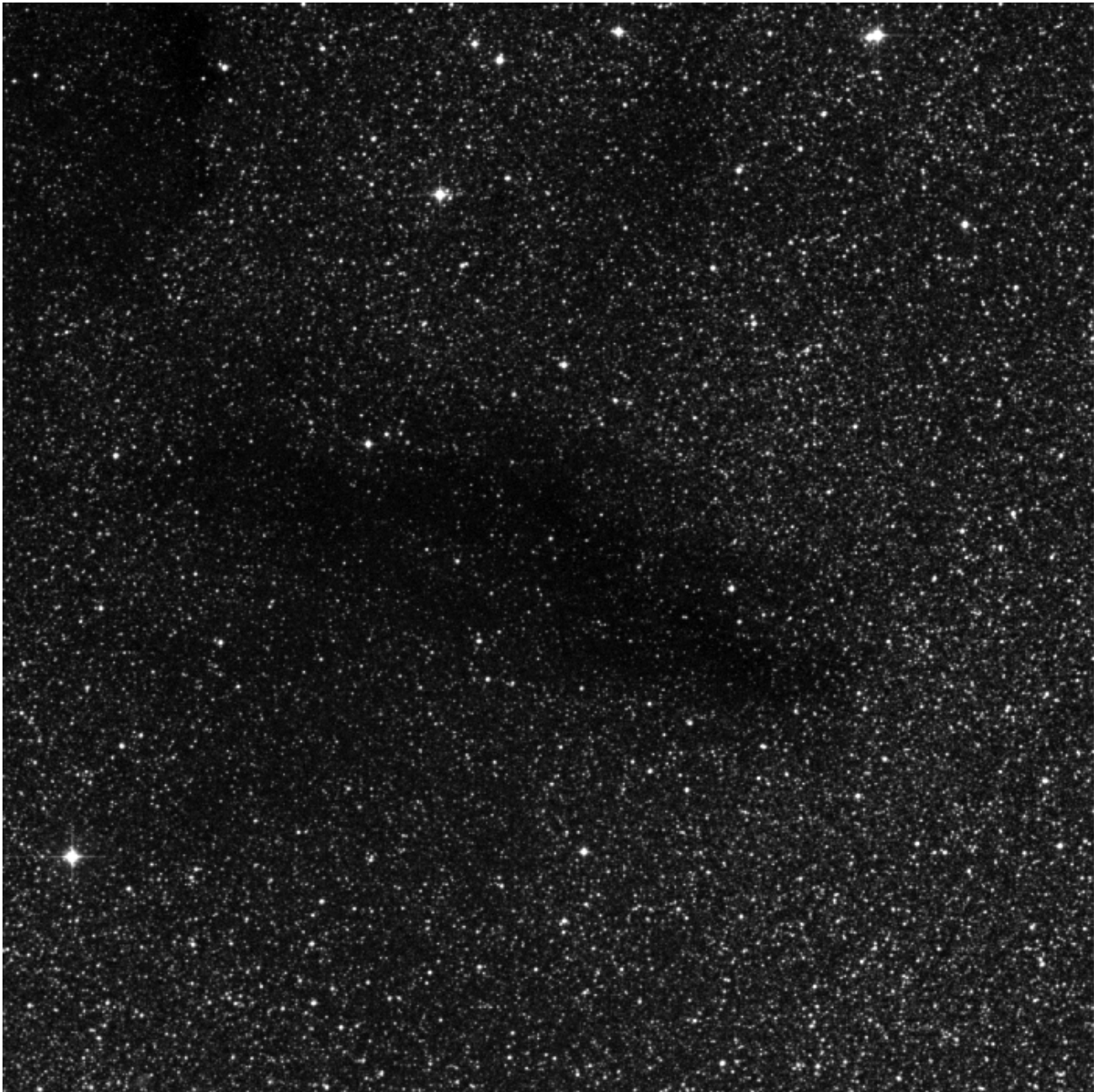
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 73	17 24 08.2	-24 17 10	1 x 1		40 x 40	146
Barnard 76	17 25 38.8	-24 25 00	30 x 30	4		

Barnard 260



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 260	17 24 48.9	-25 37 00	12 x 7		30 x 30	146

Barnard 261



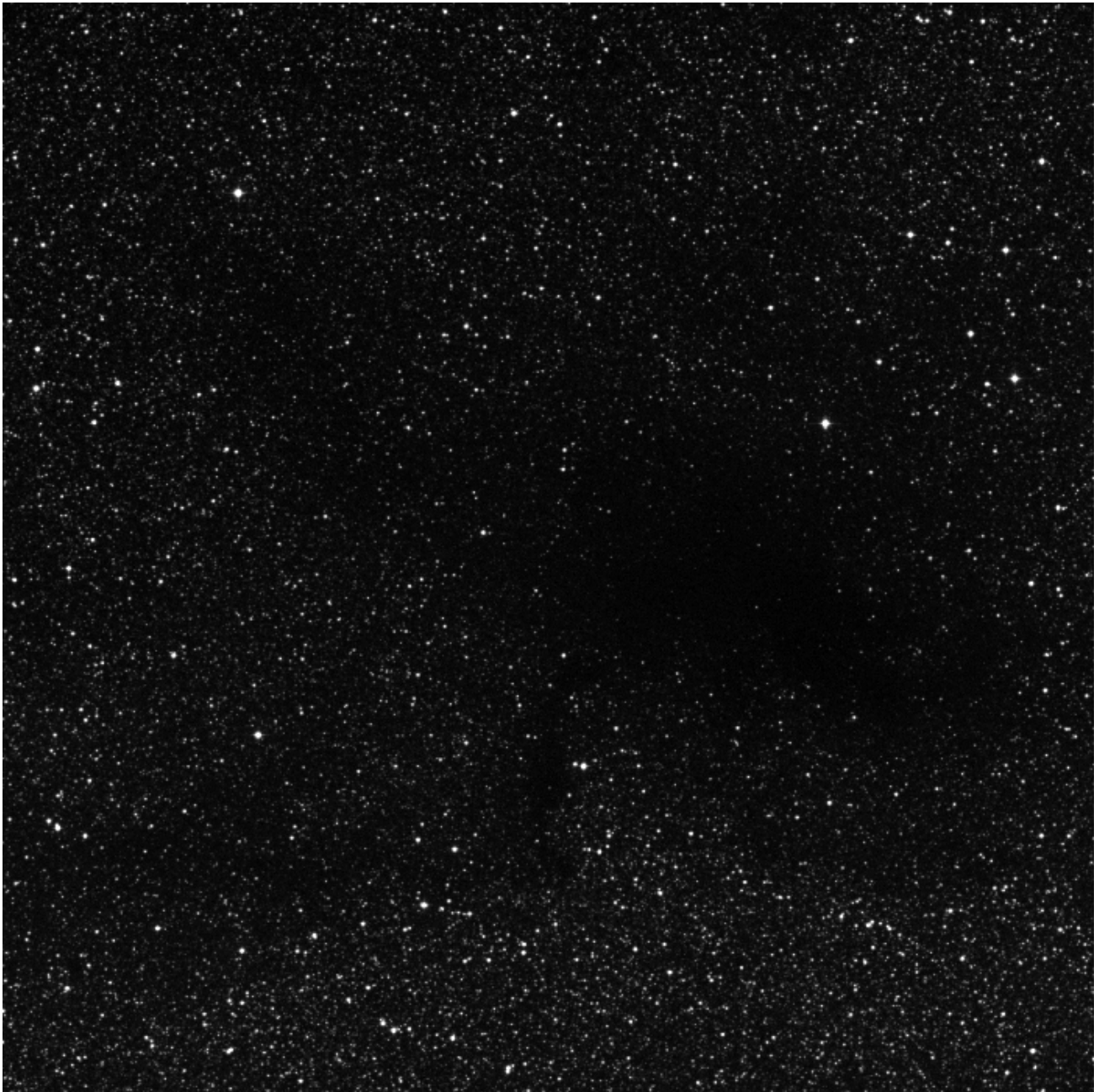
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 261	17 25 04.0	-23 02 00	14 x 5	4	30 x 30	146

Barnard 262



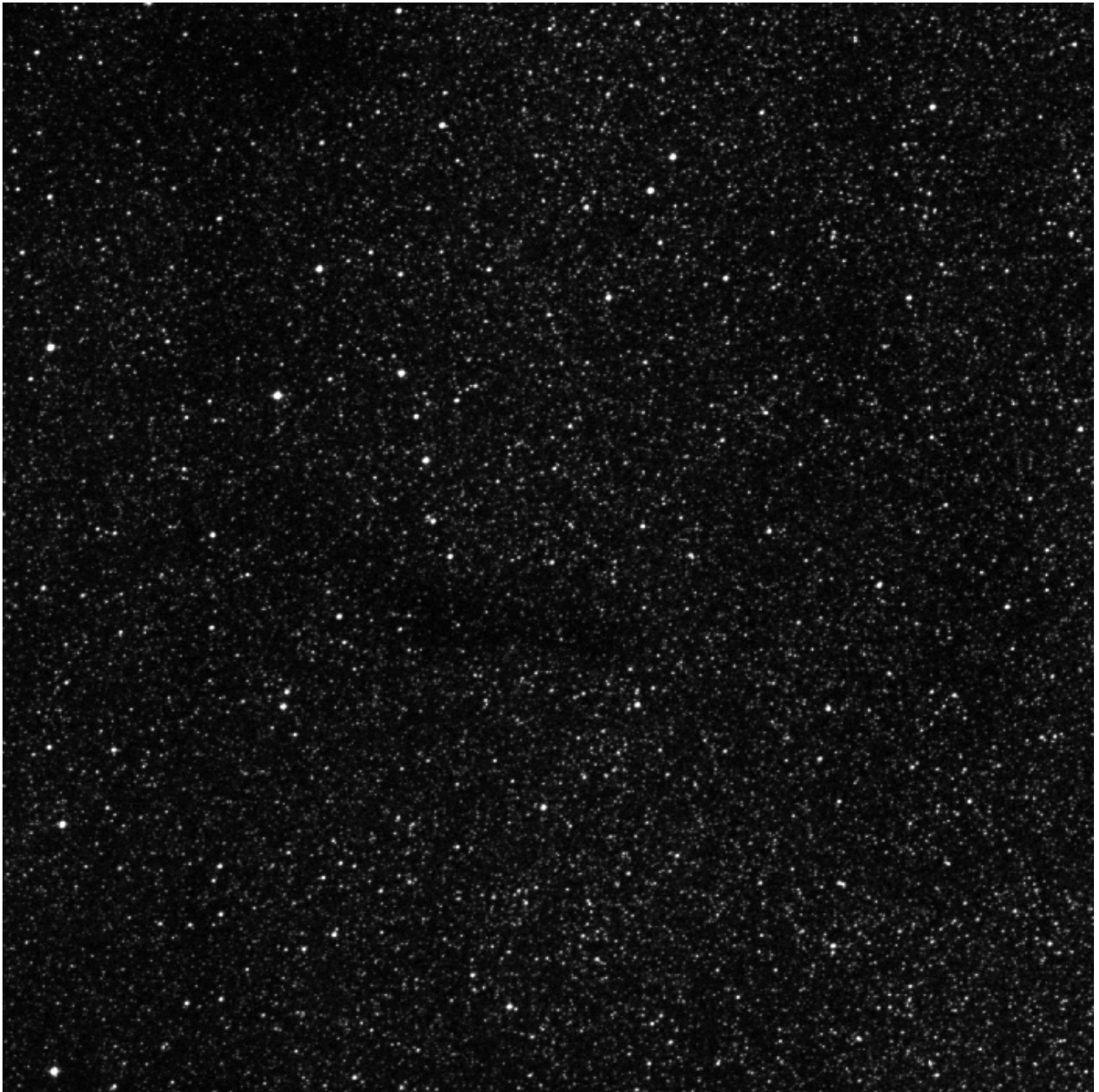
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 262	17 25 32.6	-22 37 00	30 x 30	4	50 x 50	146

Barnard 263



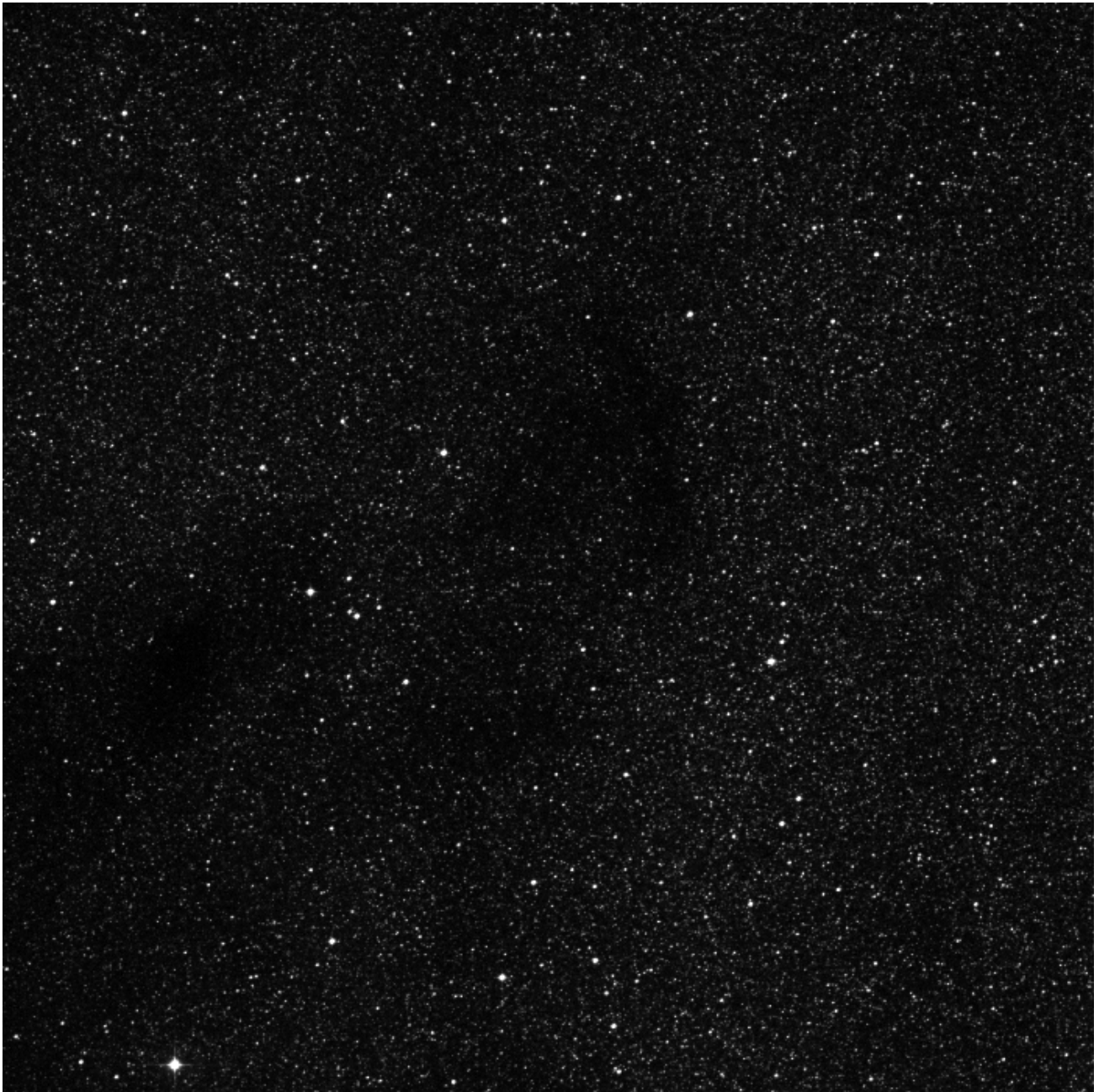
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 263	17 26 56.4	-42 47 00	30 x 30	5	40 x 40	181

Barnard 264



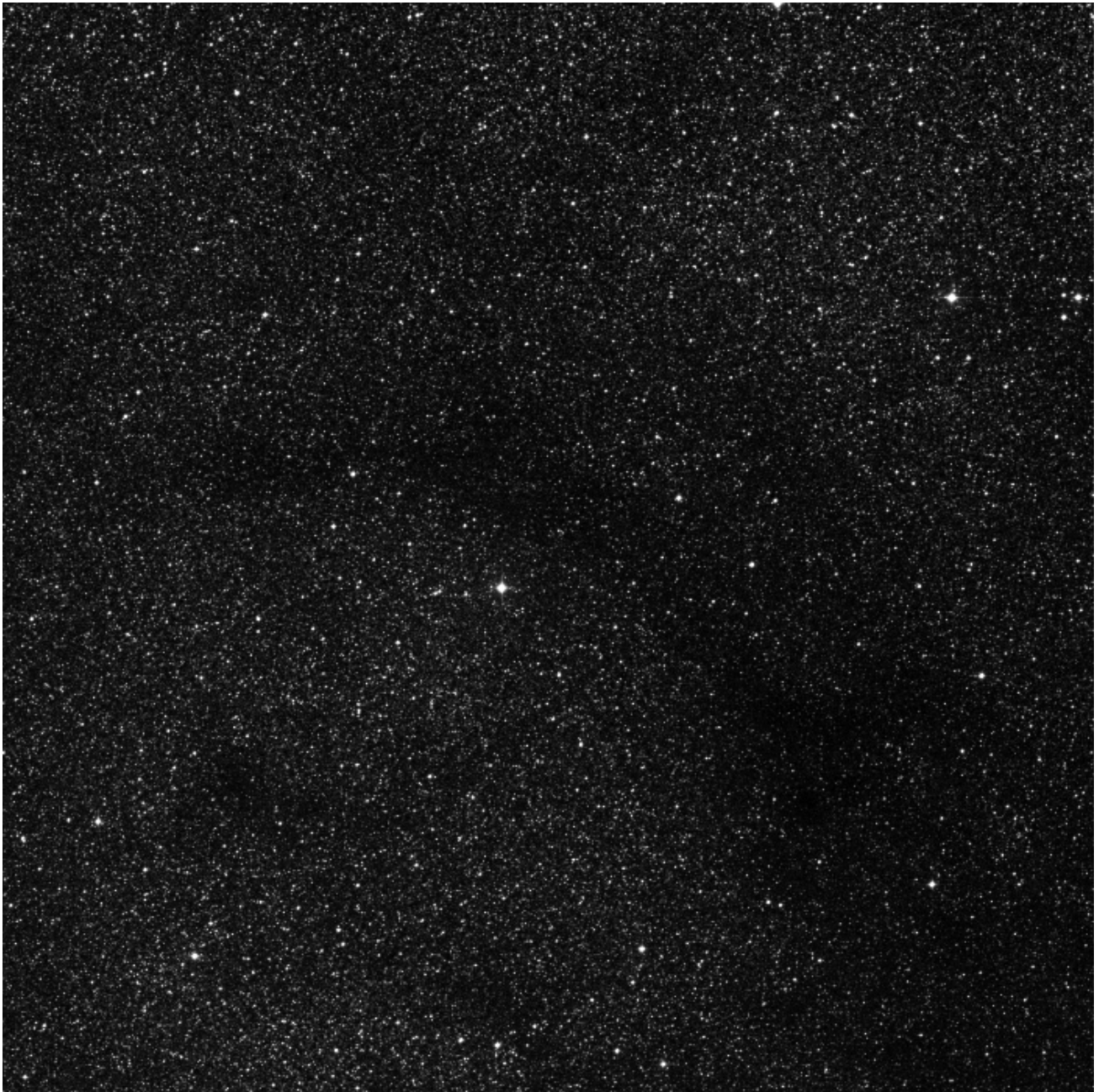
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 264	17 27 12.8	-25 32 00	10 x 1	4	30 x 30	146

Barnard 265-267



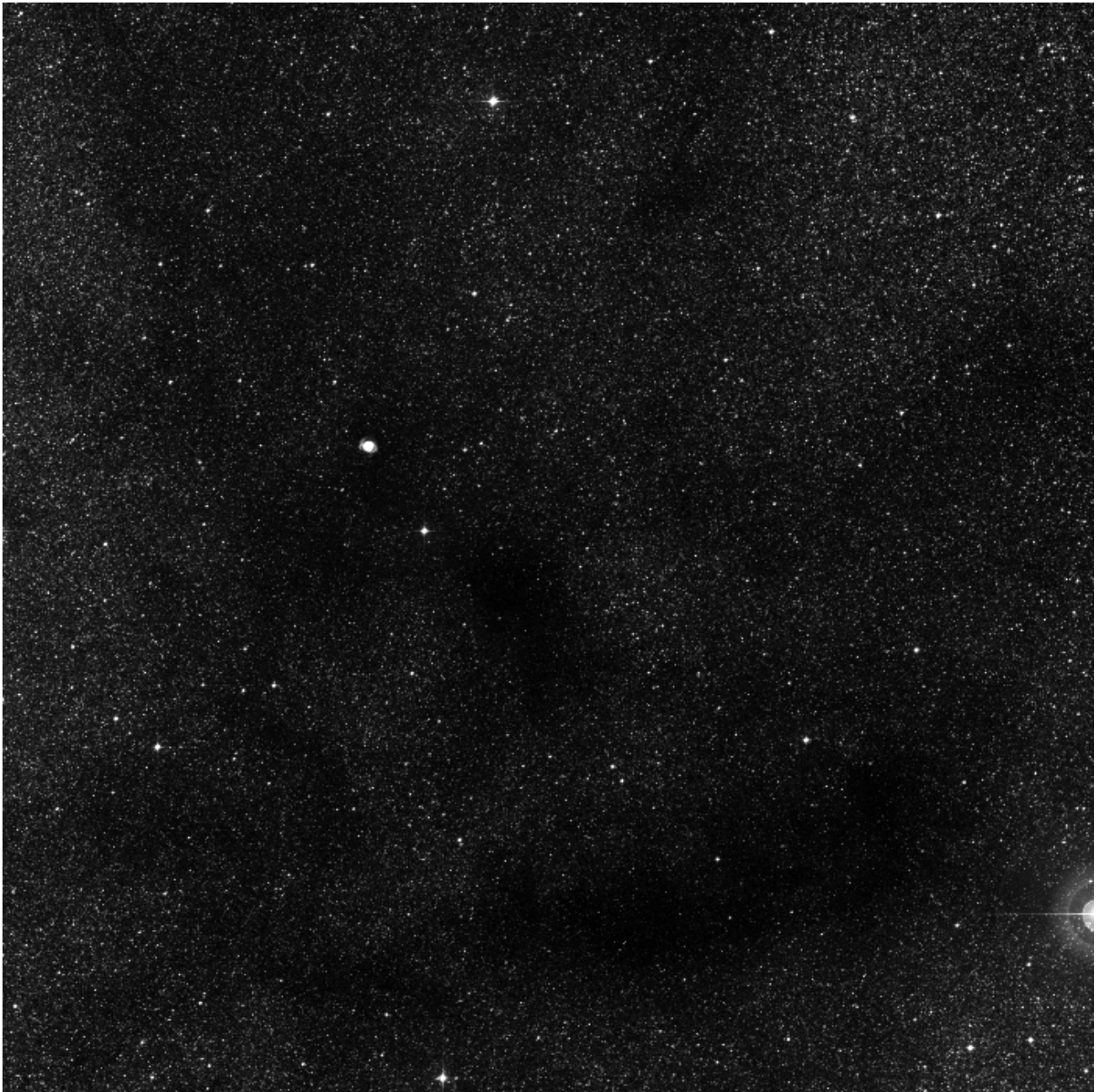
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 265	17 27 36.6	-25 12 00	18 x 7	4	40 x 40	146
Barnard 267	17 28 31.8	-25 13 00	5 x 3	5		

Barnard 266



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 266	17 28 07.2	-20 56 00	30 x 5	3	50 x 50	146

Barnard 77



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 77	17 28 37.0	-23 51 00	60 x 60	3	60 x 60	146

Barnard 269



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 269	17 32 13.5	-22 46 00	60 x 28		60 x 60	146

Barnard 270



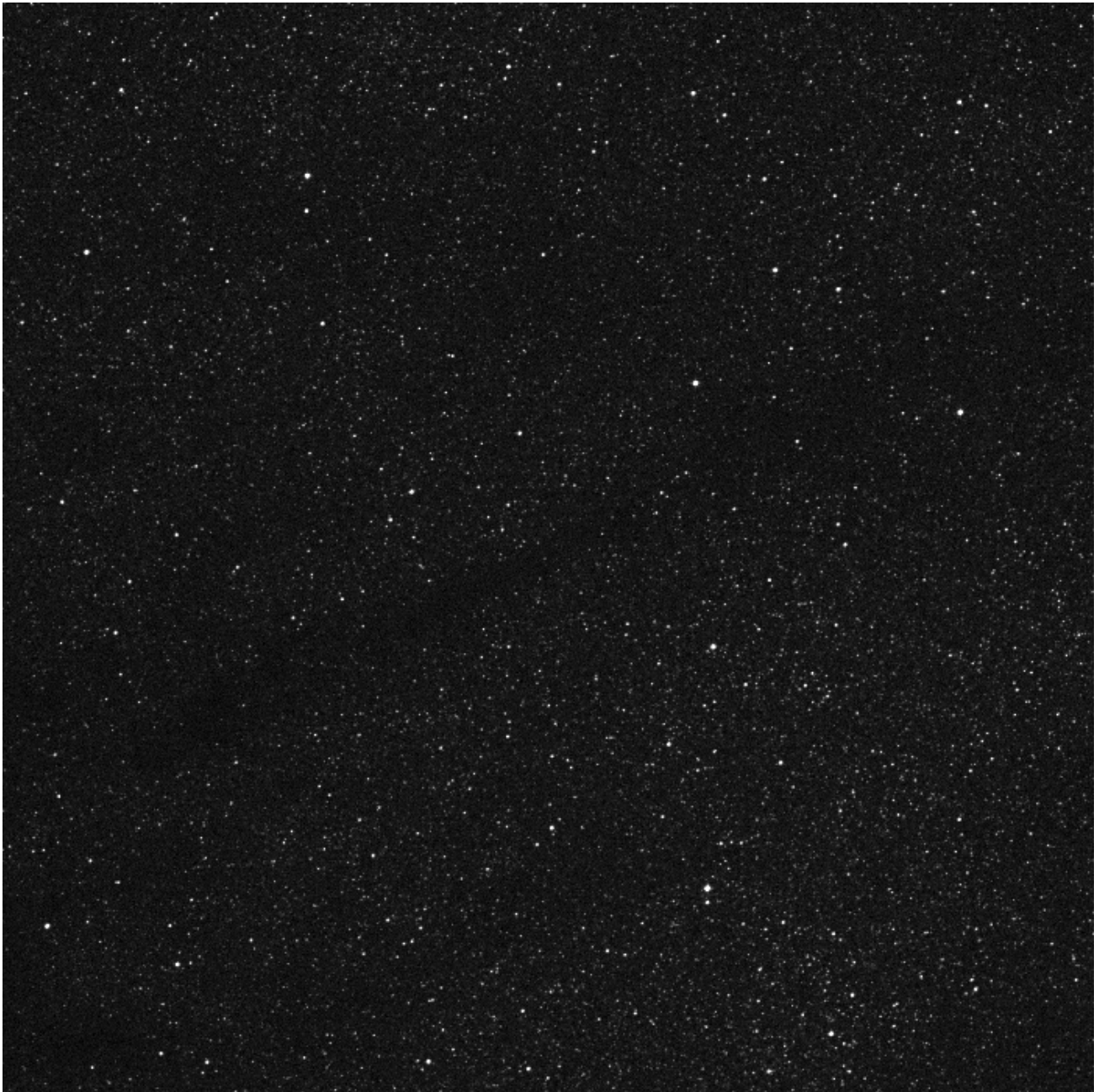
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 270	17 32 43.0	-19 36 00	11 x 11	5	30 x 30	146

Barnard 78



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 78	17 32 43.3	-25 36 00	200 x 140	5	60 x 60	146

Barnard 79



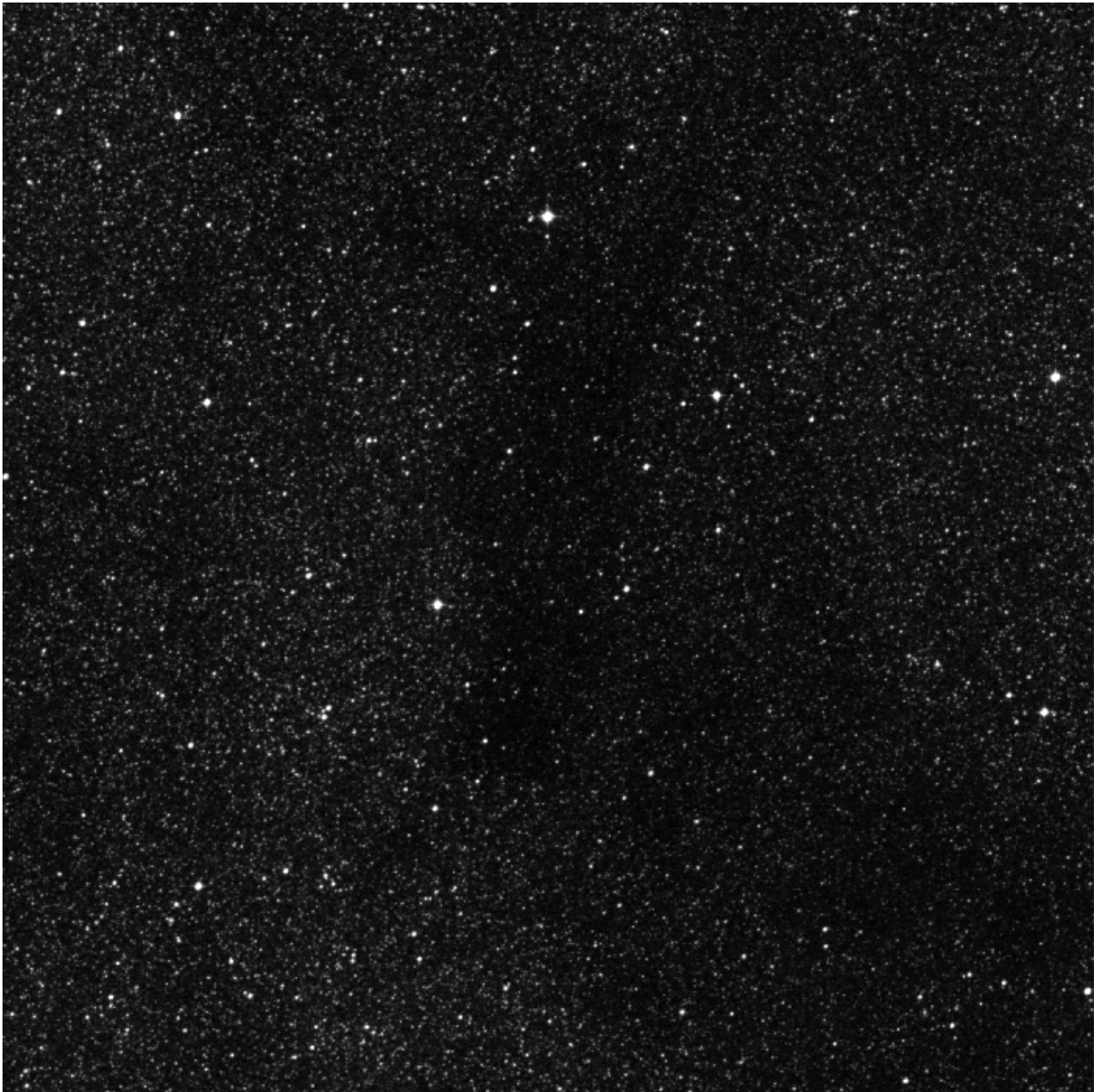
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 79	17 37 23.2	-19 37 00	30 x 30	6	40 x 40	146

Barnard 272



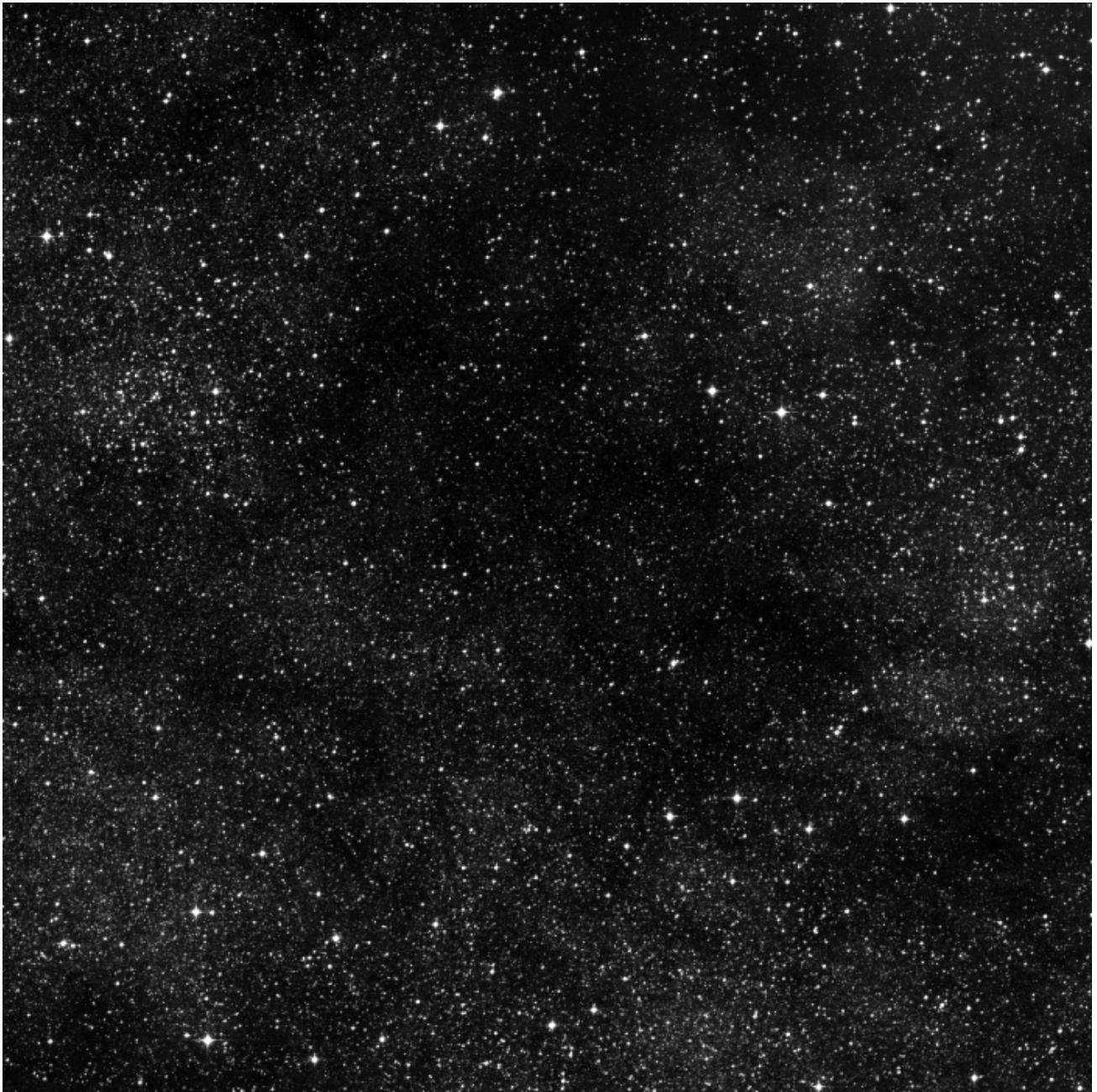
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 272	17 37 35.9	-23 25 00	45 x 45	3	50 x 50	146

Barnard 274



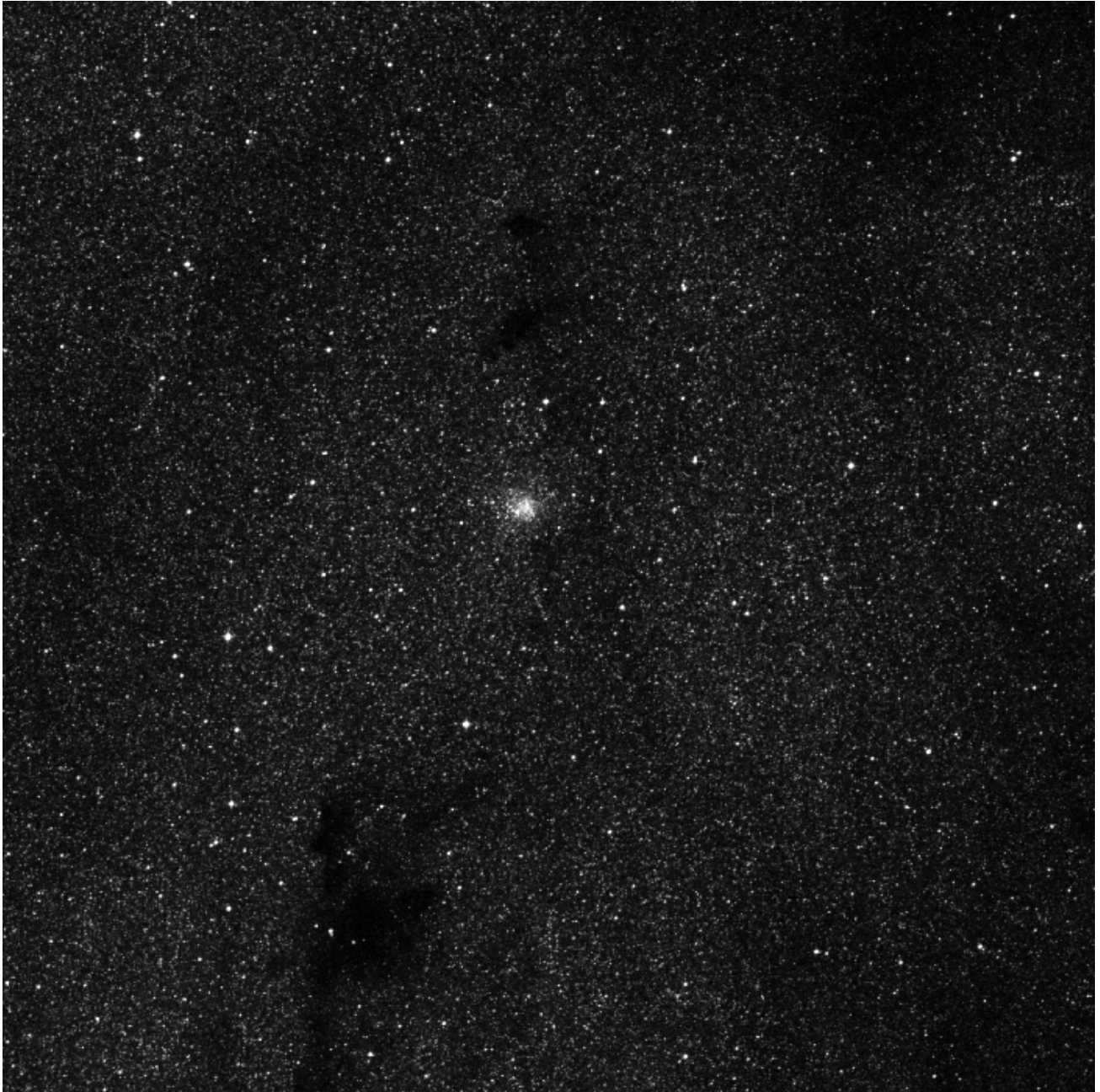
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 274	17 38 03.6	-22 44 00	18 x 3.5	4	30 x 30	146

Barnard 273



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 273	17 38 29.3	-33 21 00	15 x 15		40 x 40	164

Barnard 81-82-83



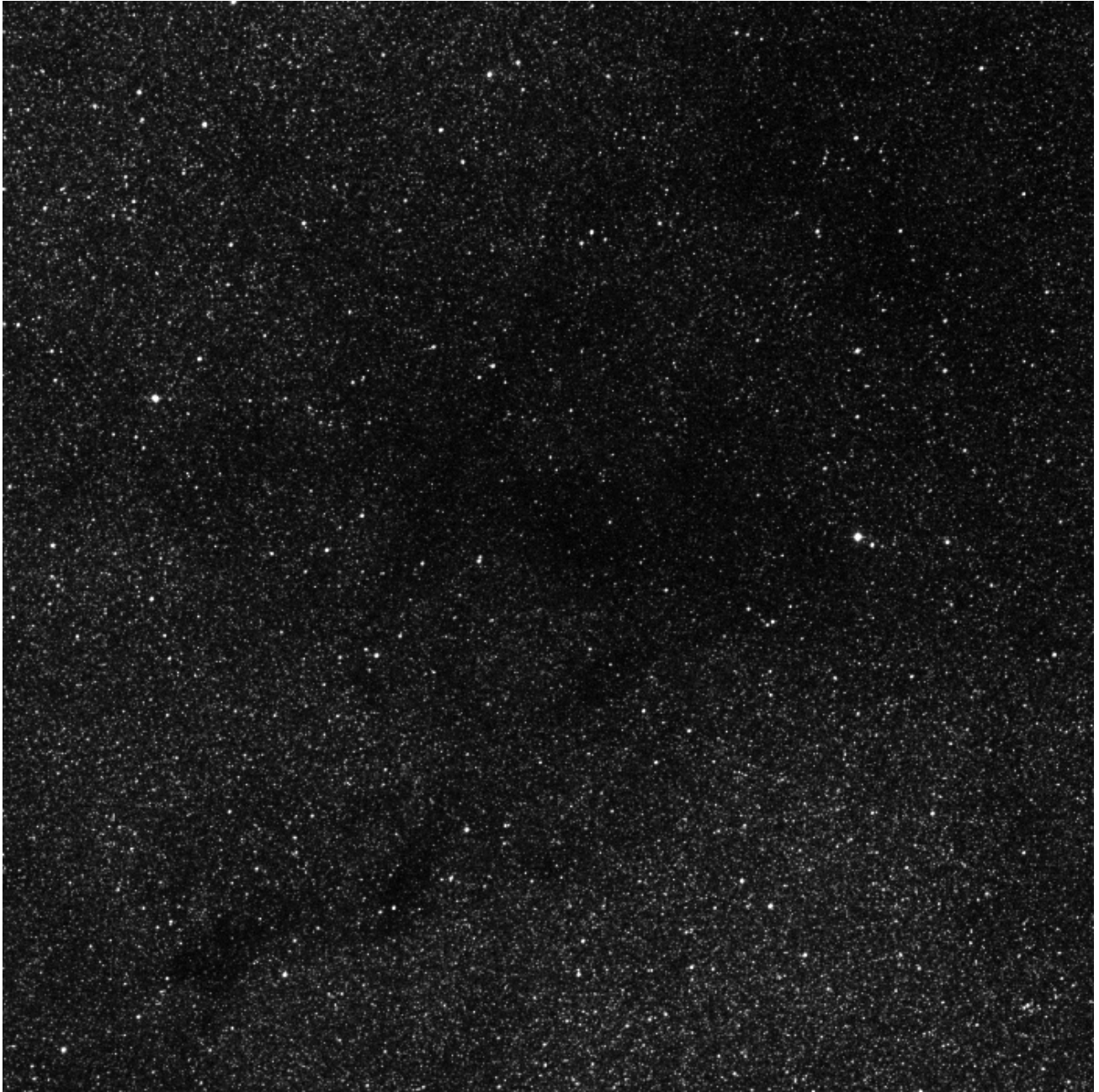
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 81	17 38 32.7	-23 56 00				
Barnard 82	17 38 37.2	-23 47 00		3	40 x 40	146
Barnard 83	17 38 58.6	-24 11 00	7 x 7	7		

Barnard 276



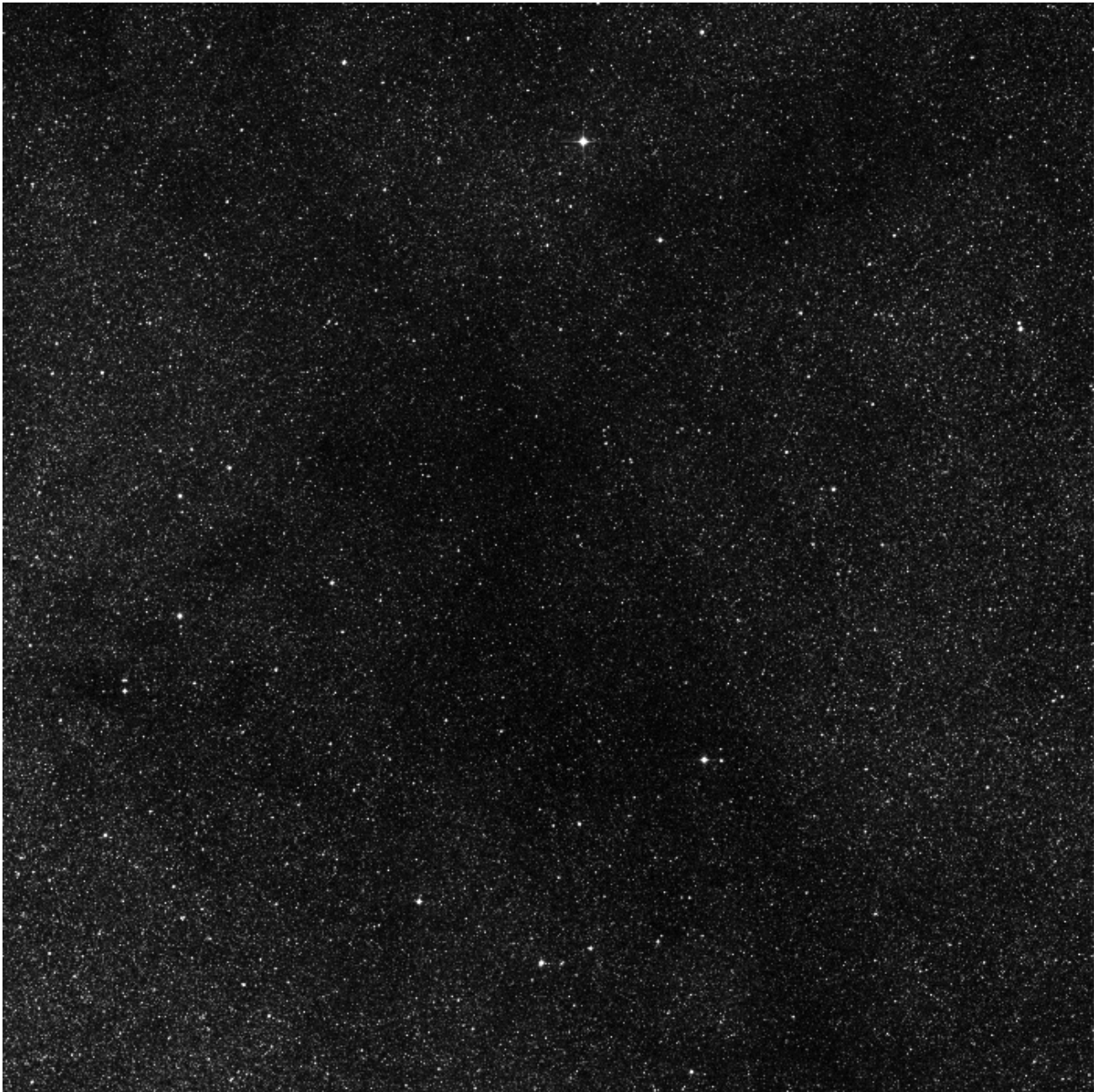
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 276	17 39 39.0	-19 49 00	40 x 40	6	50 x 50	146

Barnard 277



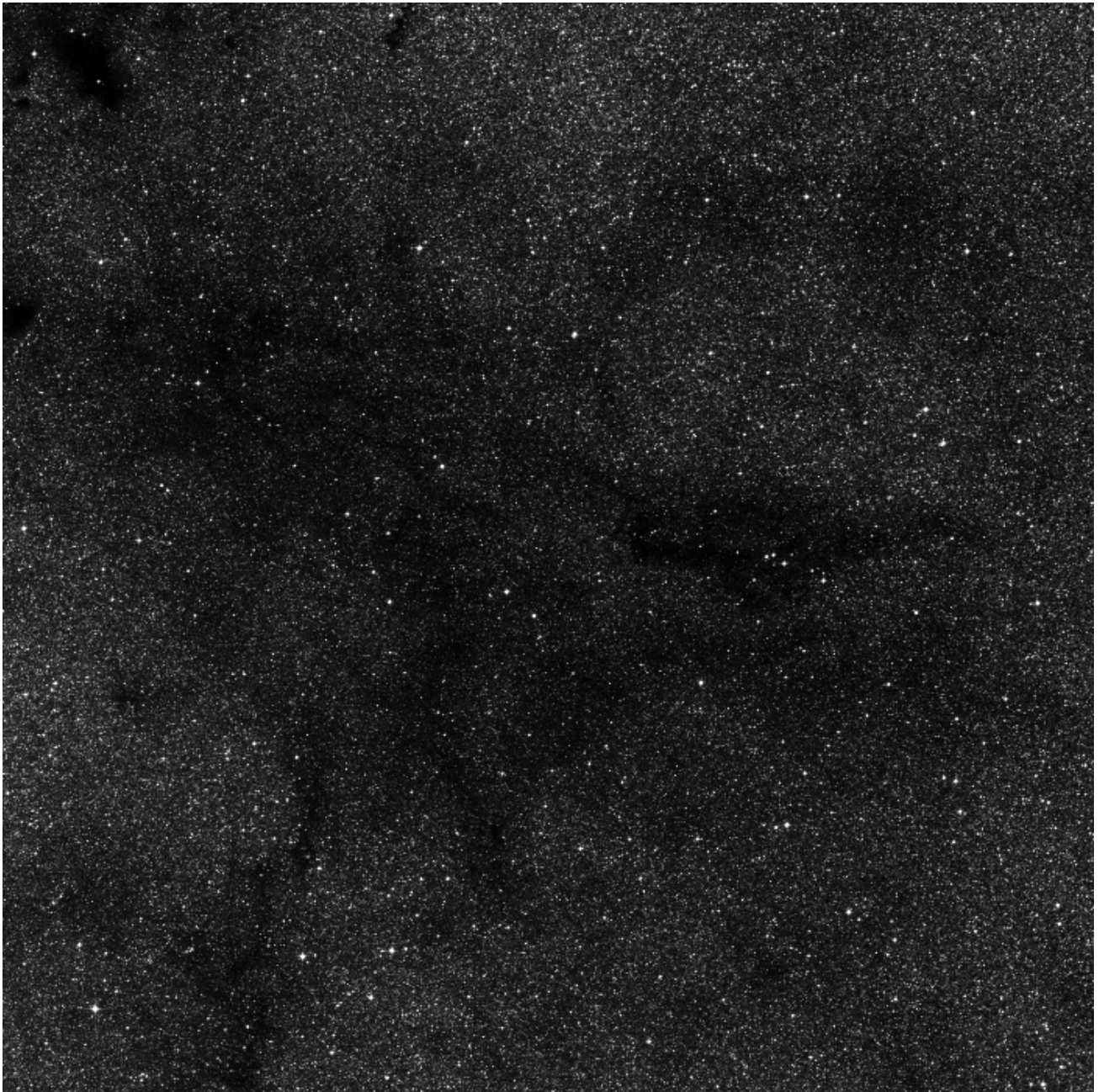
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 277	17 40 44.9	-23 04 00	18 x 18	4	40 x 40	146

Barnard 279



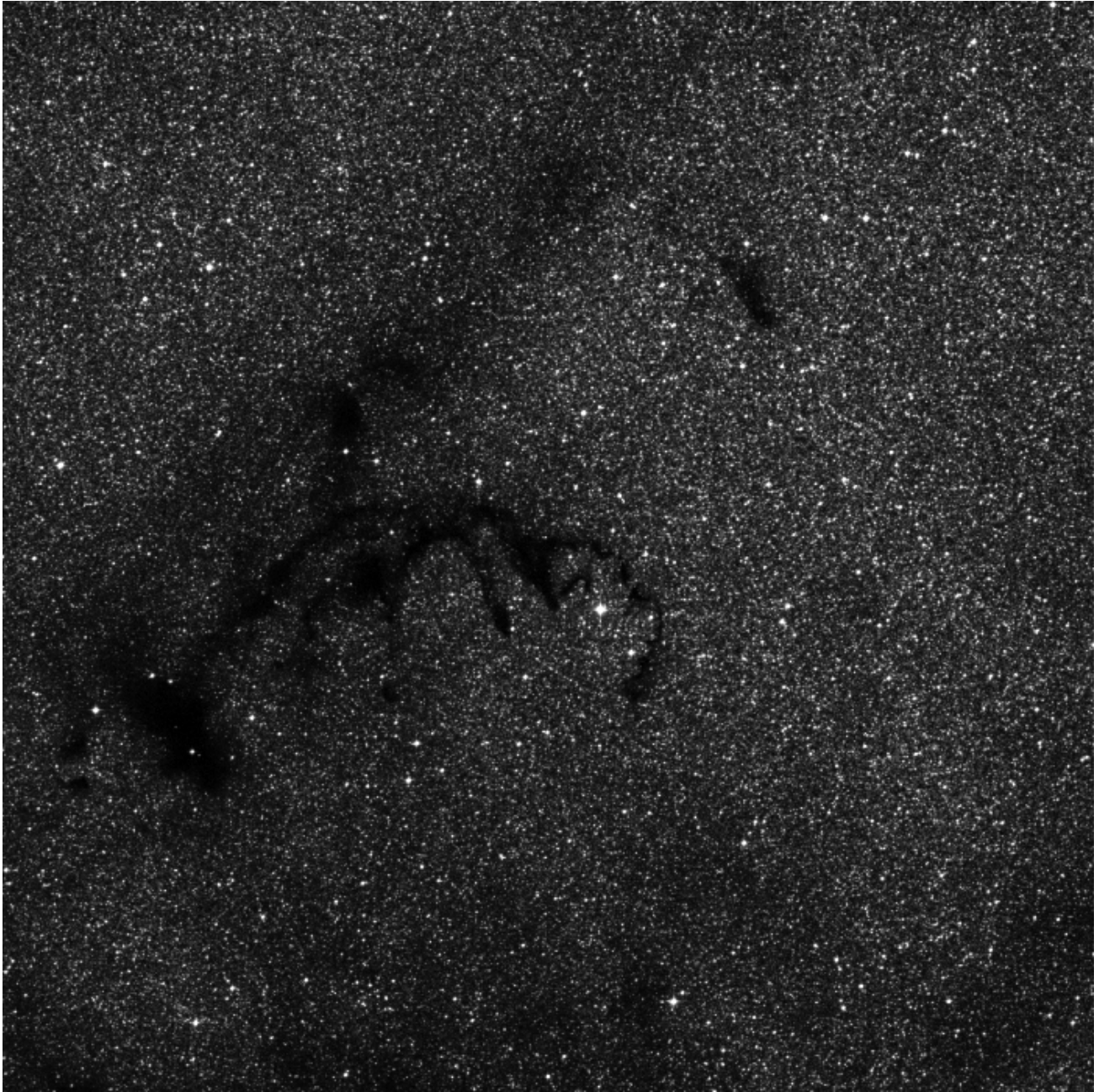
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 279	17 44 33.2	-22 34 00	60 x 60	3	60 x 60	146

Barnard 280



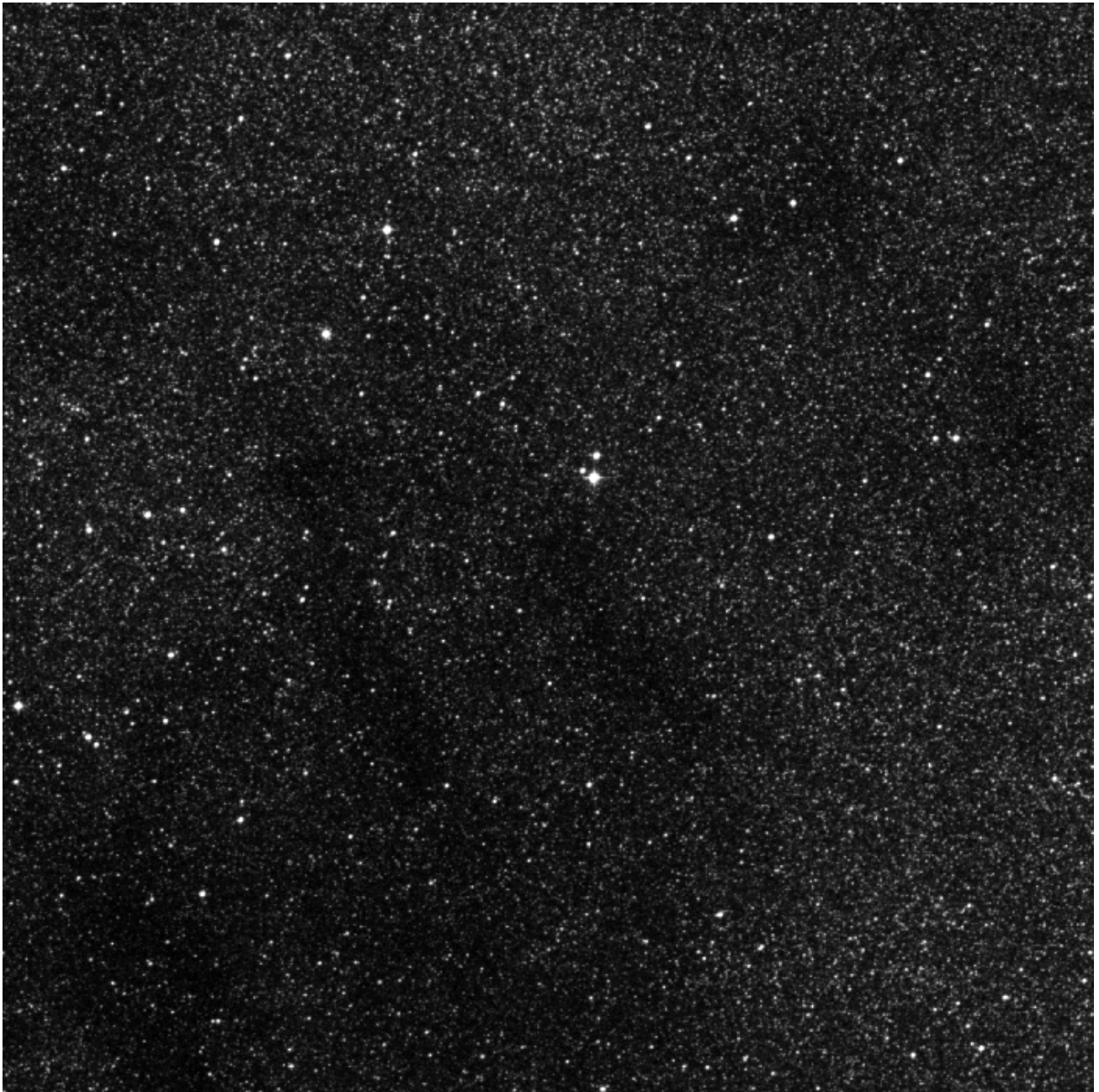
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 280	17 44 57.1	-20 43 00	60 x 60	3	60 x 60	146

Barnard 83a-84



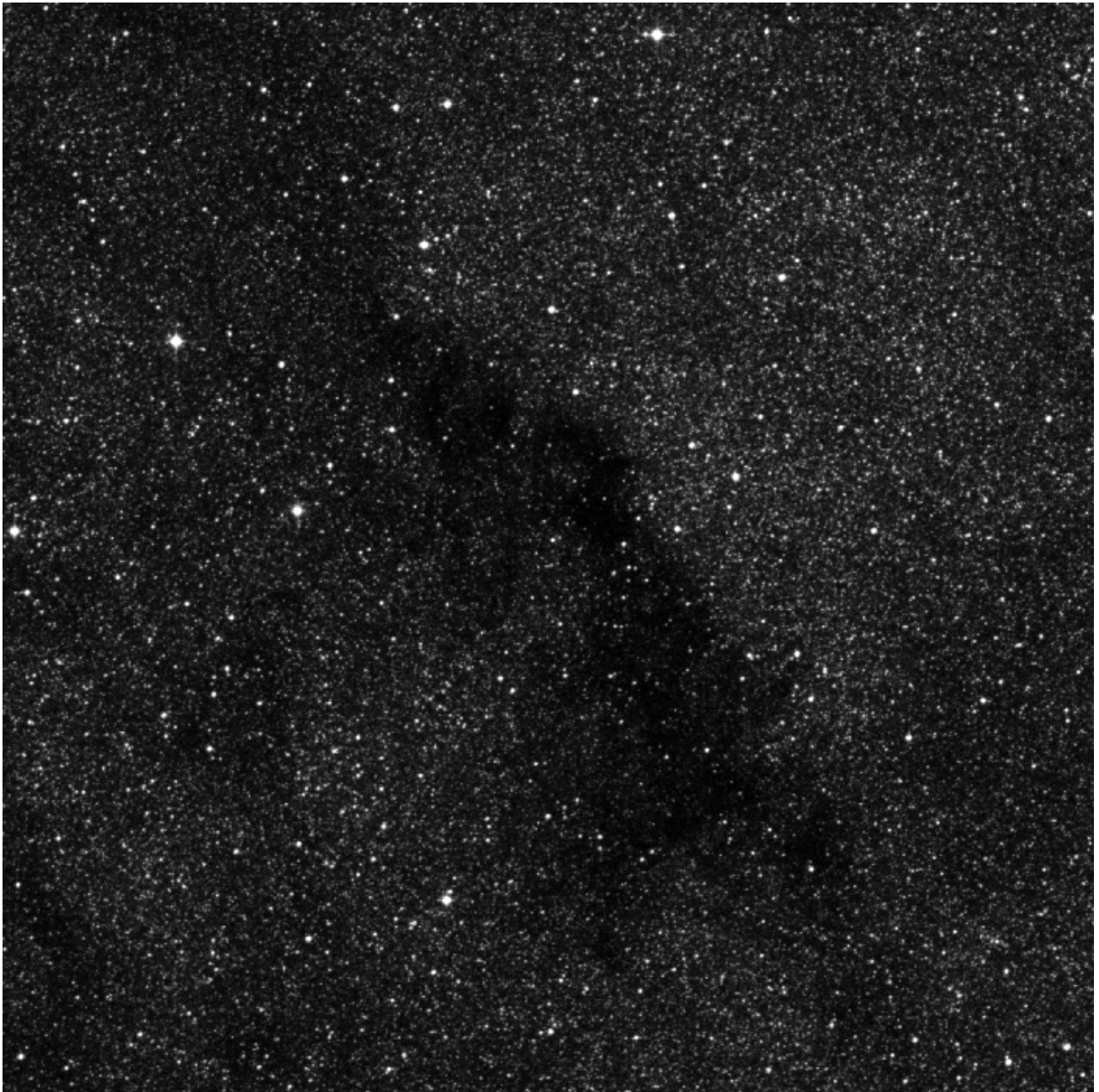
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 83a	17 45 18.7	-20 00 00	4 x 4	6	40 x 40	146
Barnard 84	17 46 25.6	-20 15 00		6		

Barnard 281



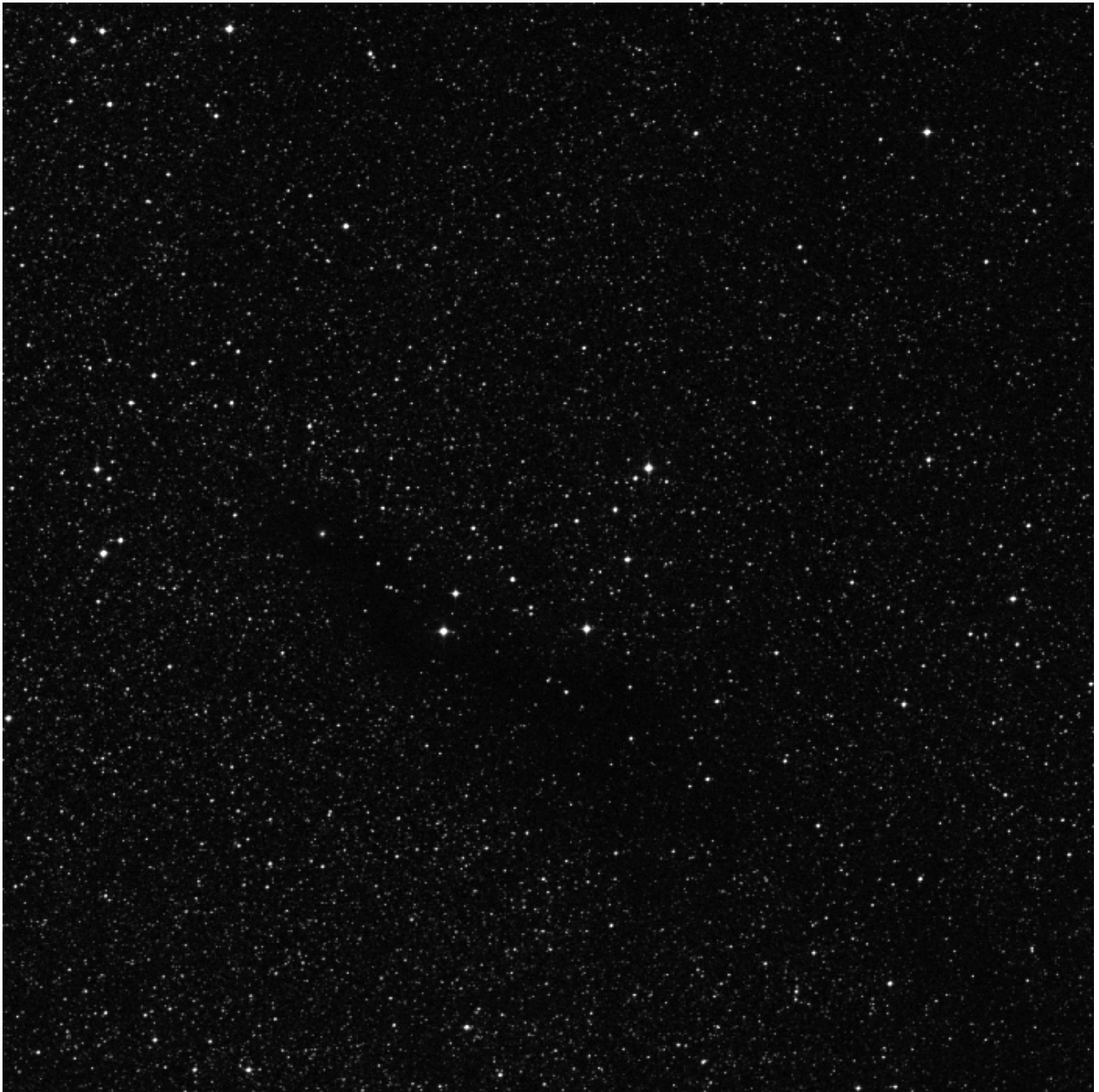
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 281	17 46 47.3	-23 43 00		2	30 x 30	146

Barnard 282



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 282	17 48 36.5	-23 28 00	18 x 4		30 x 30	146

Barnard 284



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 284	17 50 06.9	-14 22 00	35 x 5		40 x 40	126

Barnard 283



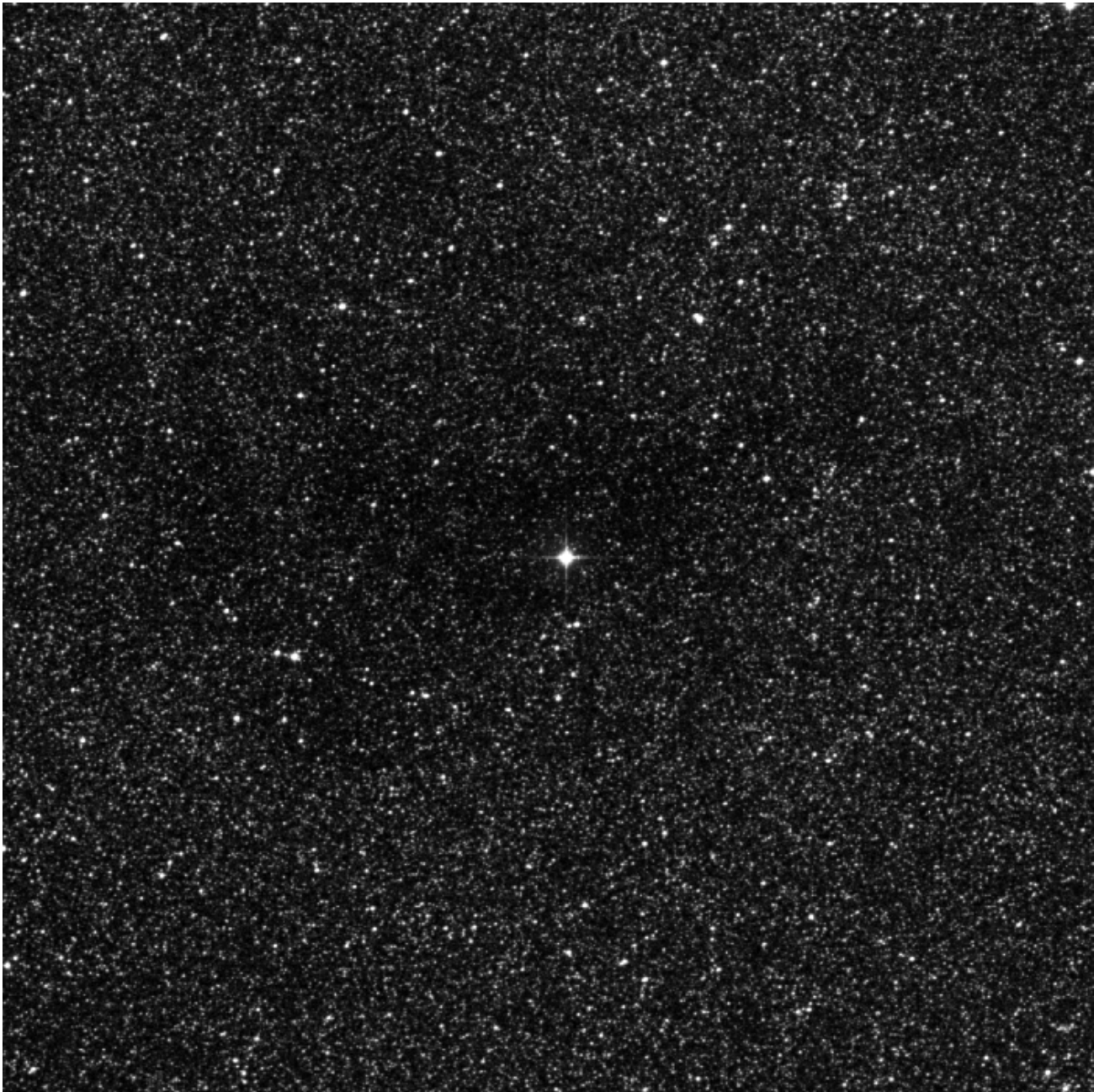
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 283	17 51 16.1	-33 52 00	90 x 60	5	60 x 60	164

SI 17



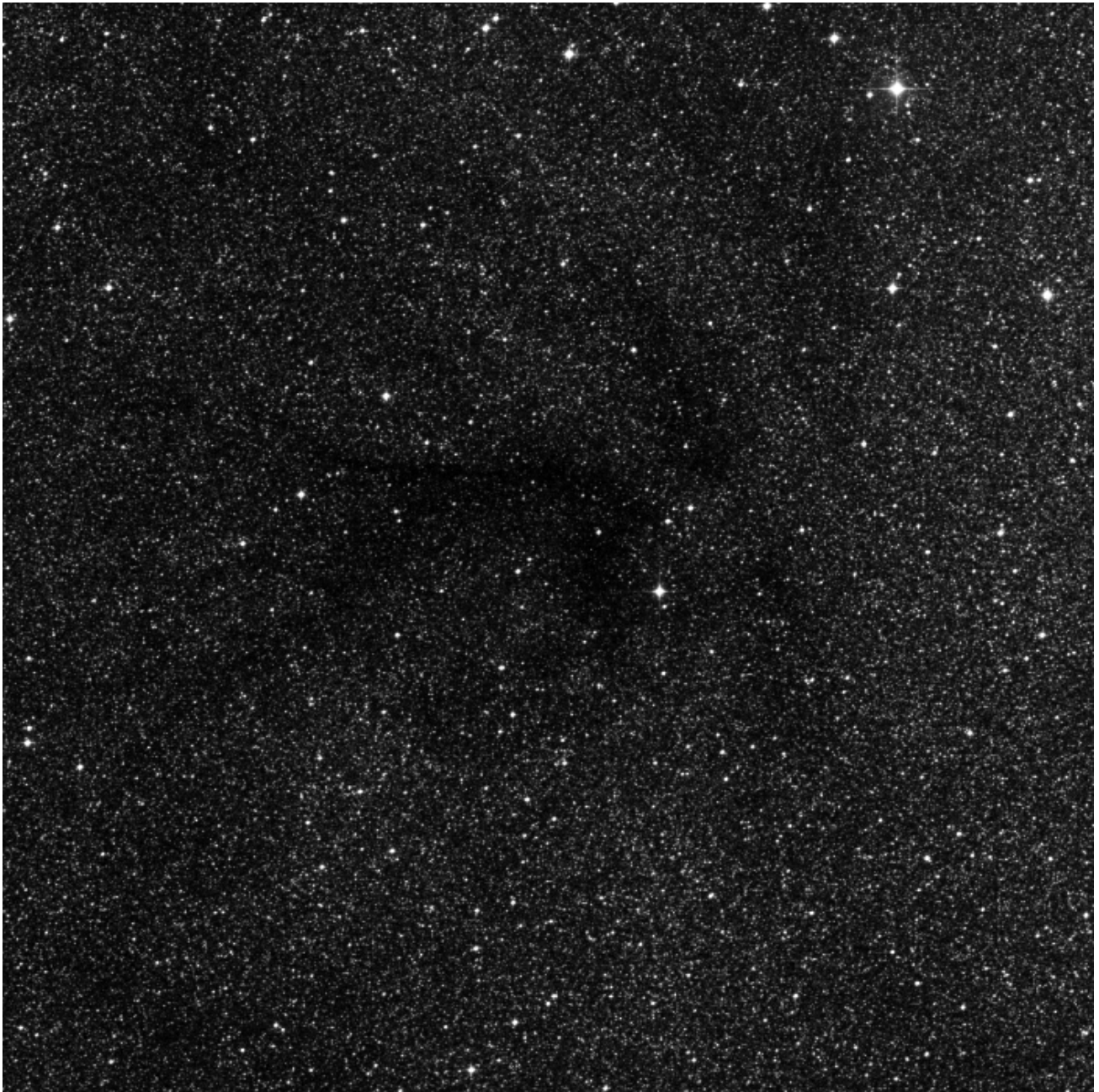
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
SI 17	17 53 00.0	-43 35 00	40 x 5	5	50 x 50	181

Barnard 286



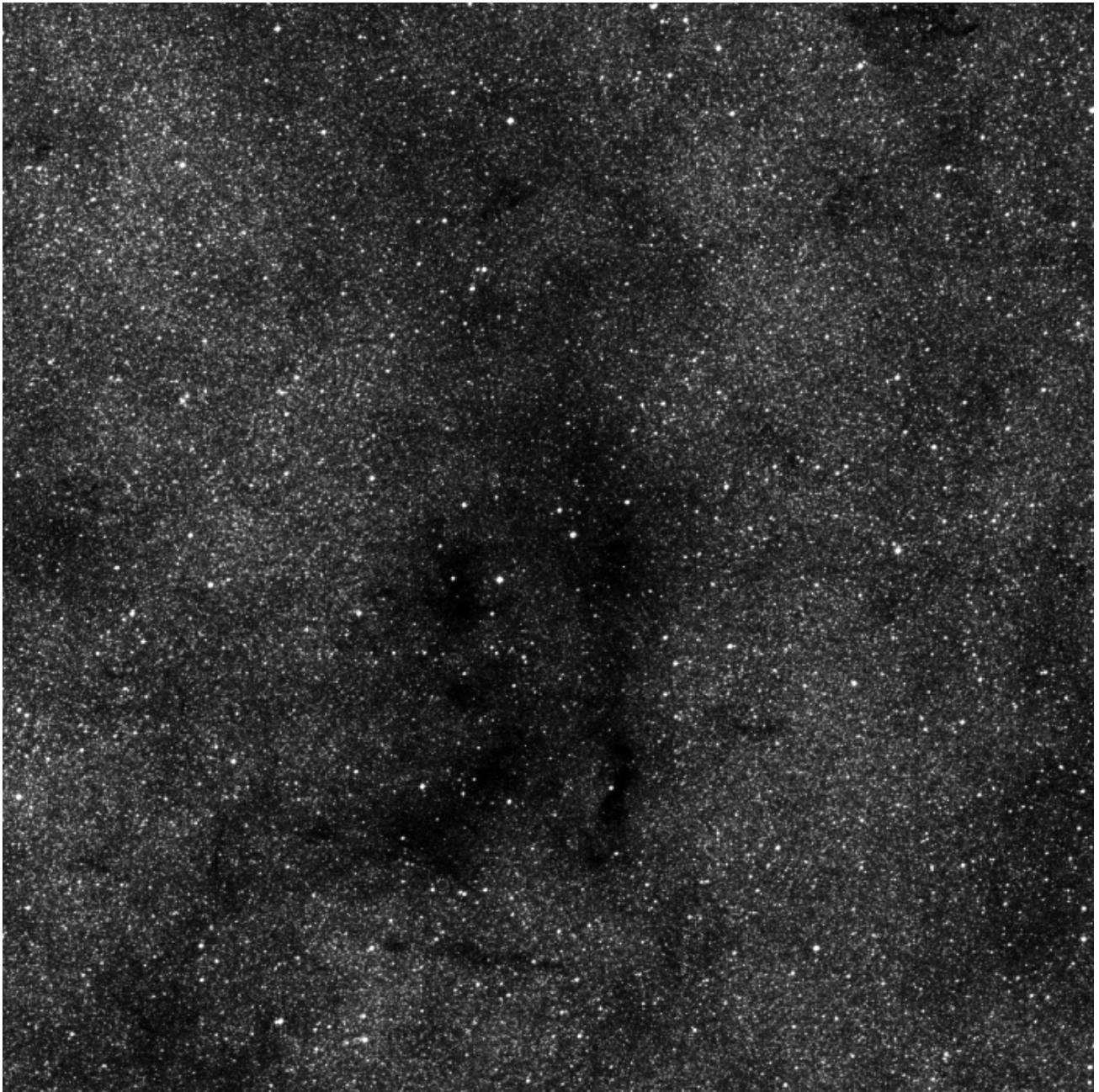
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 286	17 53 03.6	-35 37 00	15 x 15		30 x 30	164

Barnard 287



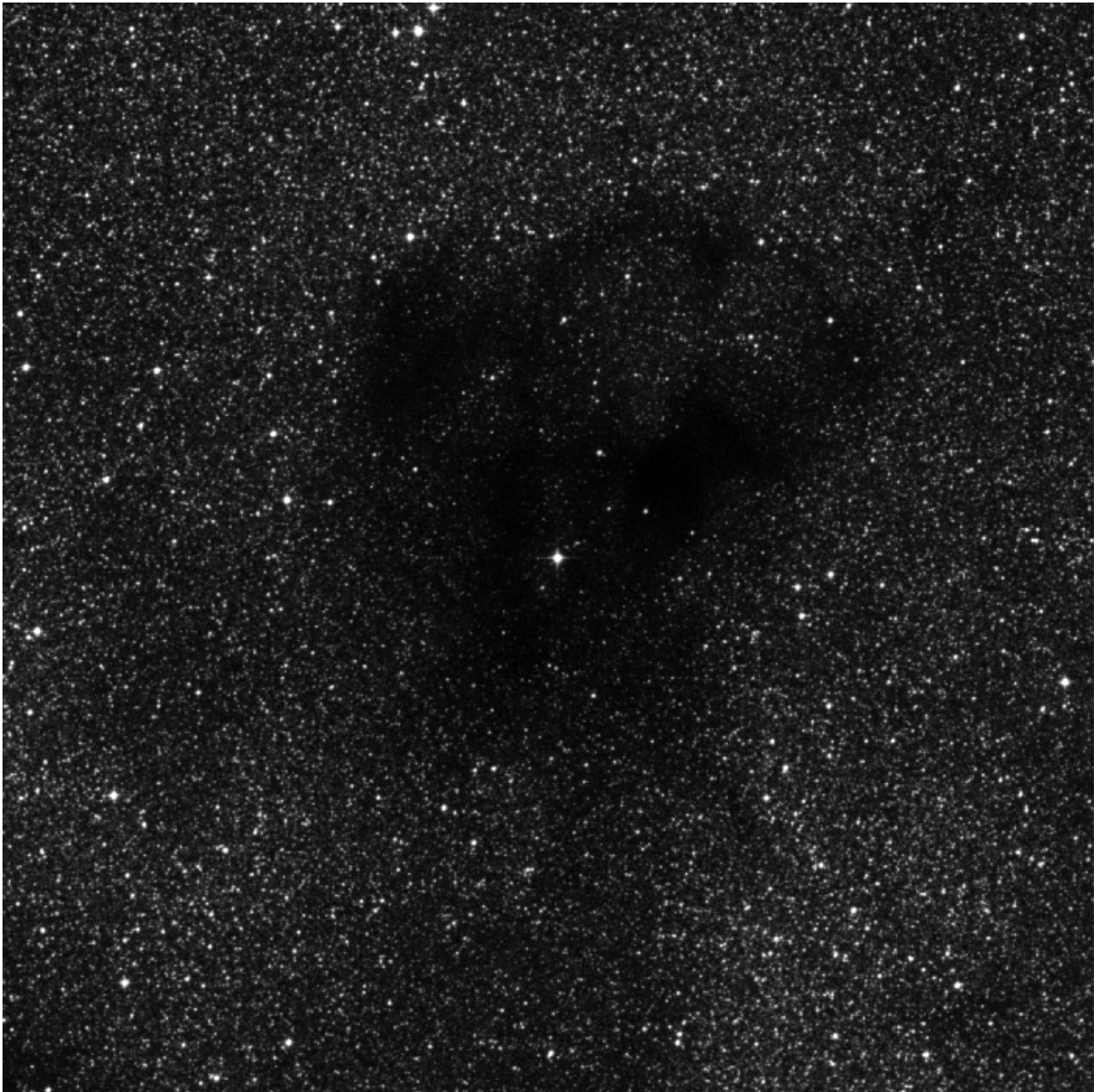
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 287	17 54 26.8	-35 12 00	25 x 15	5	40 x 40	164

Barnard 289



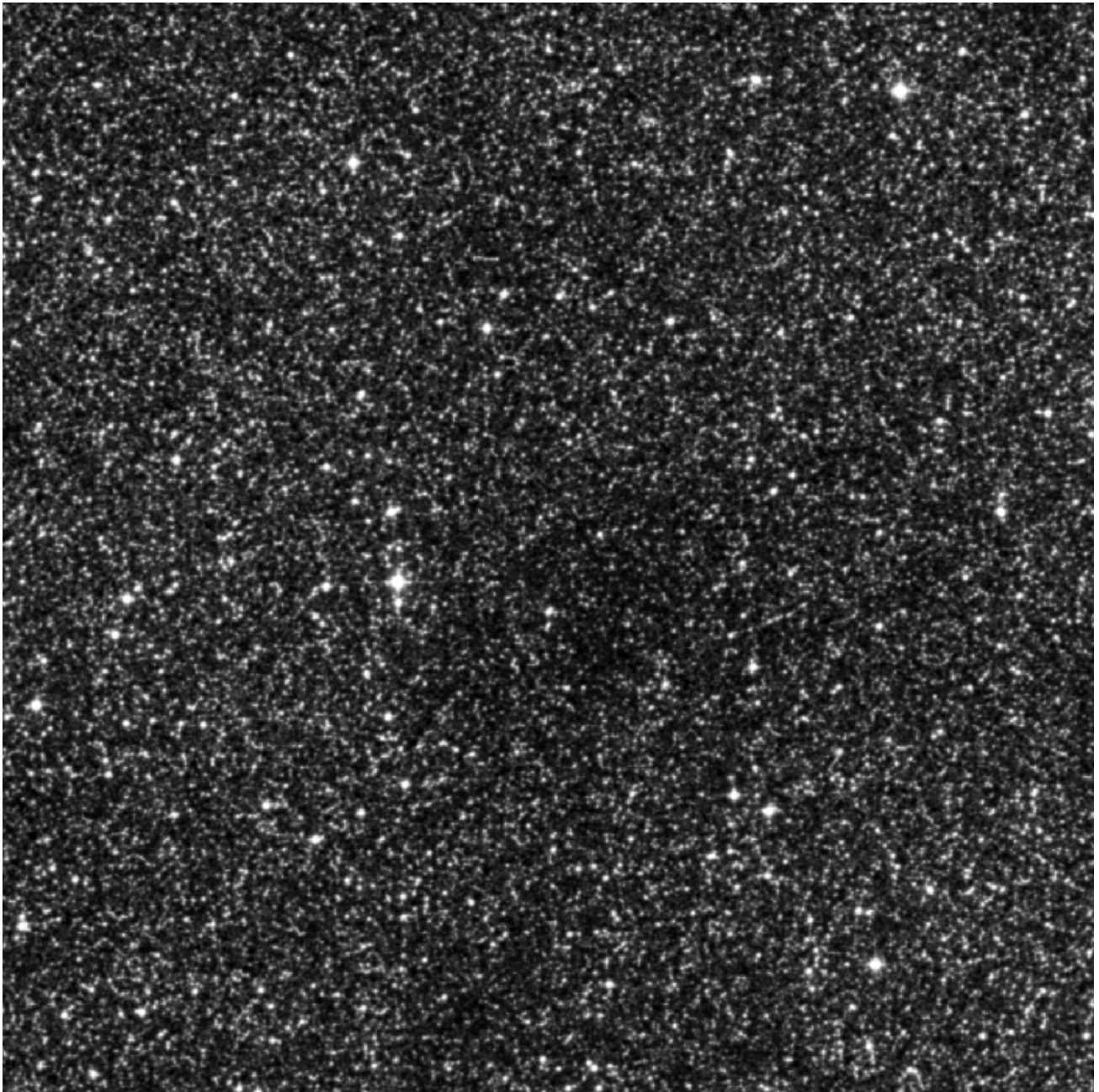
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 289	17 56 36.8	-29 01 00	35 x 7	4	40 x 40	145

Barnard 84a



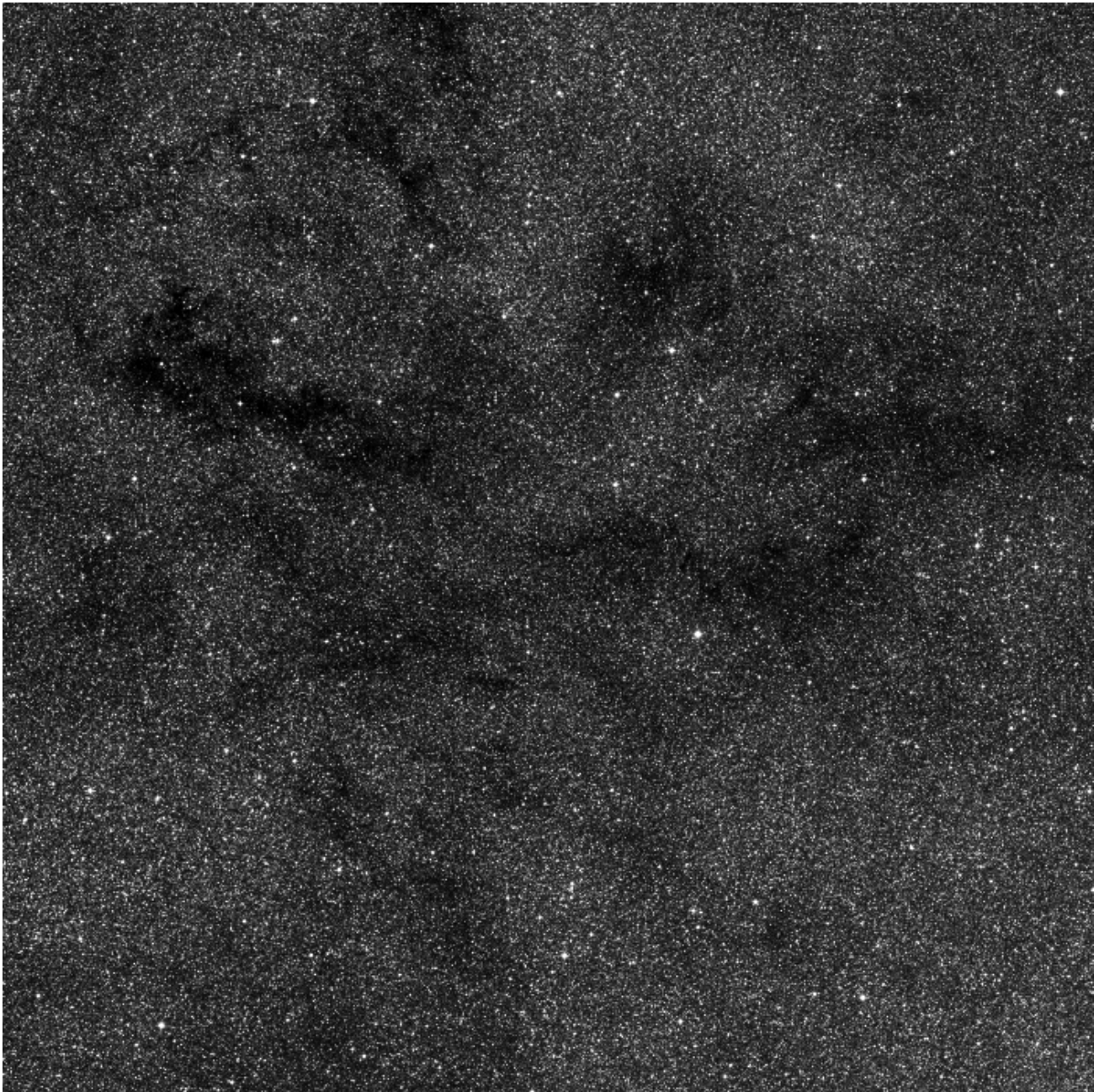
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 84a	17 57 37.4	-17 40 00	16 x 16	5	30 x 30	126

Barnard 291



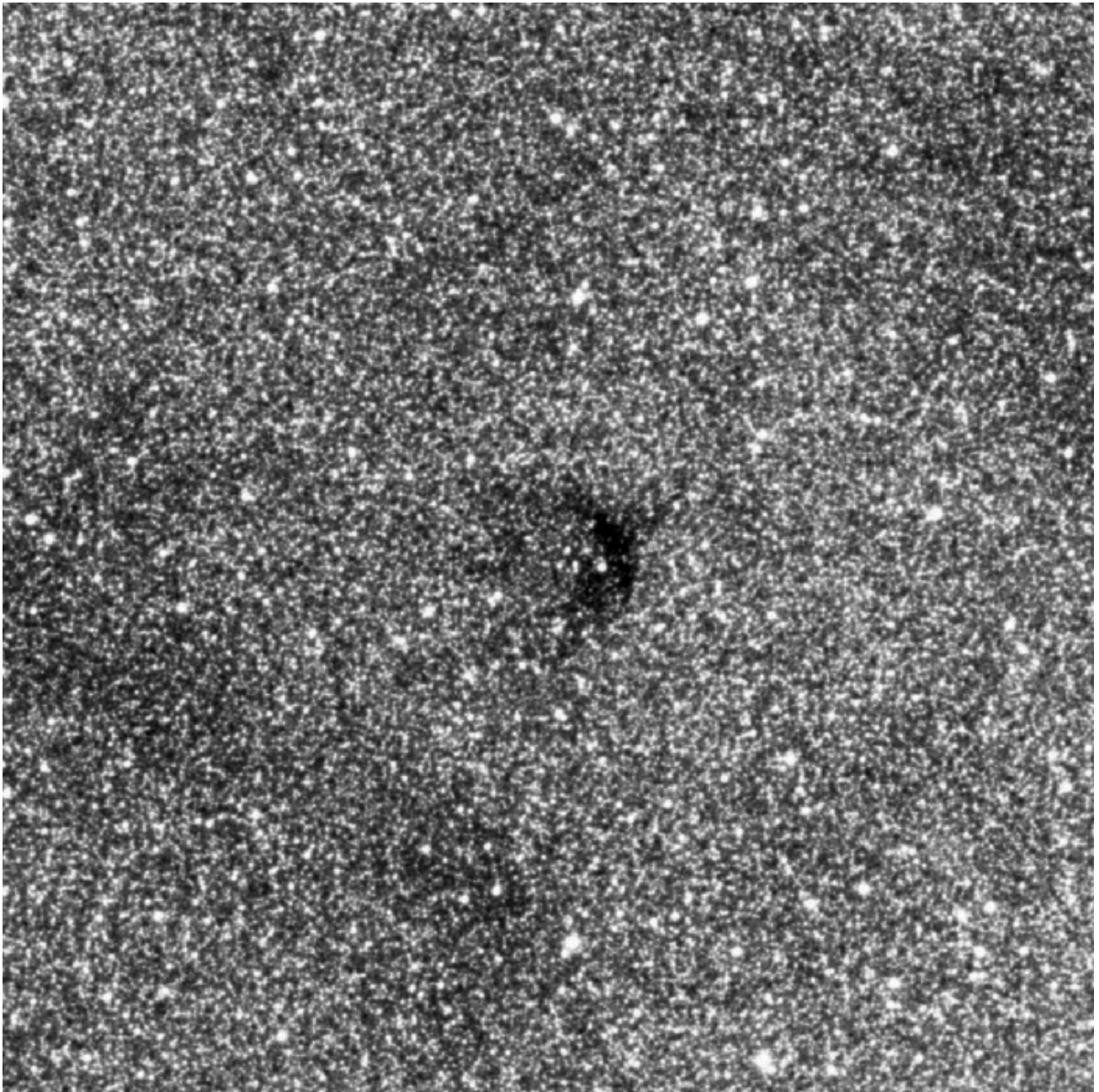
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 291	17 59 43.4	-33 54 00	5 x 5		20 x 20	163

Barnard 292



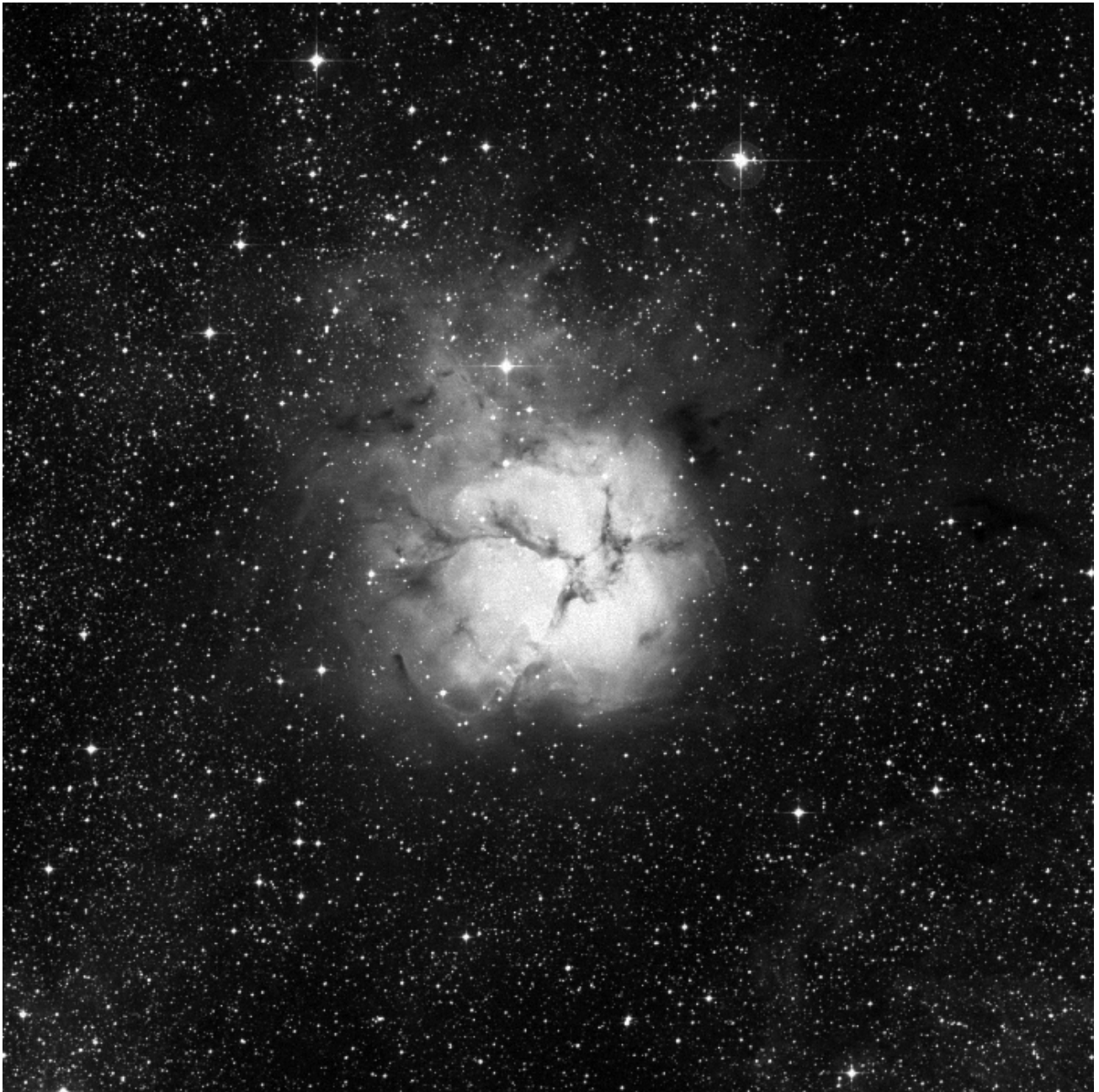
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 292	18 00 34.1	-33 21 00	60 x 60		60 x 60	163

Barnard 294



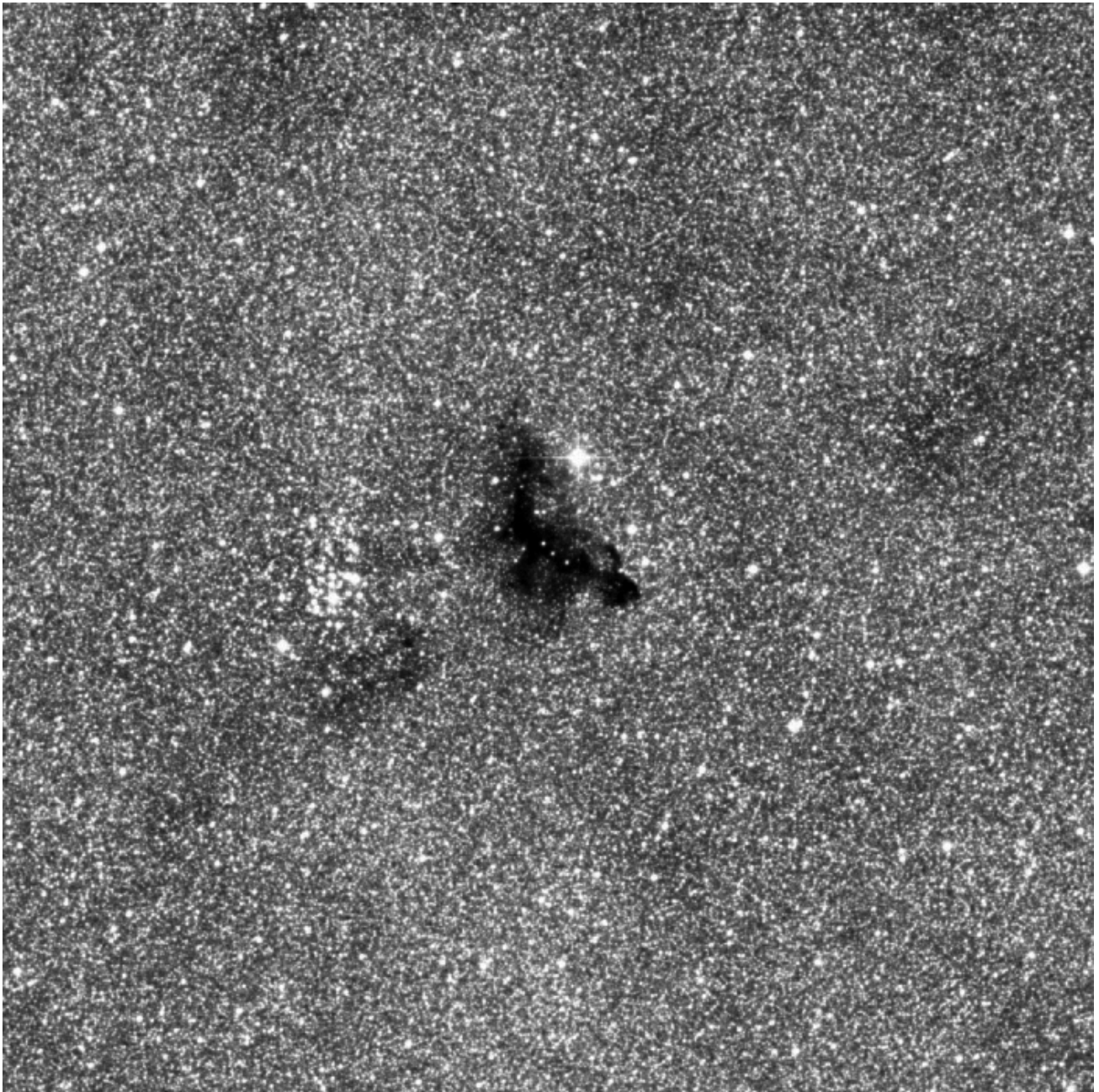
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 294	18 01 30.3	-28 36 30	3 x 3	3	20 x 20	145

Barnard 85



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 85	18 02 25.2	-23 01 00			40 x 40	145

Barnard 86



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 86	18 03 01.5	-27 52 00	5 x 5	5	30 x 30	145

Barnard 295



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 295	18 04 05.2	-32 00 00	50 x 50	4	60 x 60	163

Barnard 88-89-296



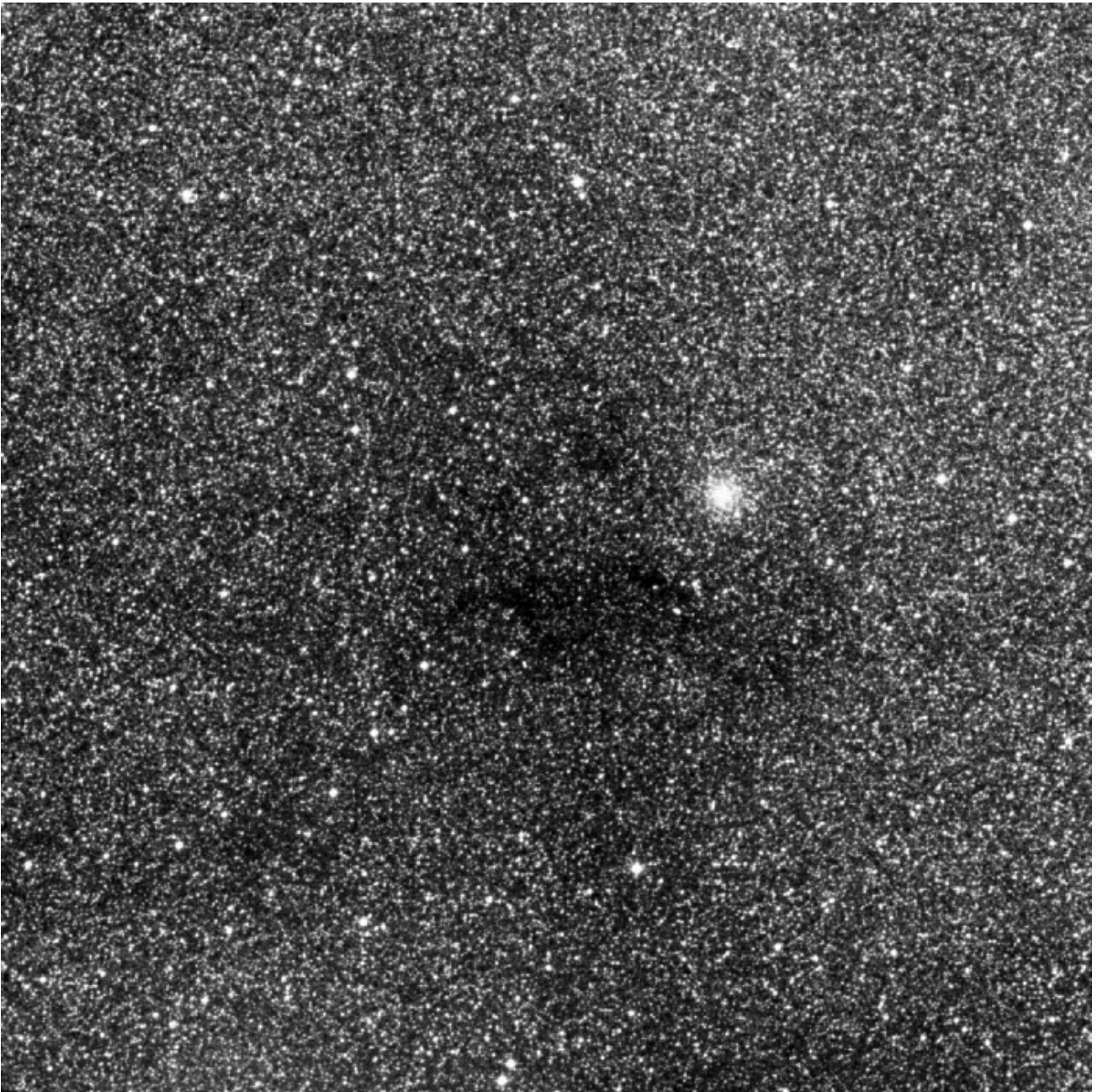
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 88	18 04 35.0	-24 06 52	2.0 x 0.5	in M8	50 x 50	145
Barnard 89	18 04 59.8	-24 21 50	0.5 x 0.5			
Barnard 296	18 04 04.4	-24 32 00	6 x 1			

Barnard 87



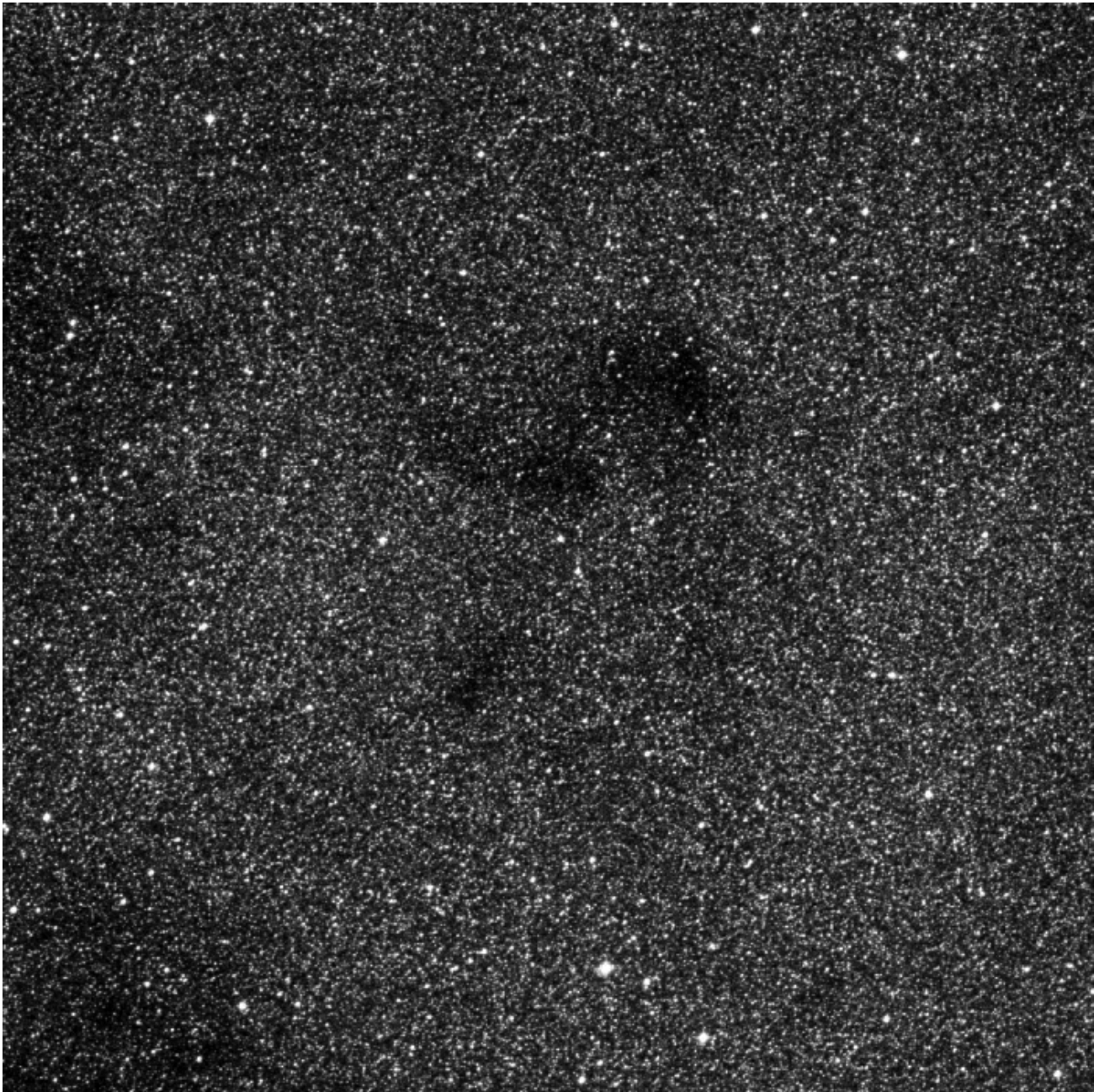
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 87	18 04 10.6	-32 20 00	12 x 12	4	30 x 30	163

Barnard 298



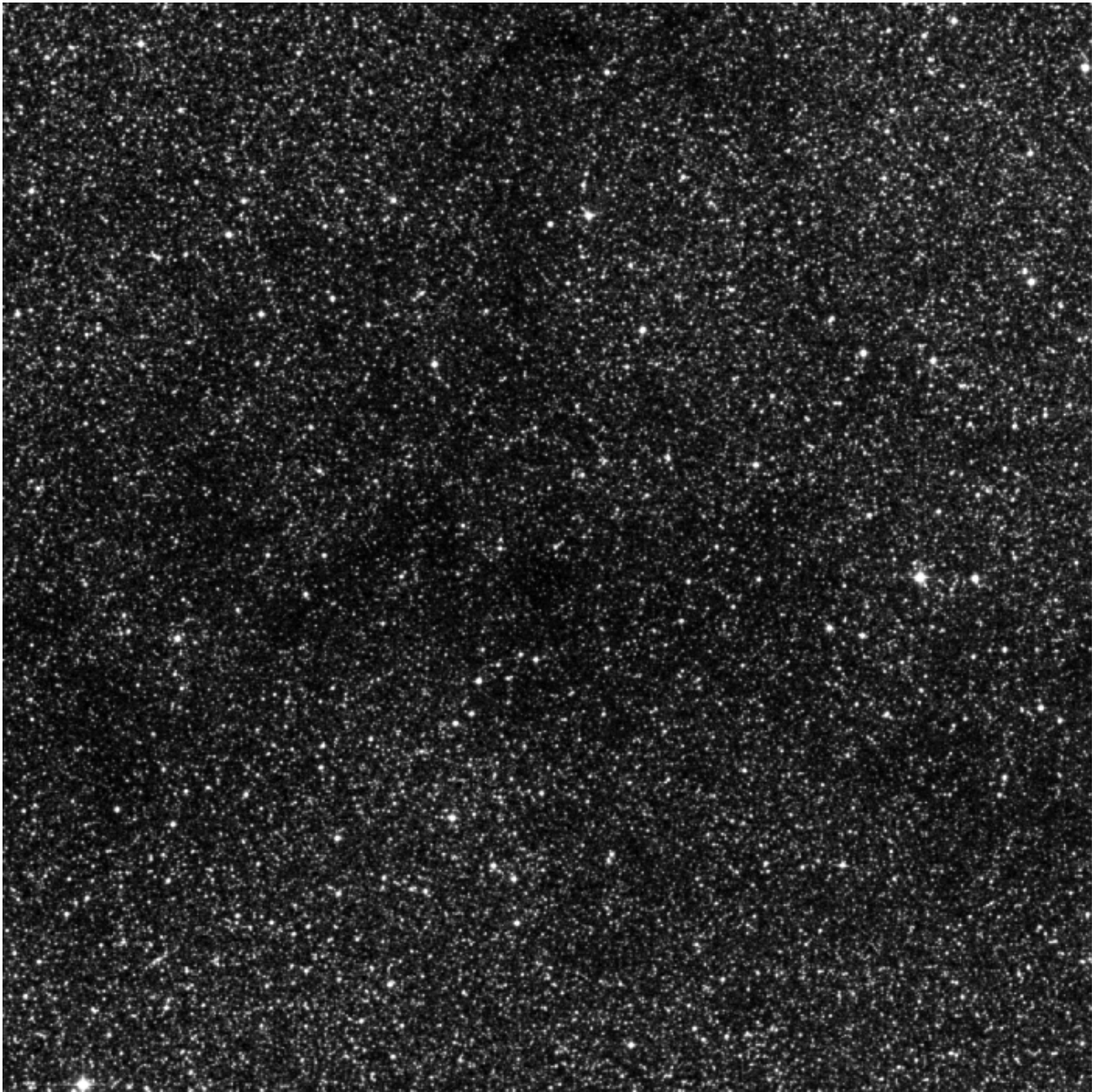
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 298	18 05 11.0	-30 06 00	4 x 4		30 x 30	163

Barnard 299



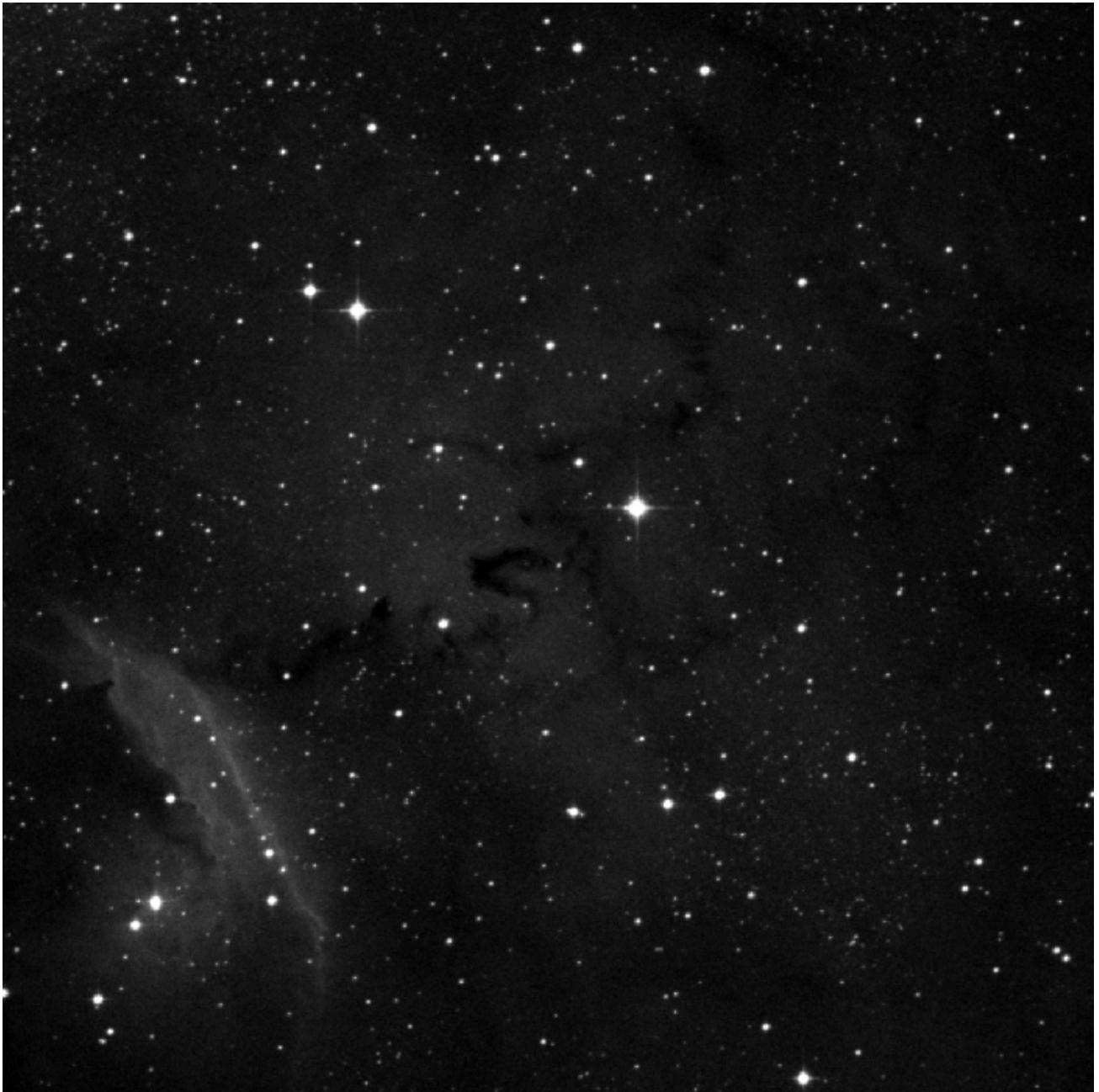
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 299	18 06 20.4	-27 18 00		3	30 x 30	145

Barnard 300



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 300	18 07 01.3	-32 39 00		4	30 x 30	163

Barnard 302-303



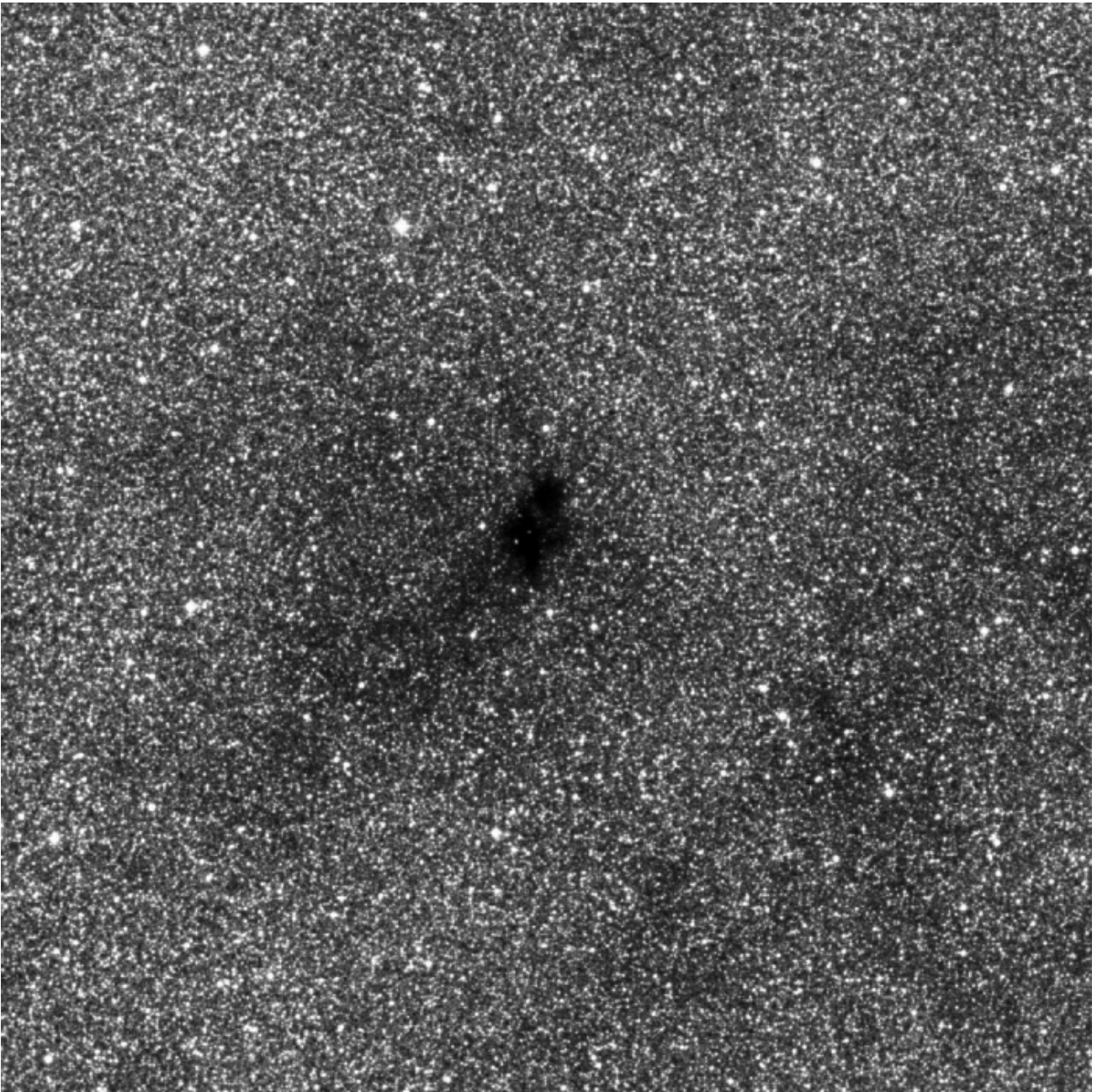
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 302	18 09 13.5	-23 58 00	0.5 x 0.5	5	20 x 20	145
Barnard 303	18 09 28.6	-24 00 00	1 x 1	5		

Barnard 91



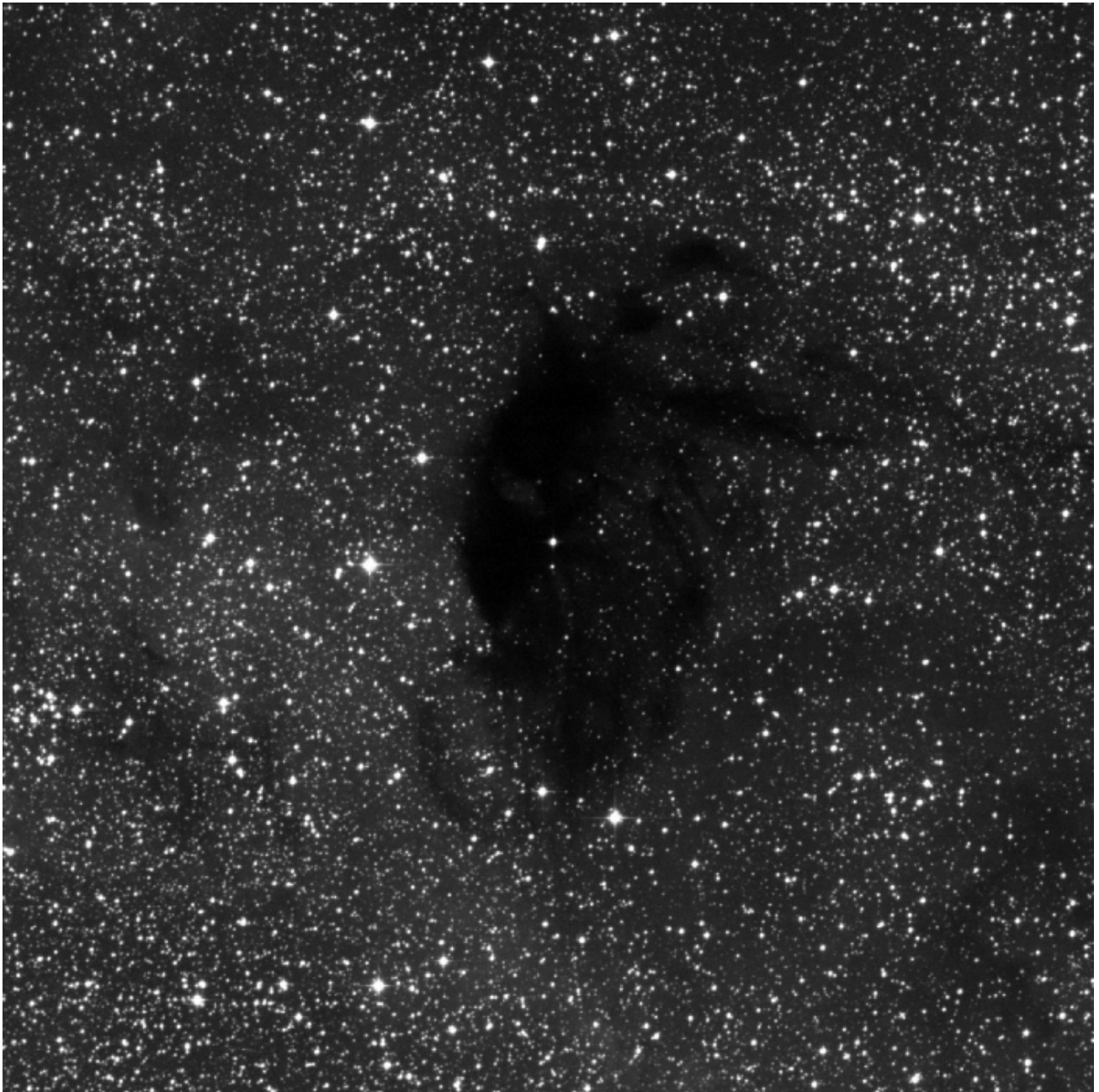
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 91	18 10 07.5	-23 42 00	5 x 2	5	30 x 30	145

Barnard 90



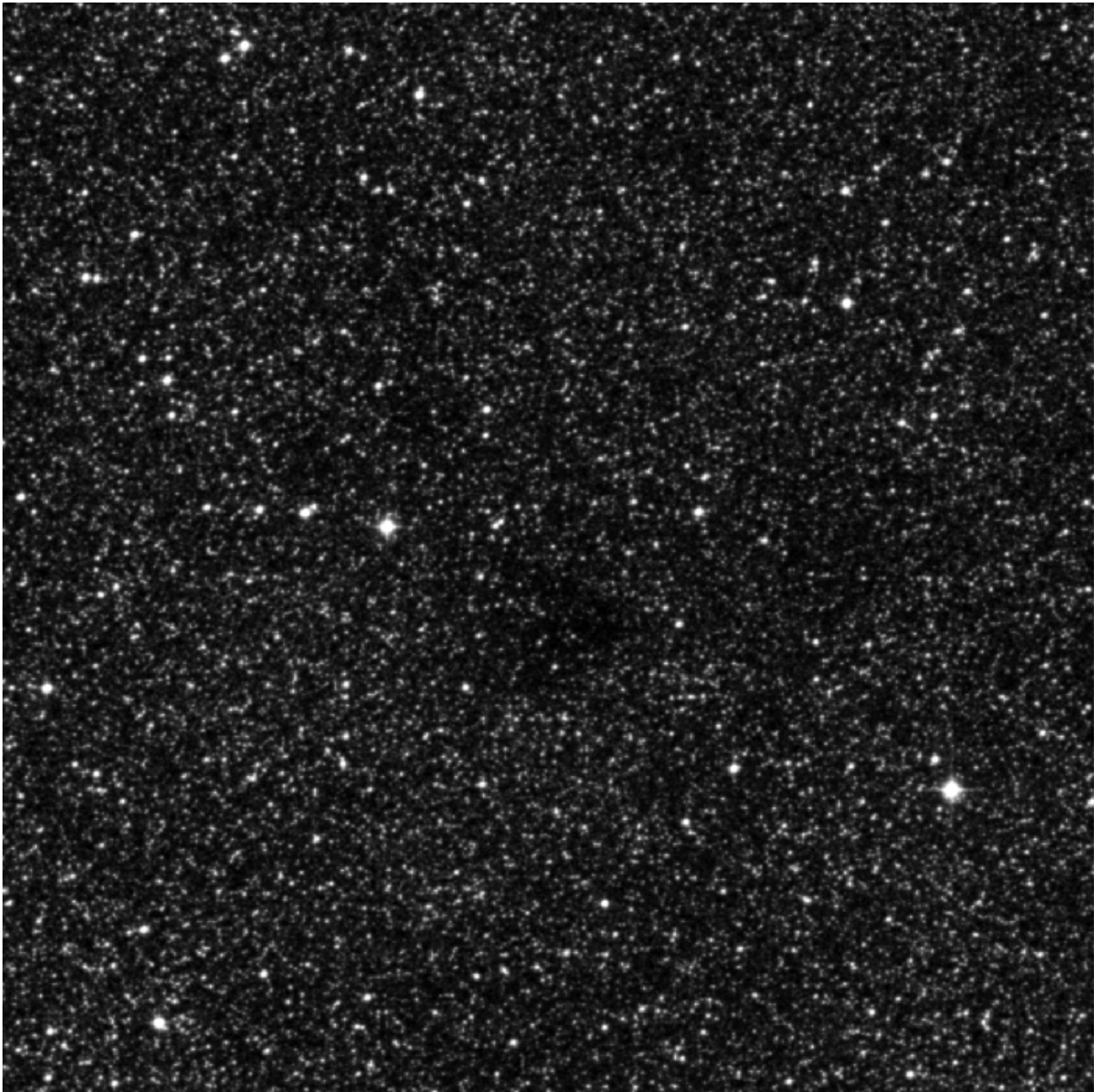
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 90	18 10 14.1	-28 16 50	3 x 1	5	30 x 30	145

Barnard 92



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 92	18 15 35.2	-18 14 00	15 x 9	6	30 x 30	145

Barnard 306



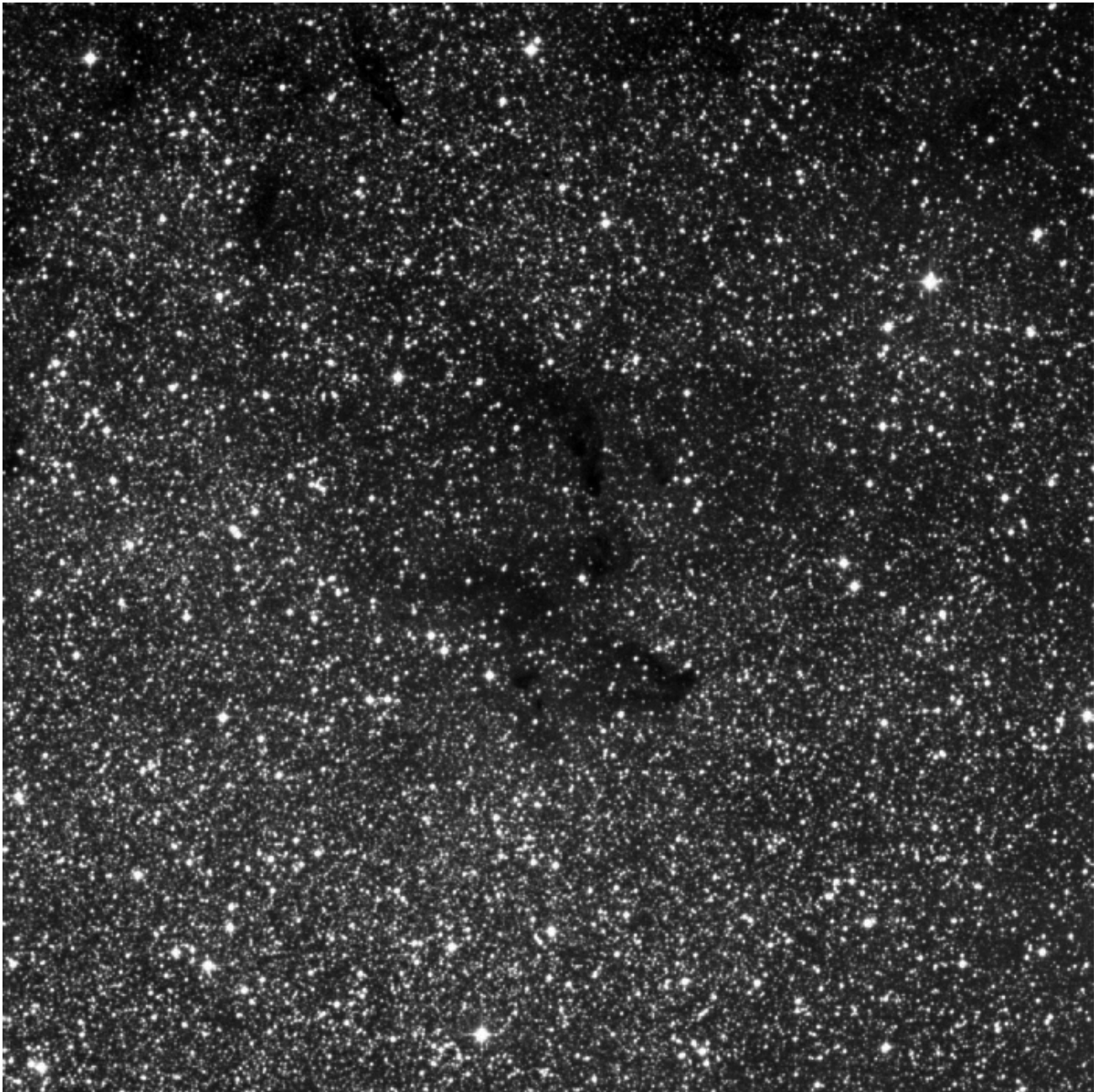
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 306	18 15 44.6	-25 43 00	4.0 x 0.5	3	20 x 20	145

Barnard 93



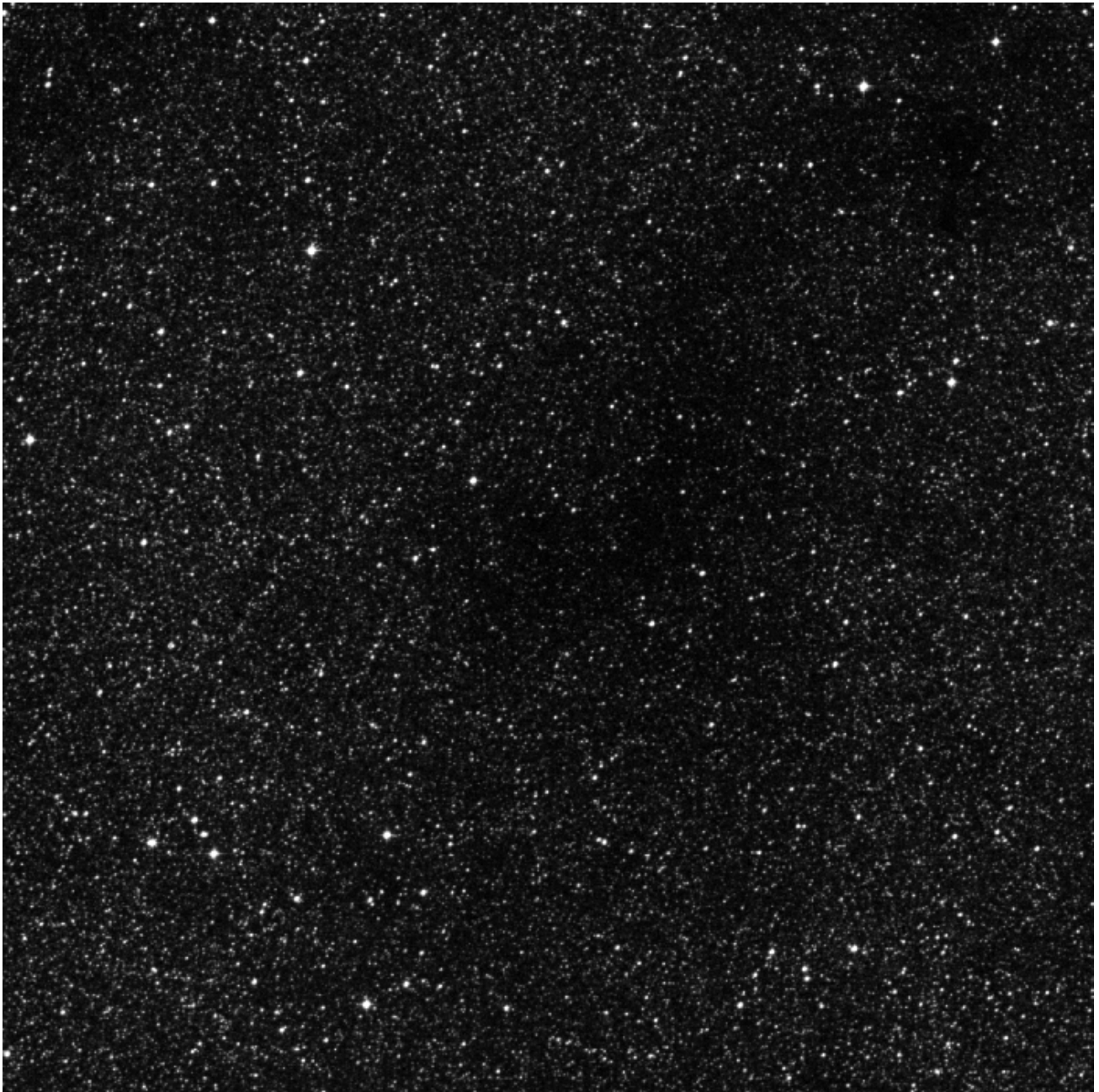
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 93	18 16 53.6	-18 04 00	15 x 2	4	30 x 30	145

Barnard 307



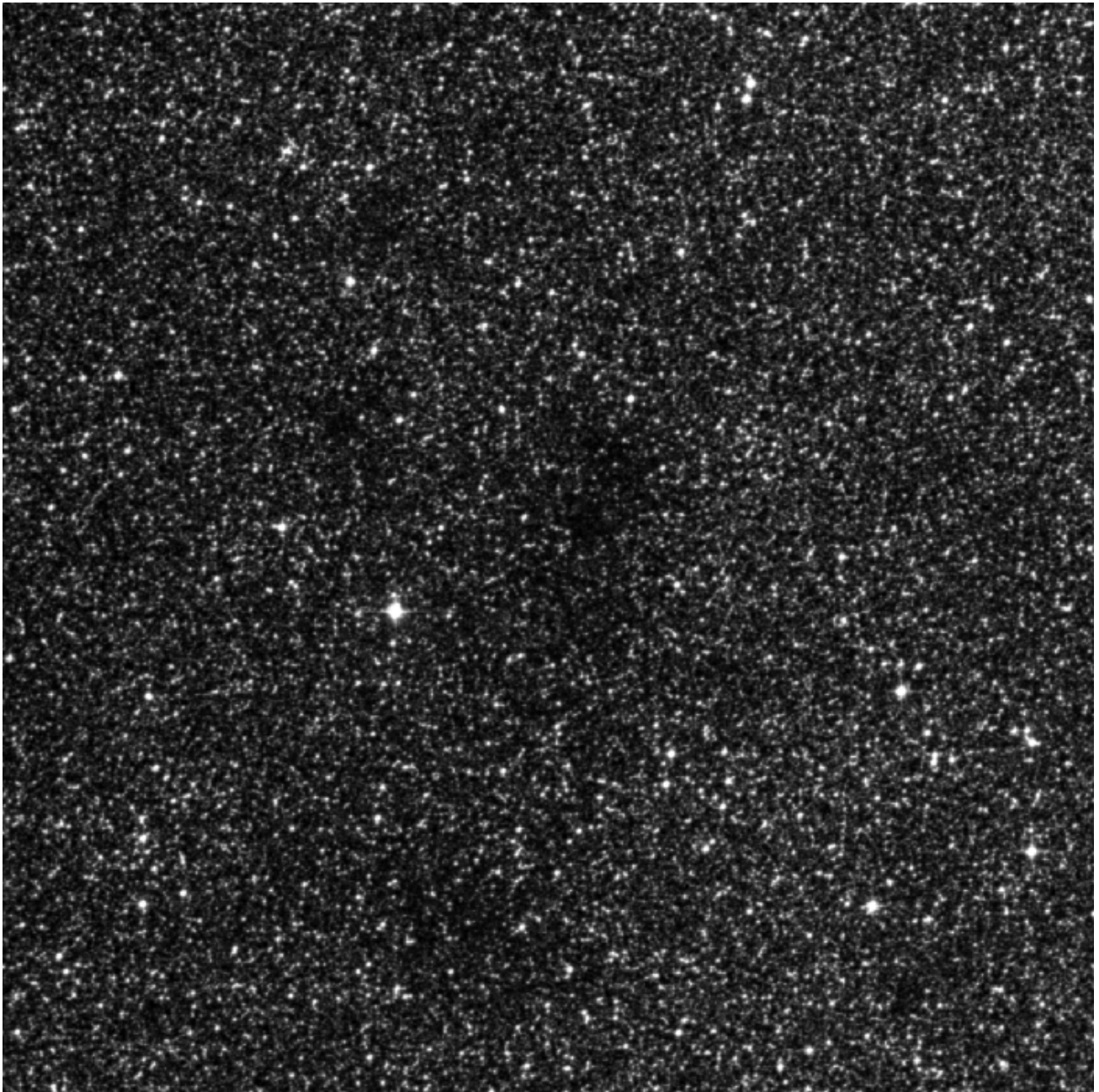
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 307	18 18 38.3	-17 57 00	6 x 1	3	30 x 30	145

Barnard 308



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 308	18 19 08.4	-22 14 00	7 x 5	3	30 x 30	145

Barnard 309



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 309	18 23 08.5	-24 02 00	5 x 5		20 x 20	145

Barnard 95



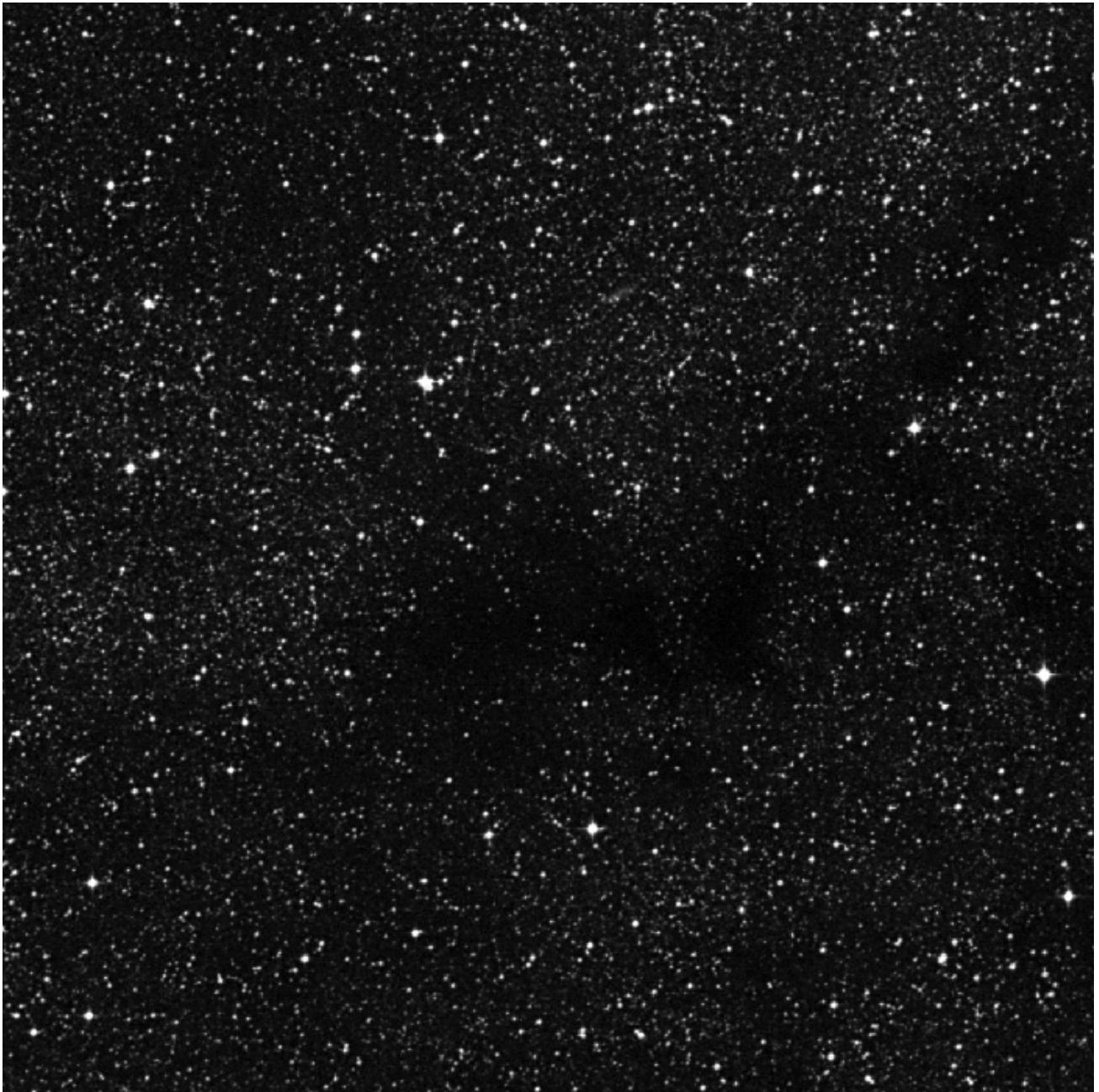
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 95	18 25 35.9	-11 45 00	30 x 30	5	40 x 40	126

Barnard 94



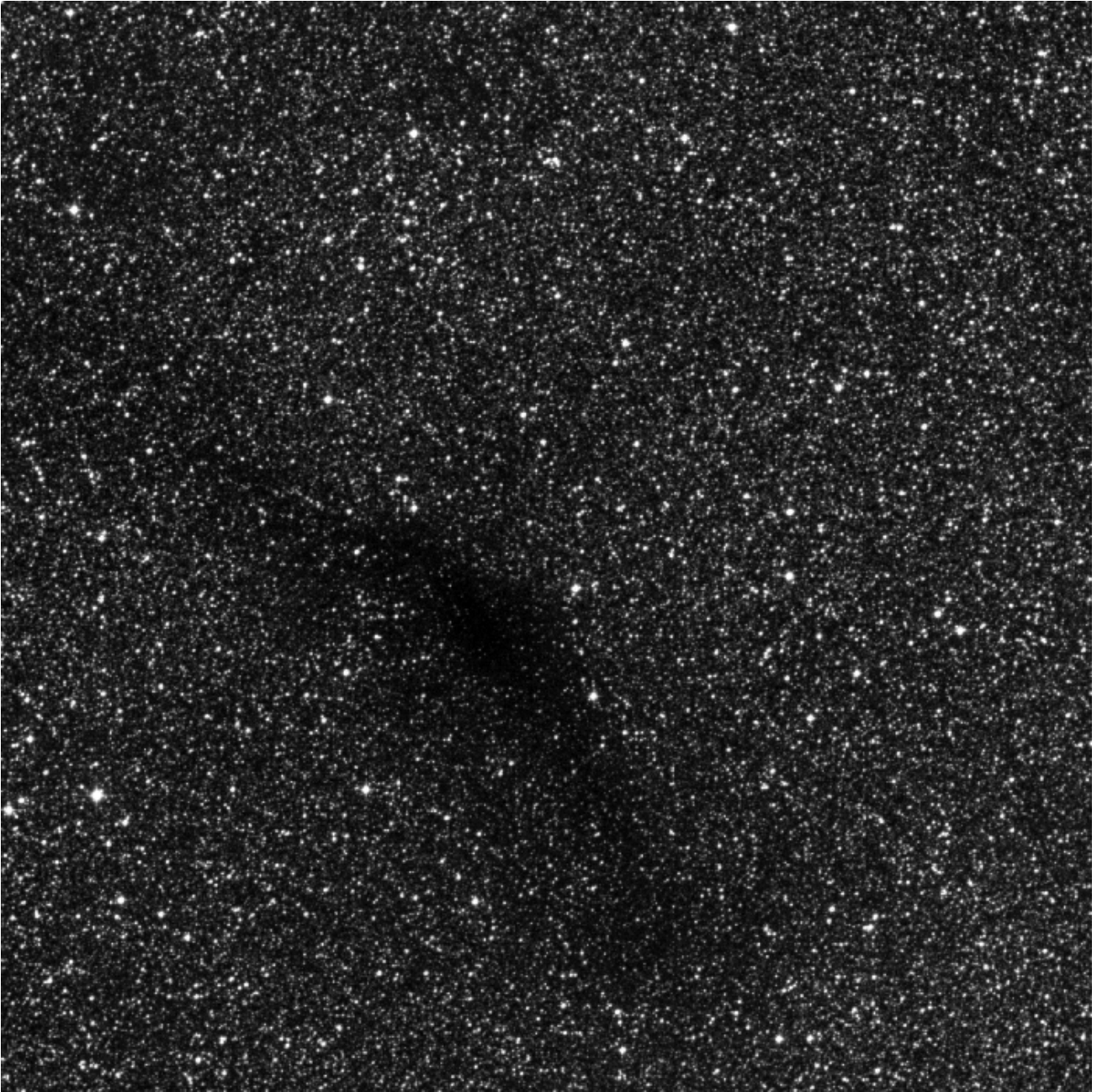
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 94	18 25 53.6	-10 39 00	15 x 15	4	30 x 30	126

Barnard 96



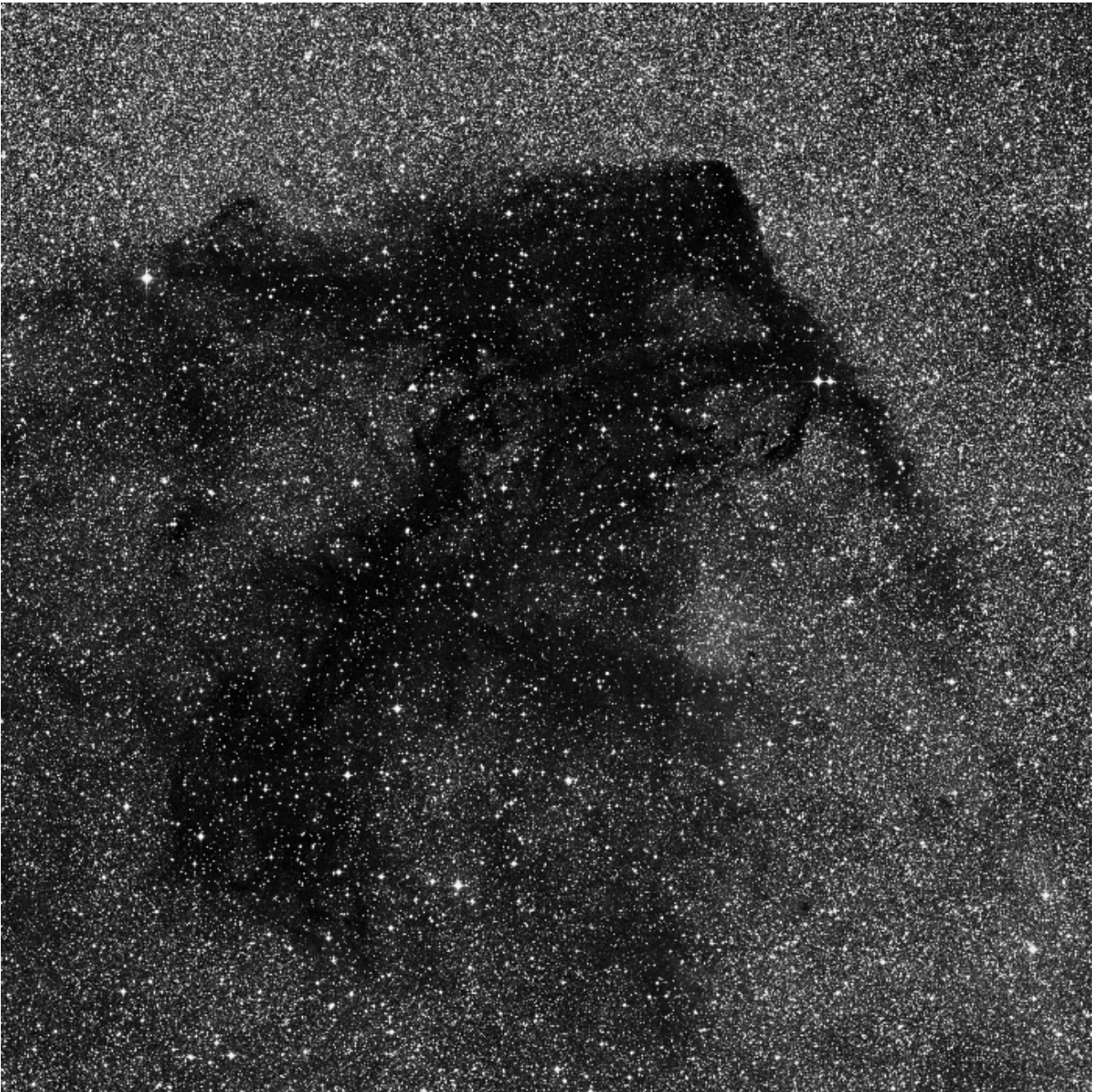
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 96	18 26 24.5	-10 18 00		4	20 x 20	126

Barnard 311



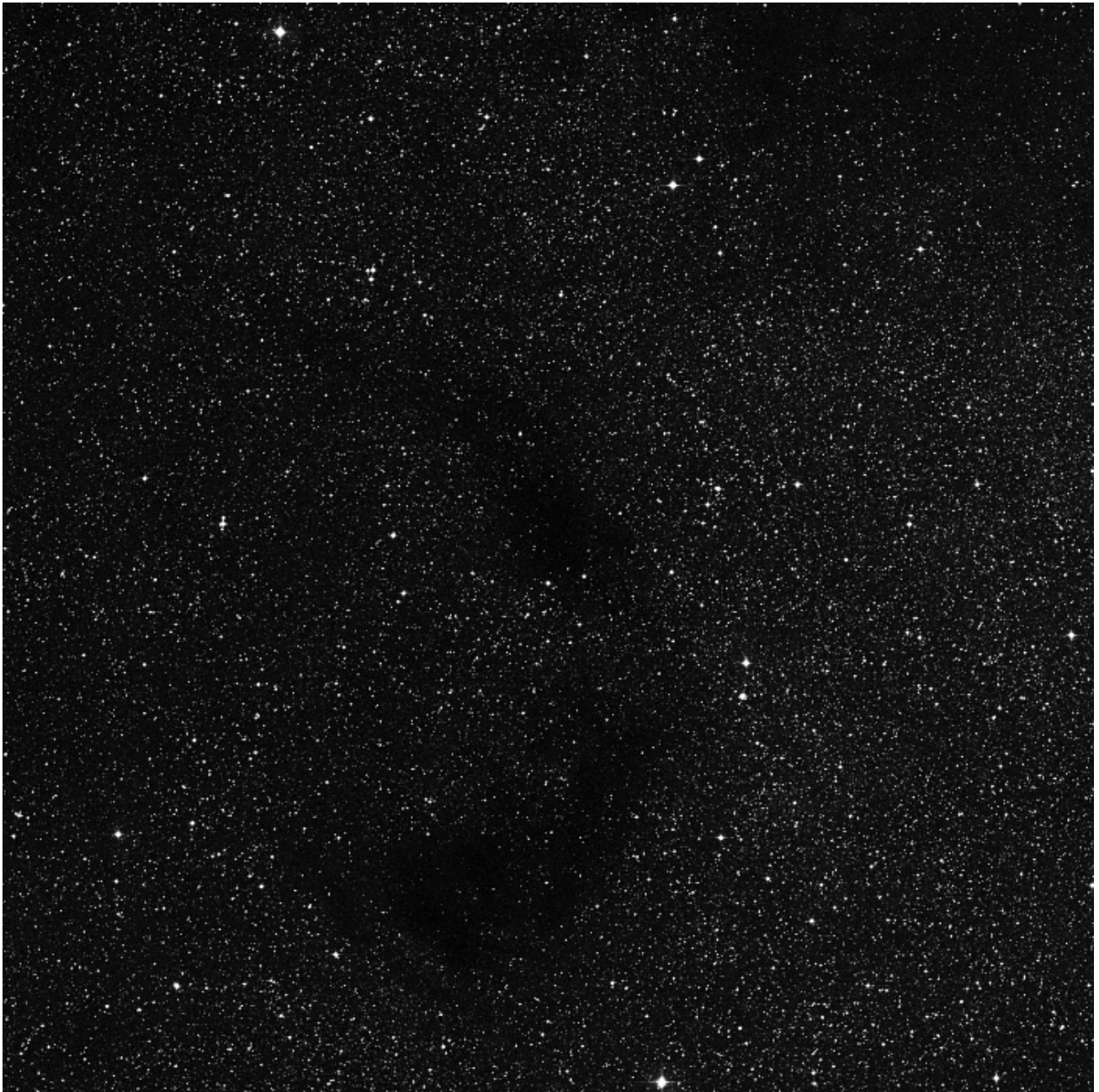
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 311	18 30 27.2	-17 40 00	6 x 1	4	30 x 30	145

Barnard 312



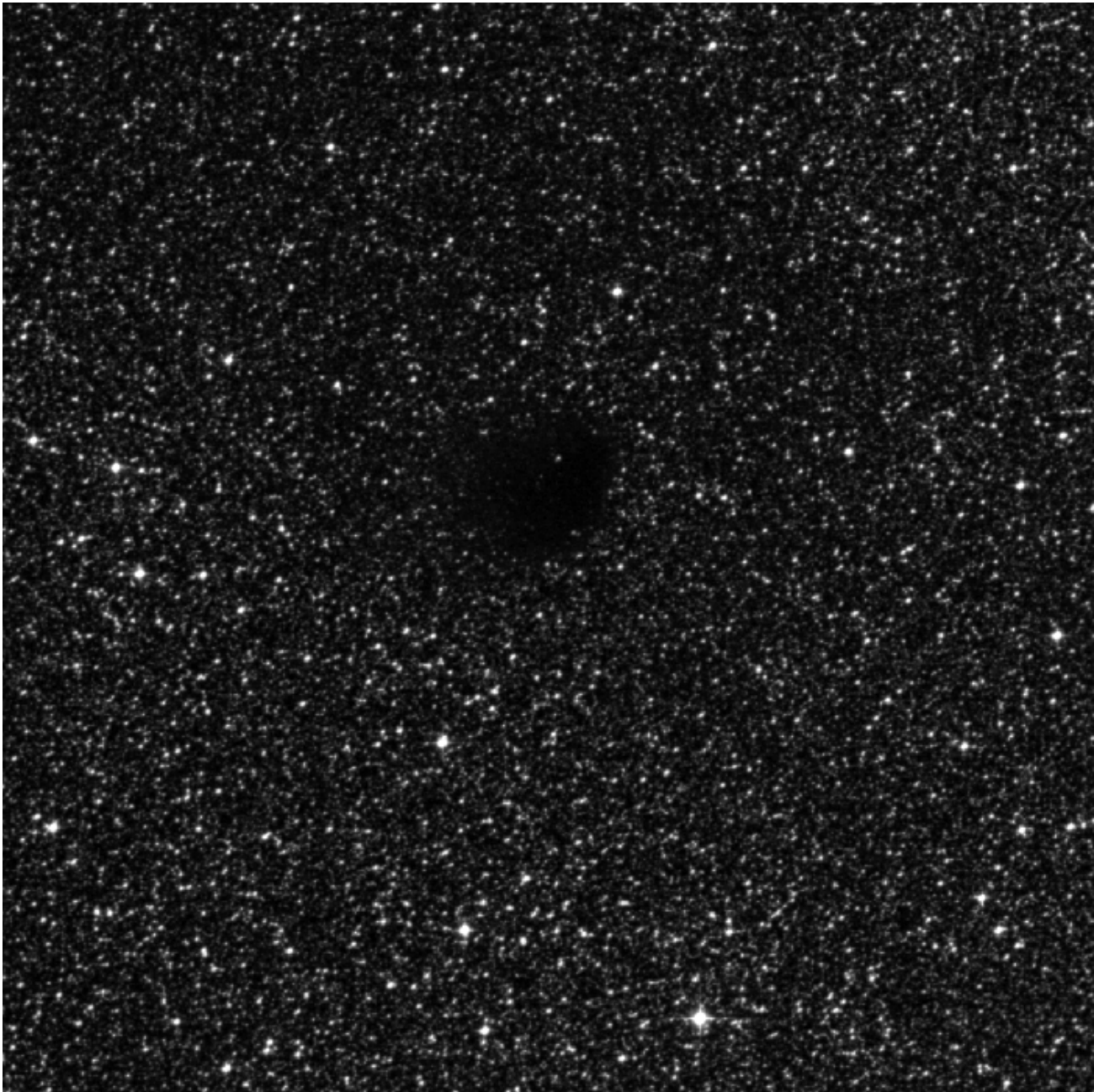
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 312	18 32 10.6	-15 35 00	100 x 30	4	60 x 60	125

Barnard 100-101



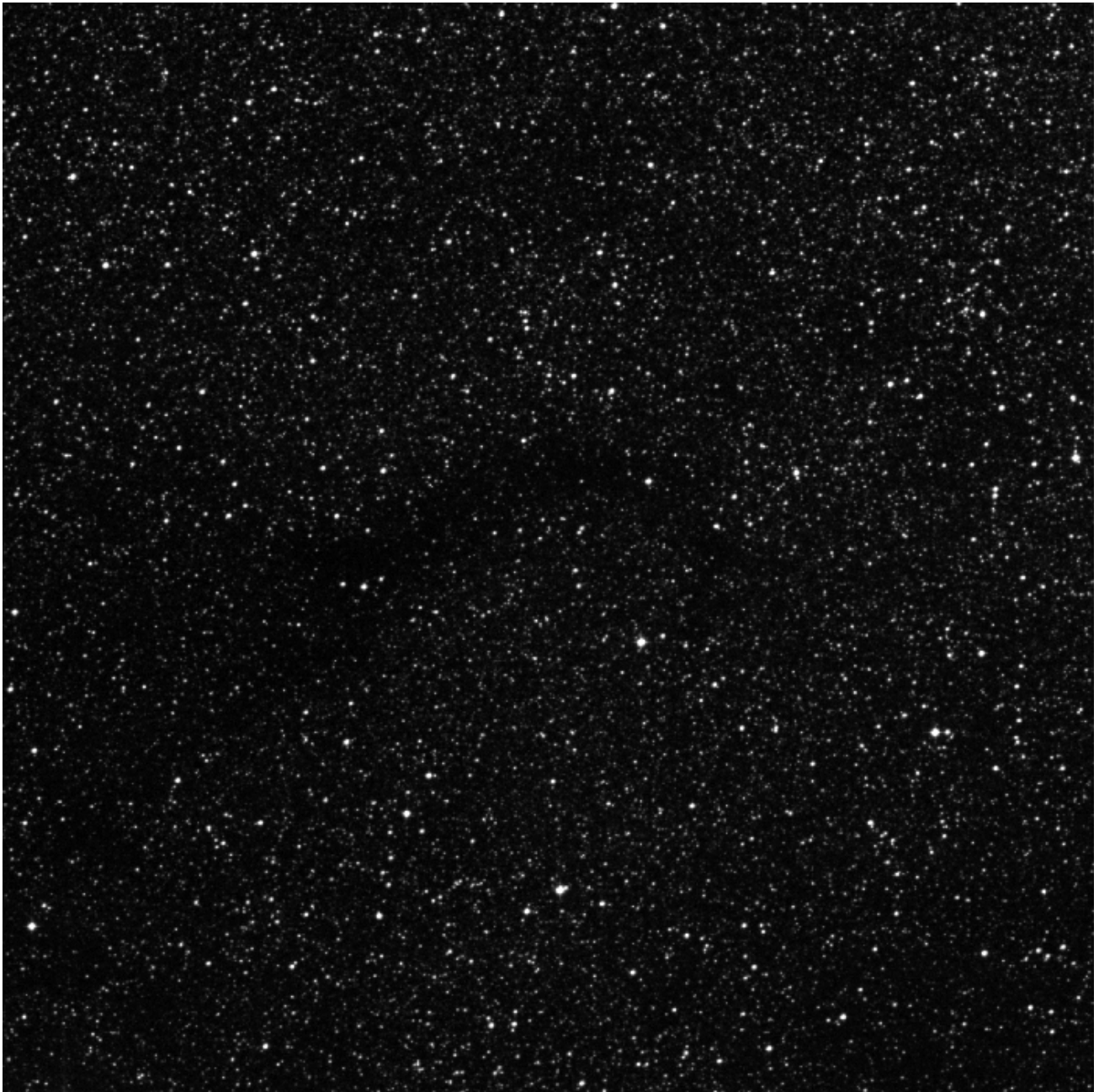
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 101	18 32 40.0	-08 49 00	13 x 4	5	50 x 50	126
Barnard 100	18 32 41.0	-09 09 00	16 x 16	5		

Barnard 98



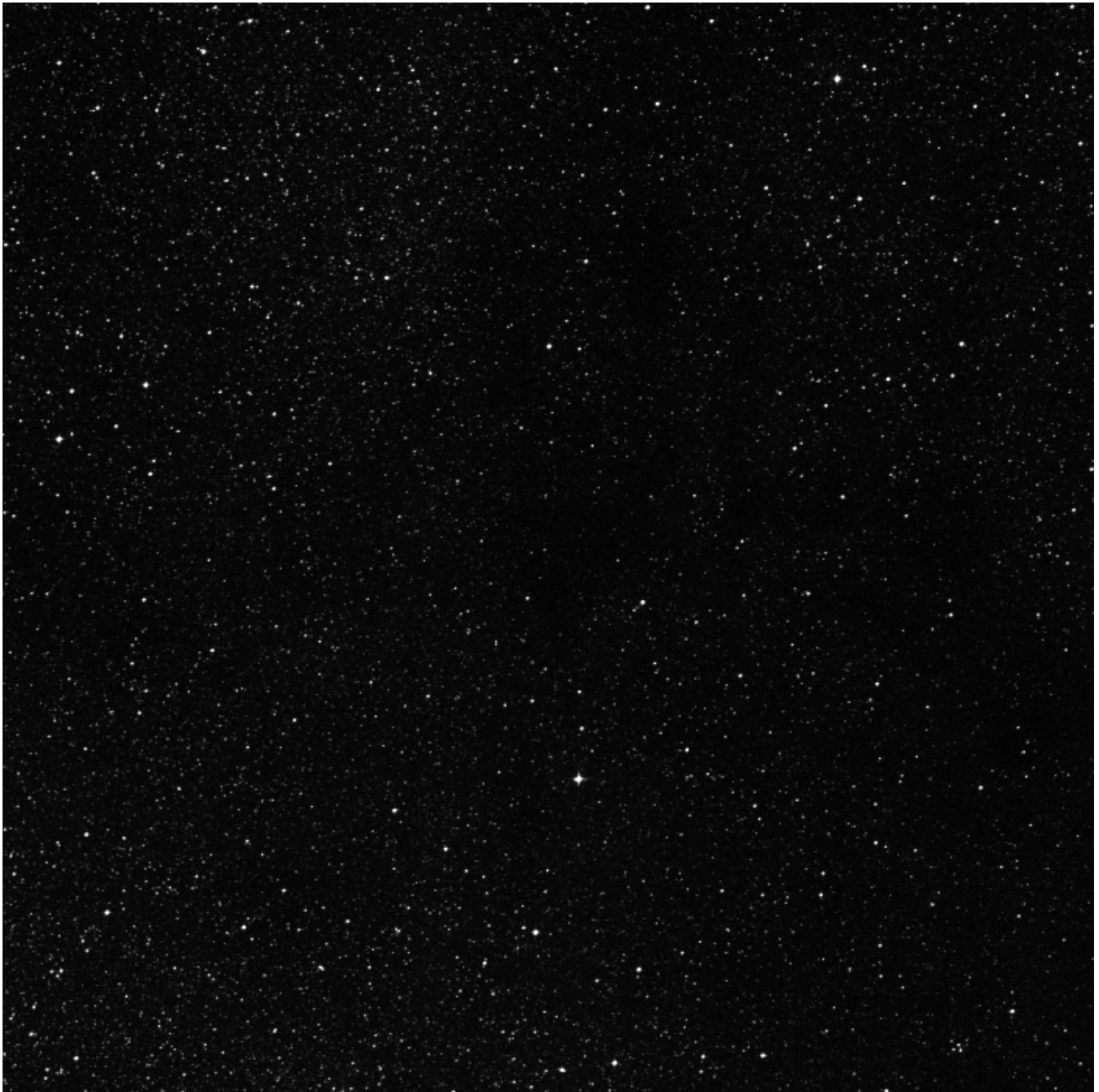
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 98	18 33 16.4	-26 03 40	3 x 3	6	20 x 20	145

Barnard 313



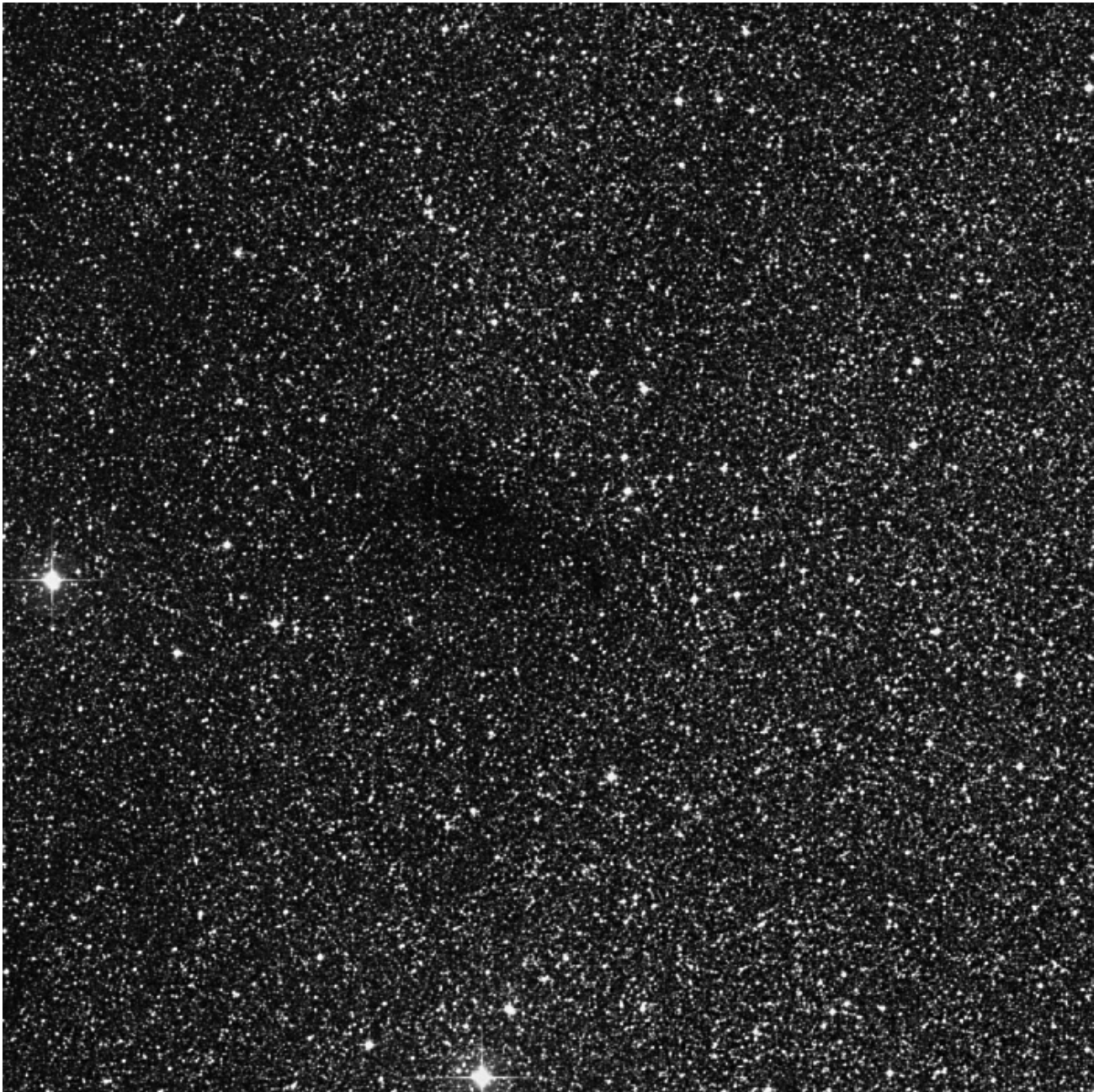
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 313	18 35 56.8	-15 41 00	15 x 2		30 x 30	125

Barnard 314



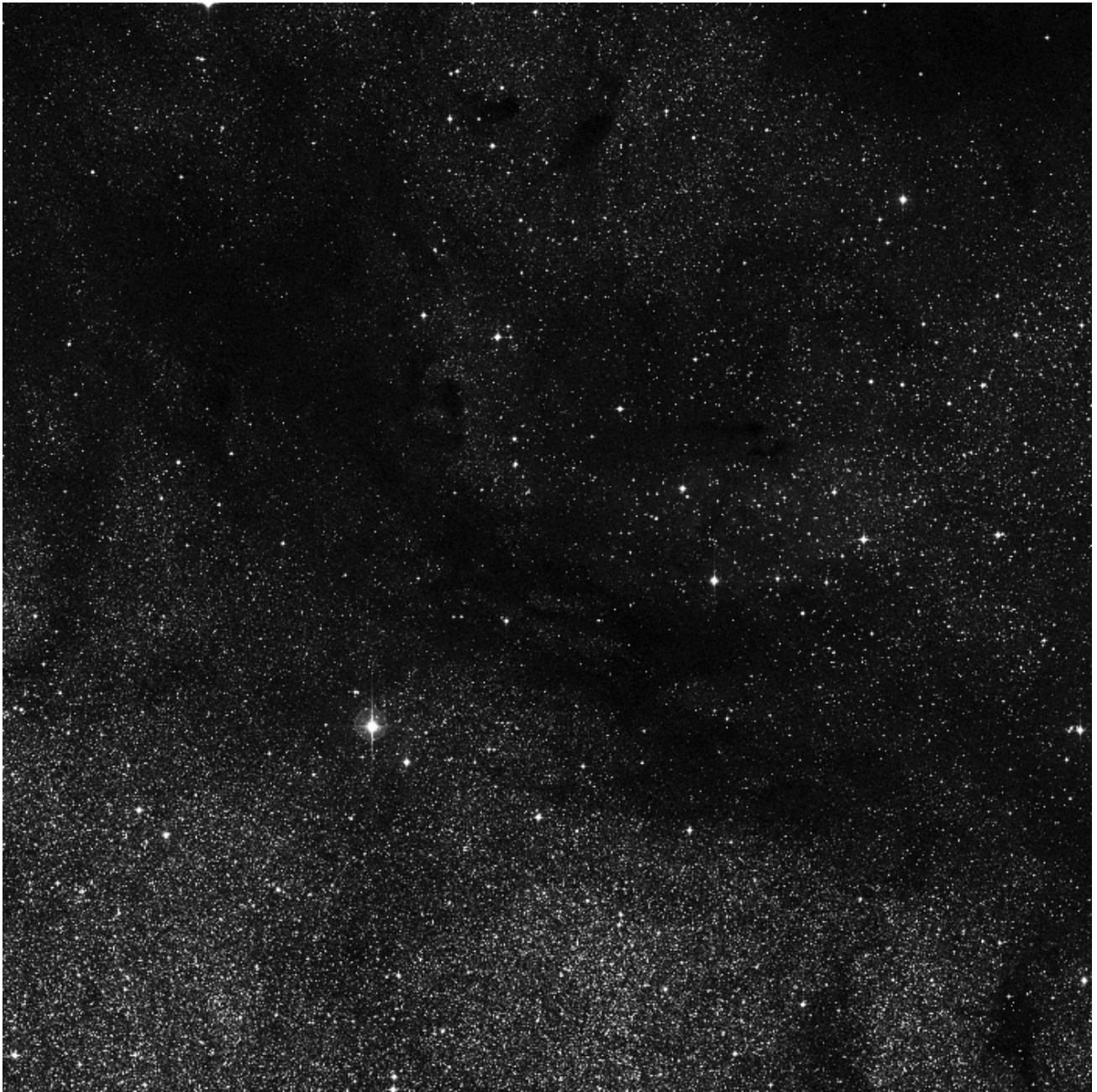
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 314	18 37 04.6	-09 43 00	35 x 25	5	40 x 40	125

Barnard 102



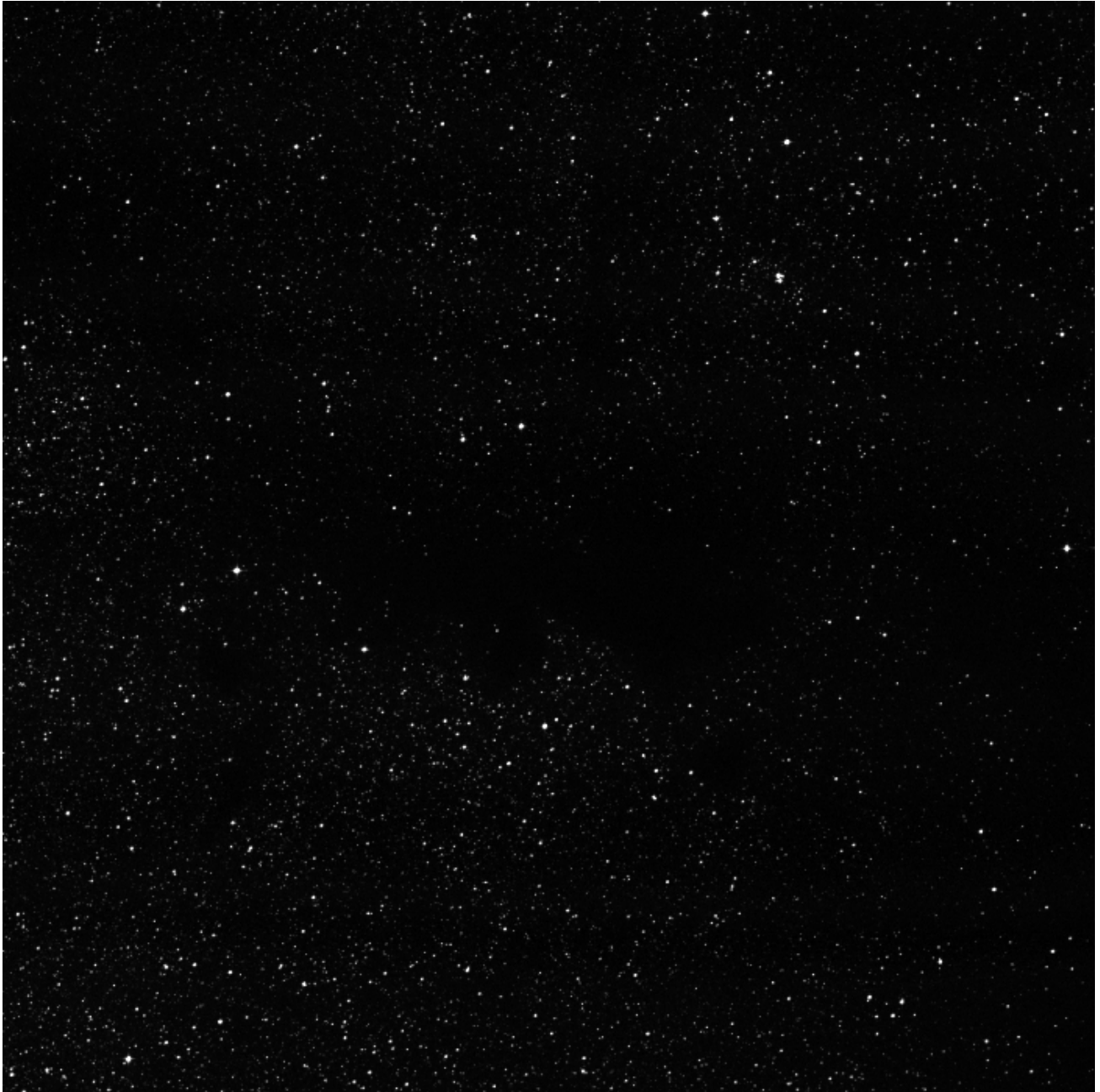
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 102	18 37 41.8	-13 45 00	8 x 3	5	30 x 30	125

LDN 557



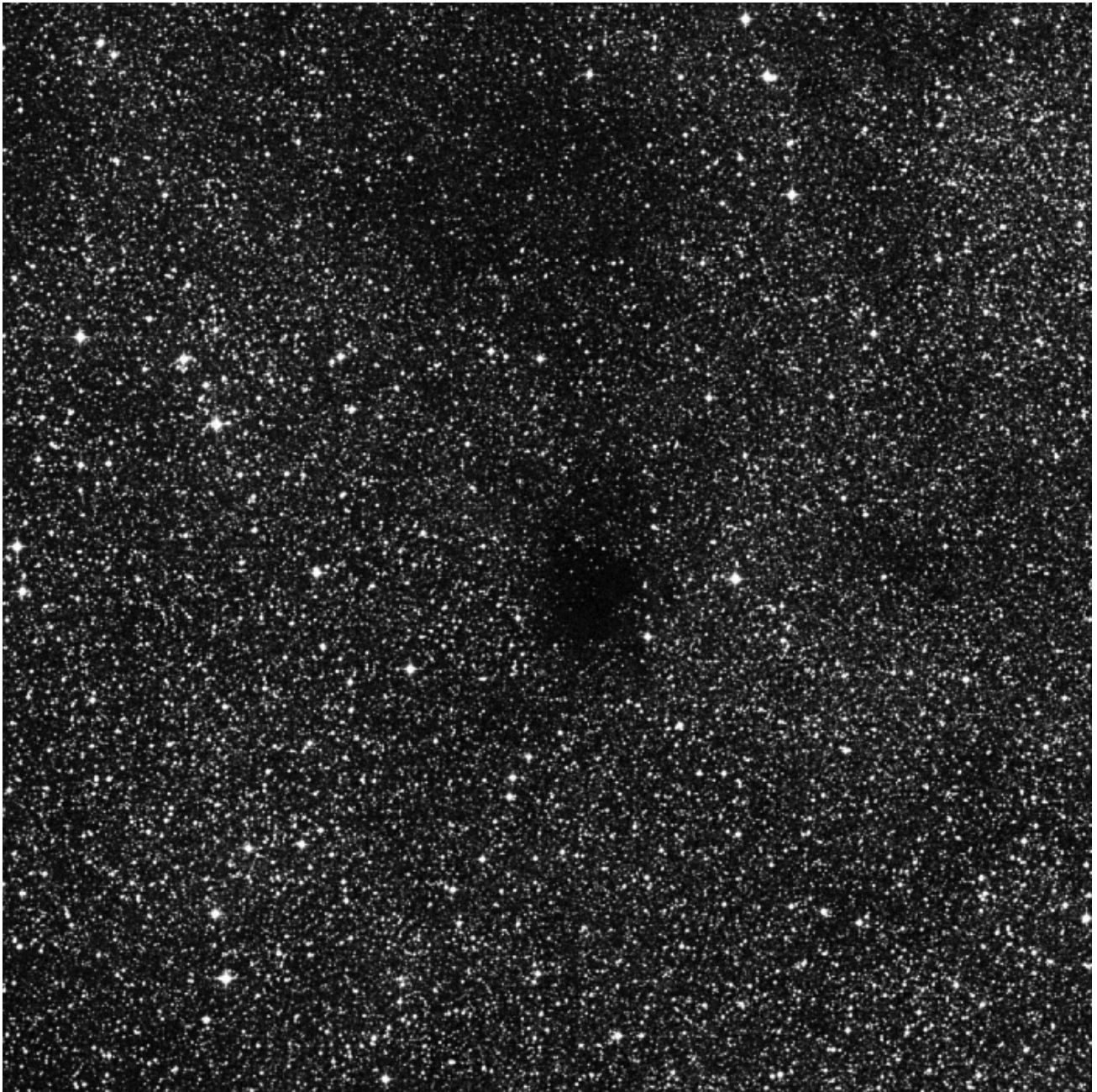
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
LDN 557	18 38 36.0	-01 47 00		6	60 x 60	105

Barnard 103



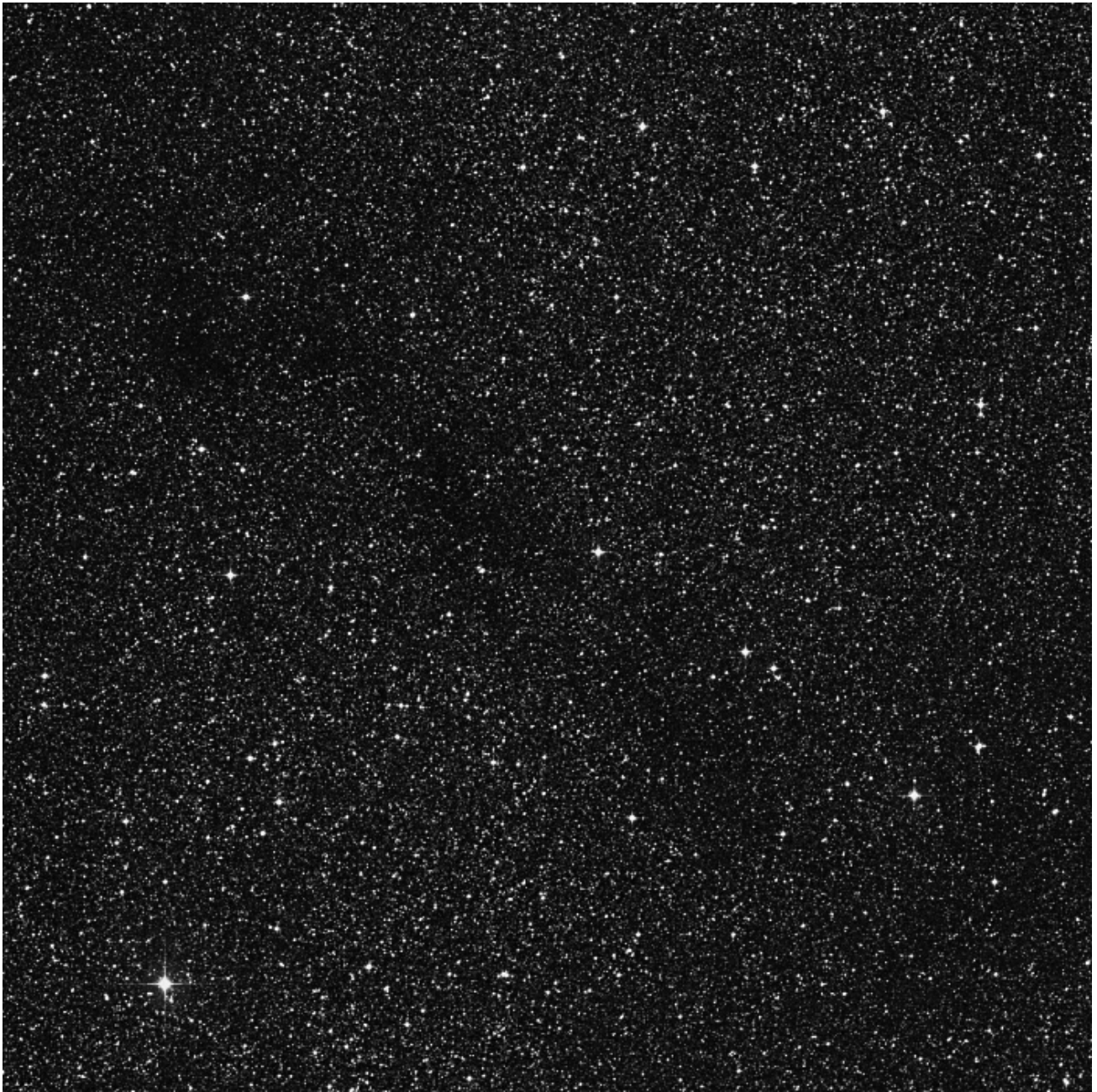
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 103	18 39 25.7	-06 40 00	4 x 4	6	40 x 40	125

Barnard 316



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 316	18 41 50.5	-02 08 00	6 x 6	4	30 x 30	105

Barnard 317



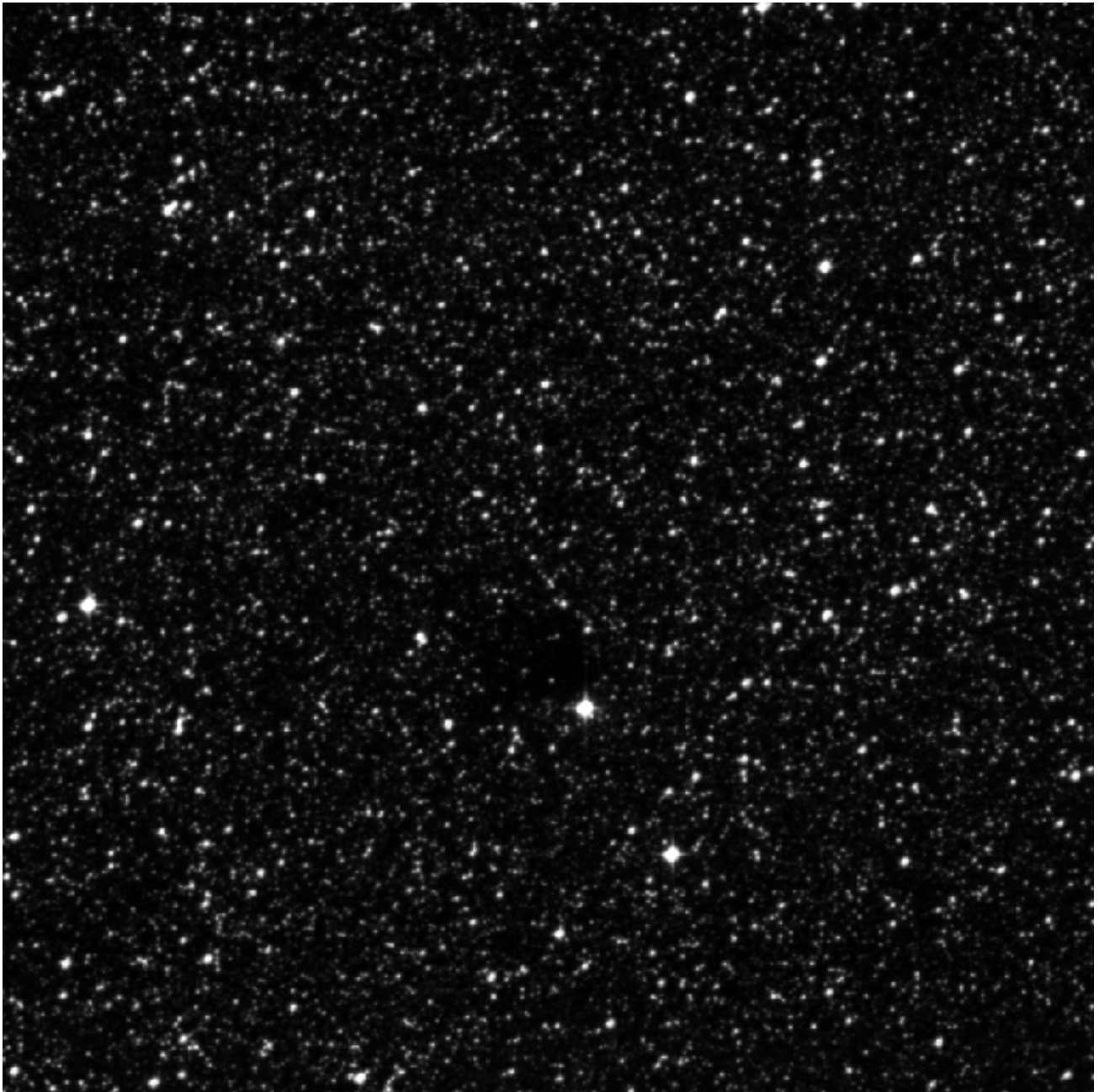
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 317	18 45 46.0	-14 12 00	30 x 5	4	40 x 40	125

Barnard 104



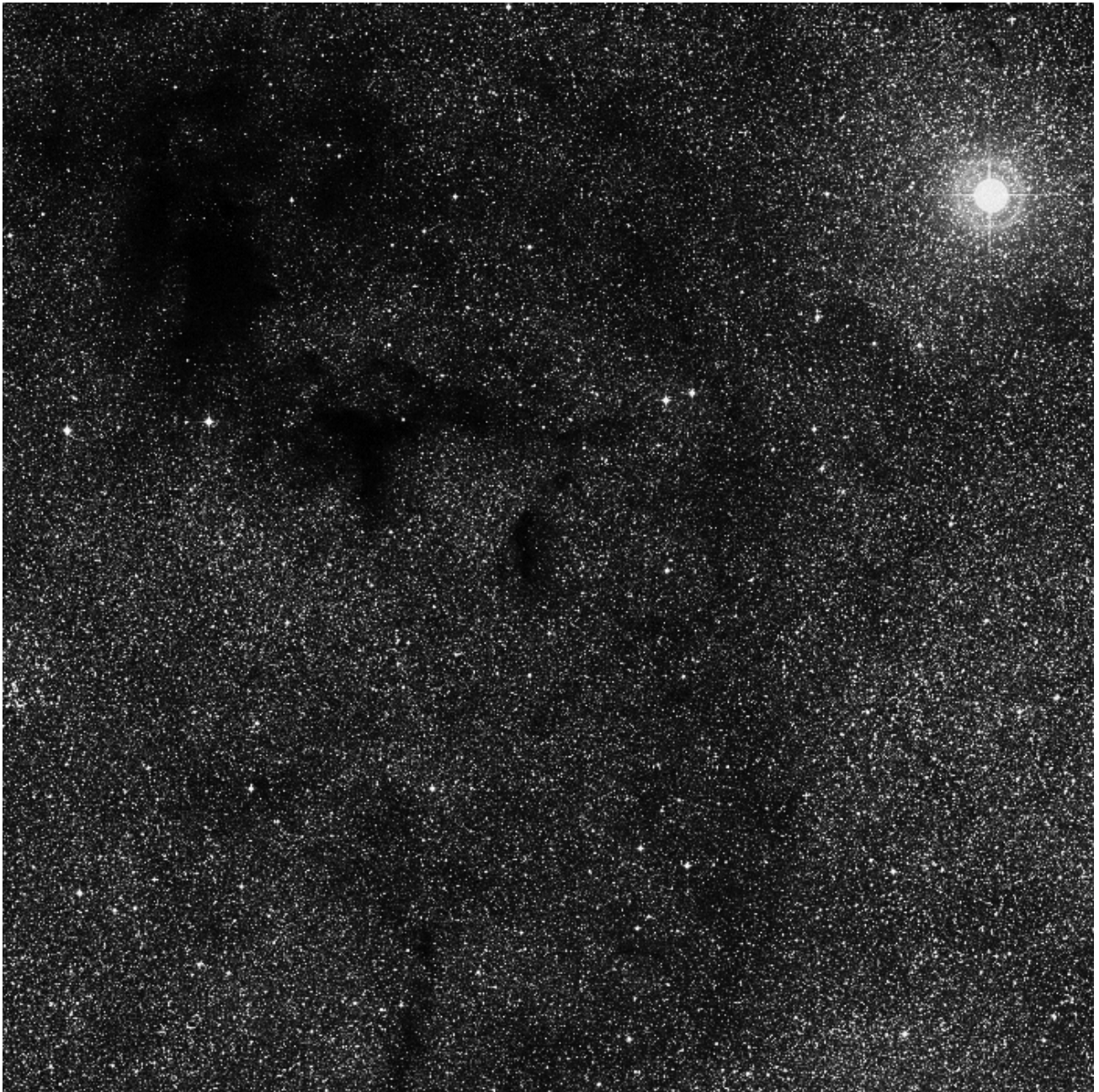
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 104	18 47 19.4	-04 32 00	16 x 1	5	40 x 40	105

Barnard 105



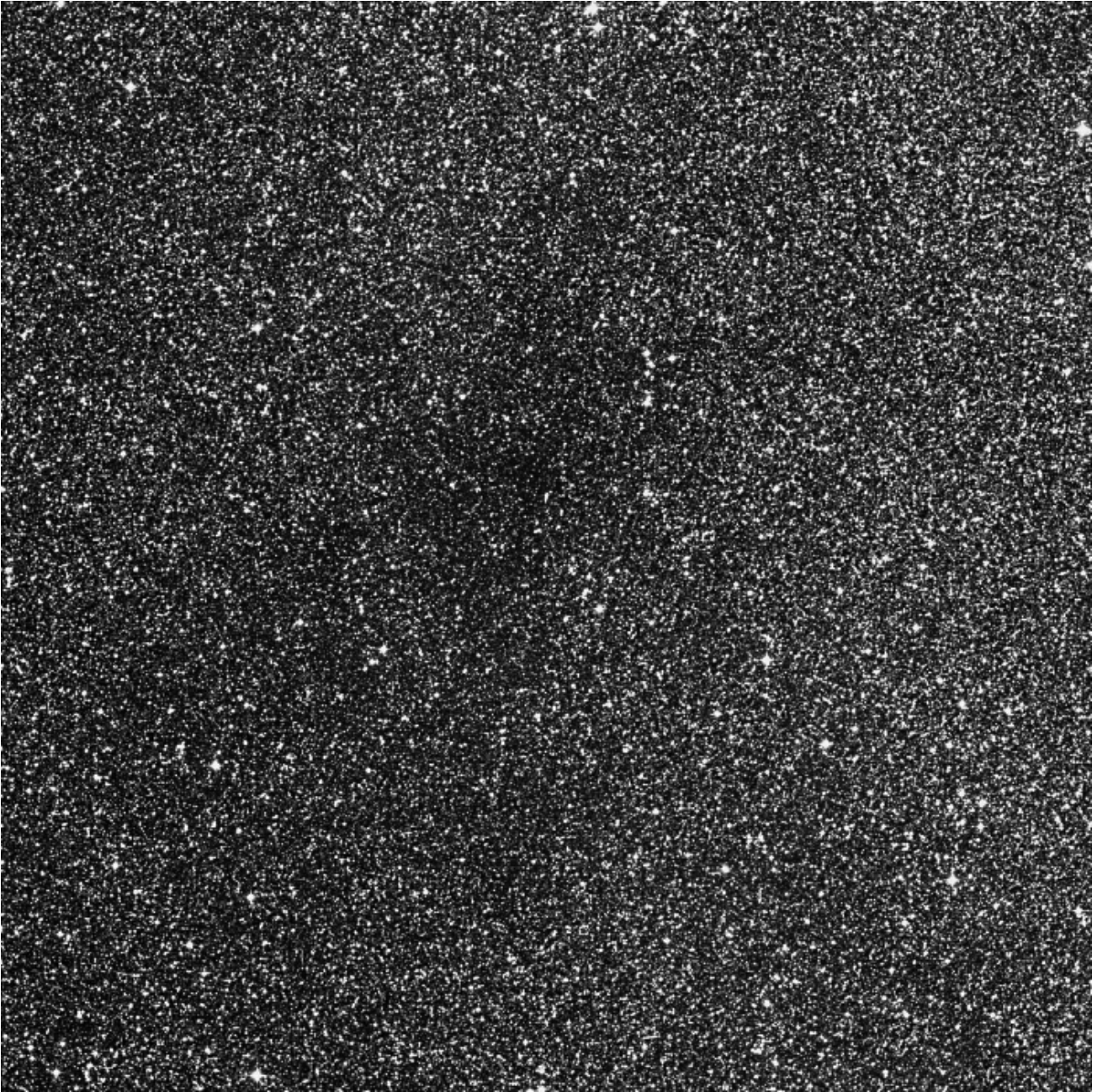
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 105	18 47 44.3	-06 55 00	0.5 x 0.5	4	15 x 15	125

Barnard 106-107-110



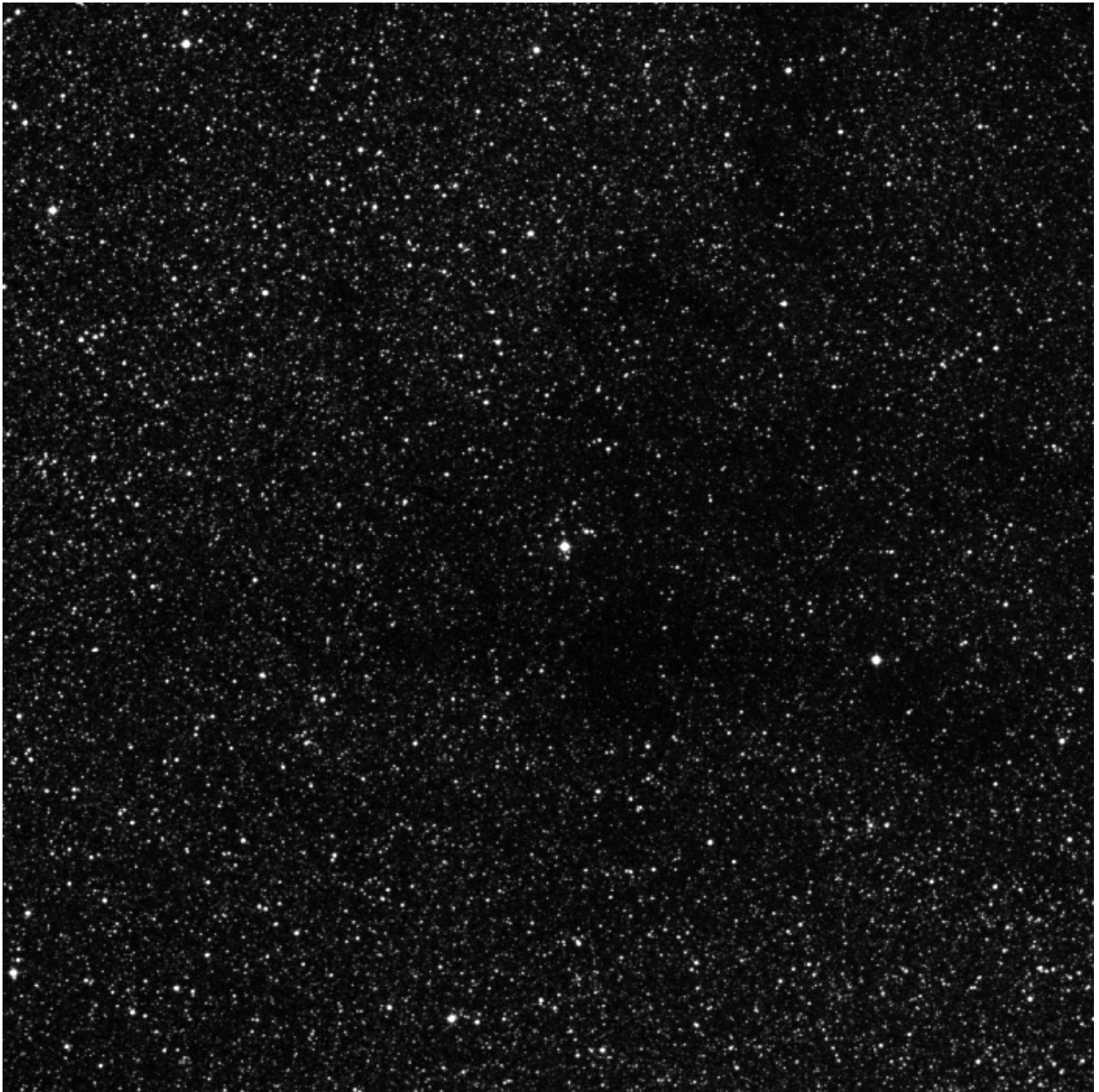
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 106	18 48 50.0	-05 04 46	2 x 2	6	60 x 60	105
Barnard 107	18 49 30.8	-05 01 00	5 x 5	6		
Barnard 110	18 50 38.6	-04 48 00	11 x 11	6		

Barnard 112



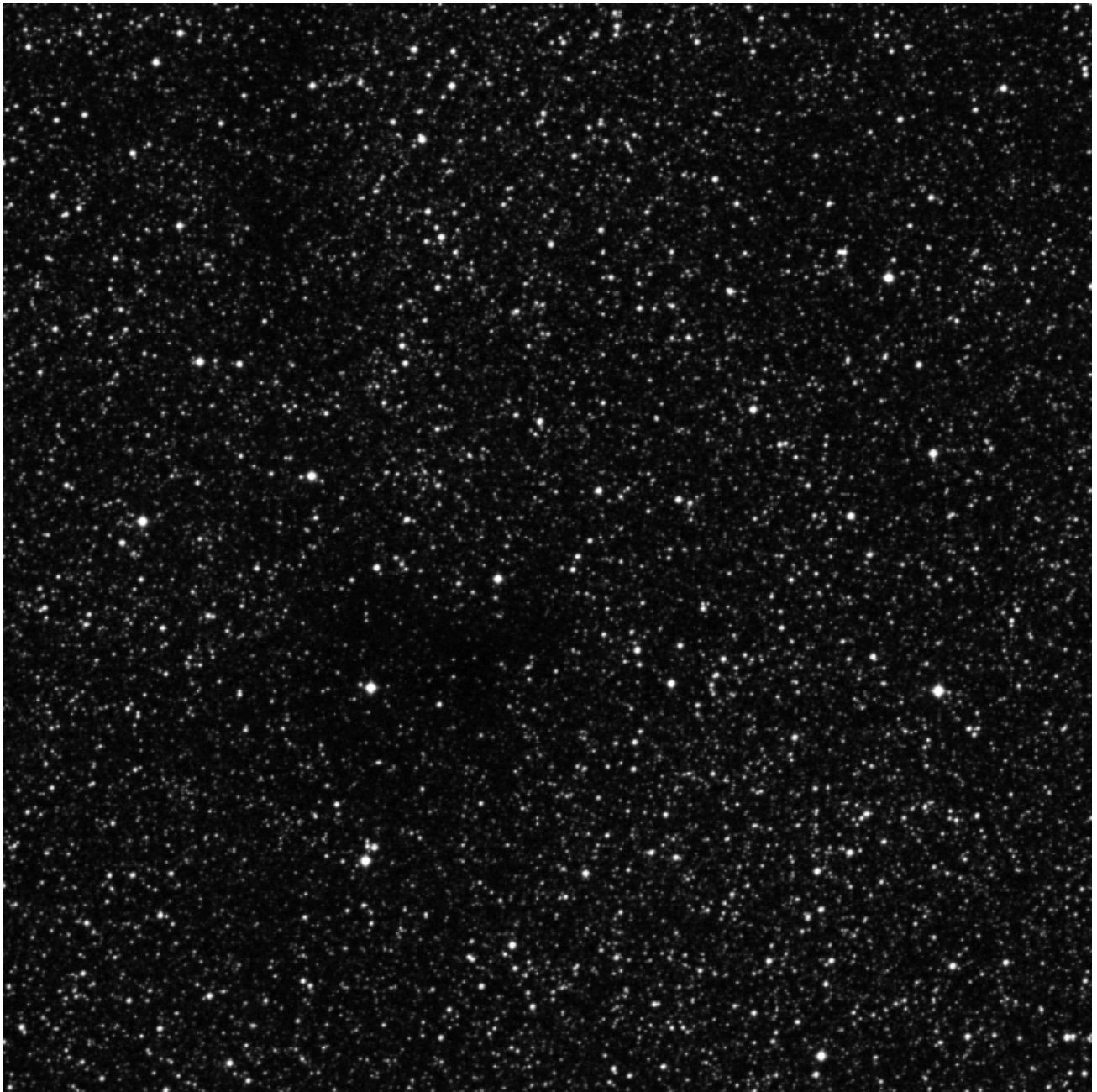
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 112	18 51 08.5	-06 40 00	20 x 20	4	40 x 40	125

Barnard 320



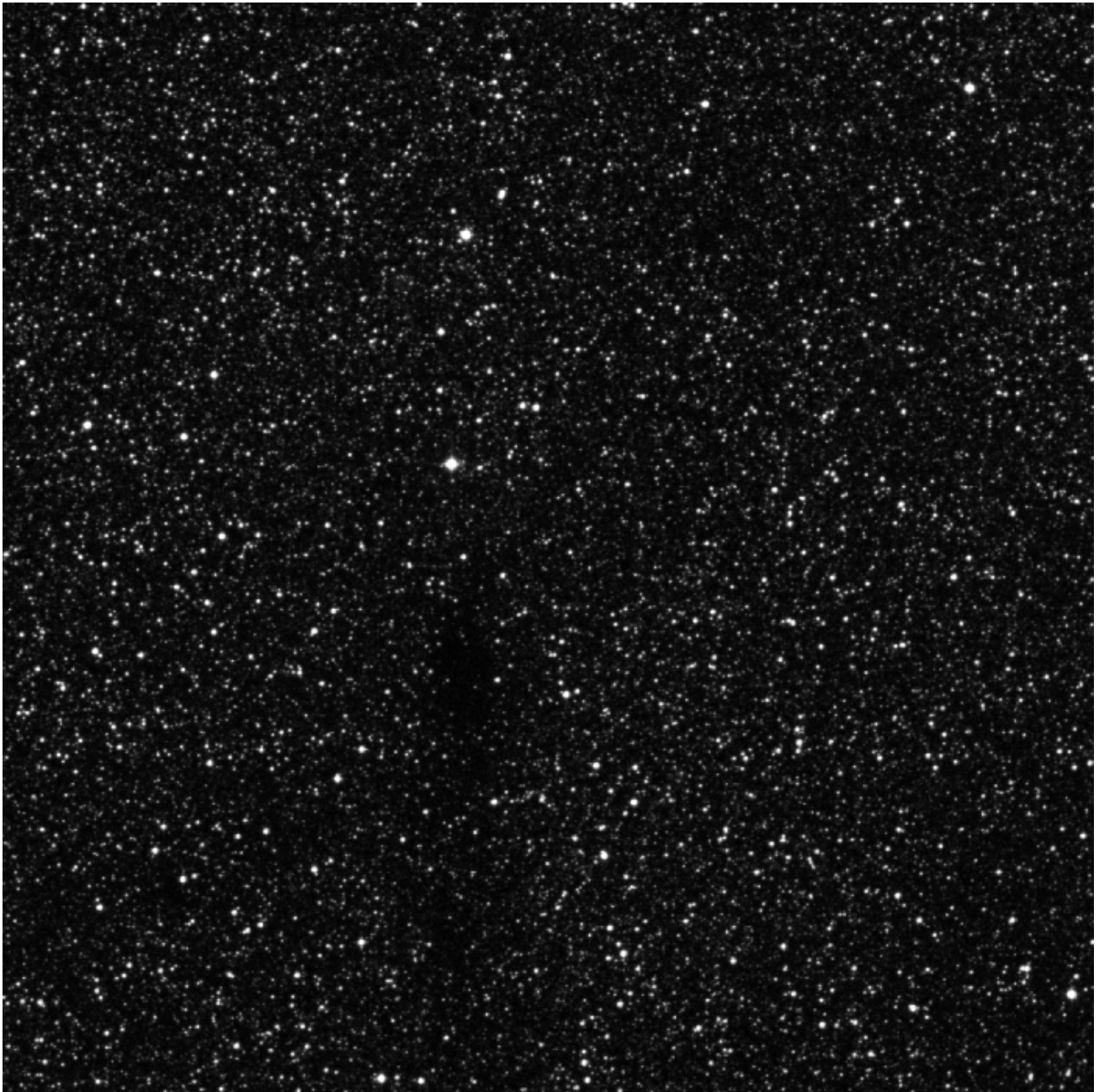
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 320	18 52 47.1	-05 51 00	15 x 15	4	40 x 40	105

Barnard 114



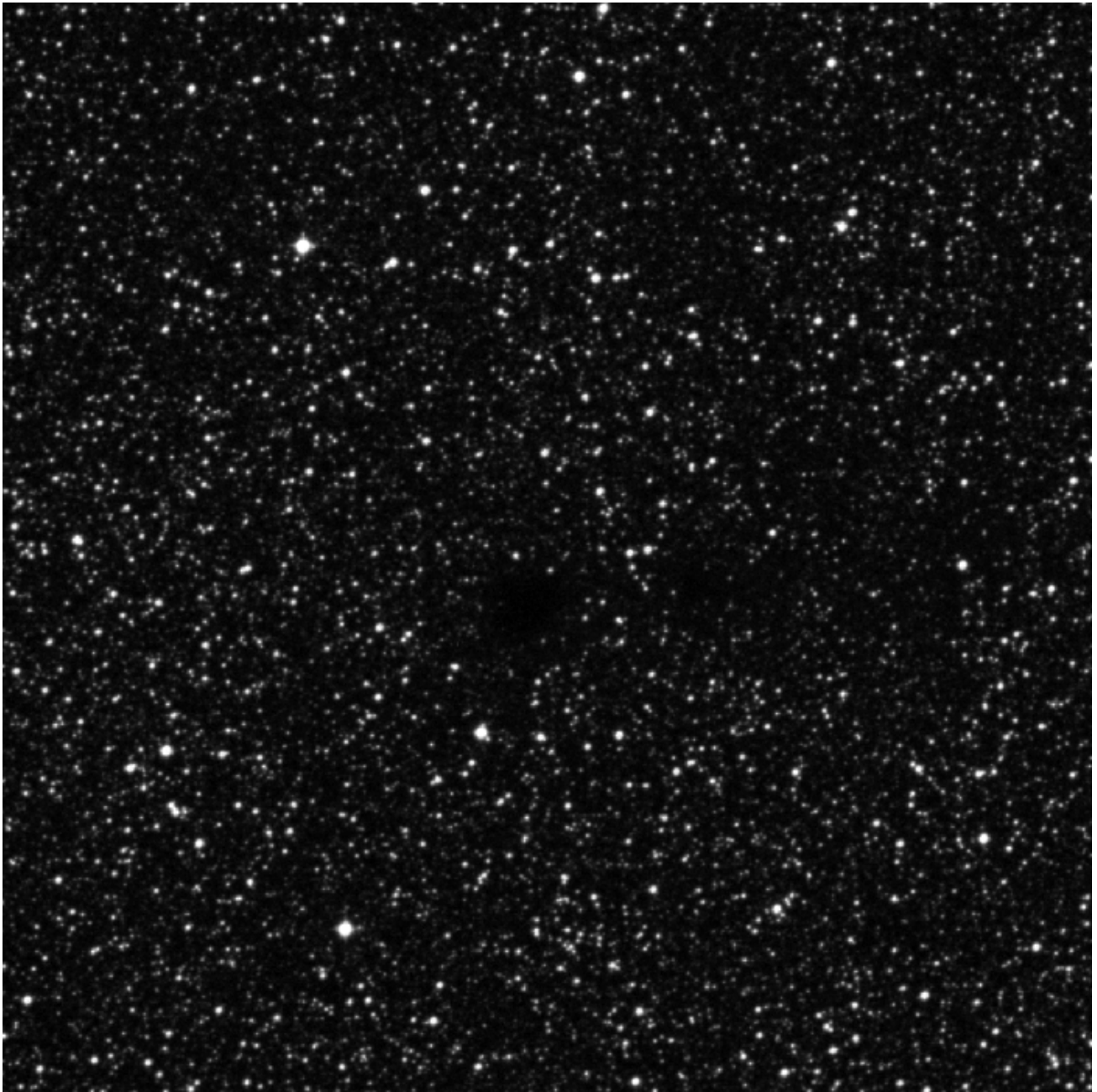
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 114	18 53 11.3	-06 57 00	6 x 6	5	30 x 30	125

Barnard 115



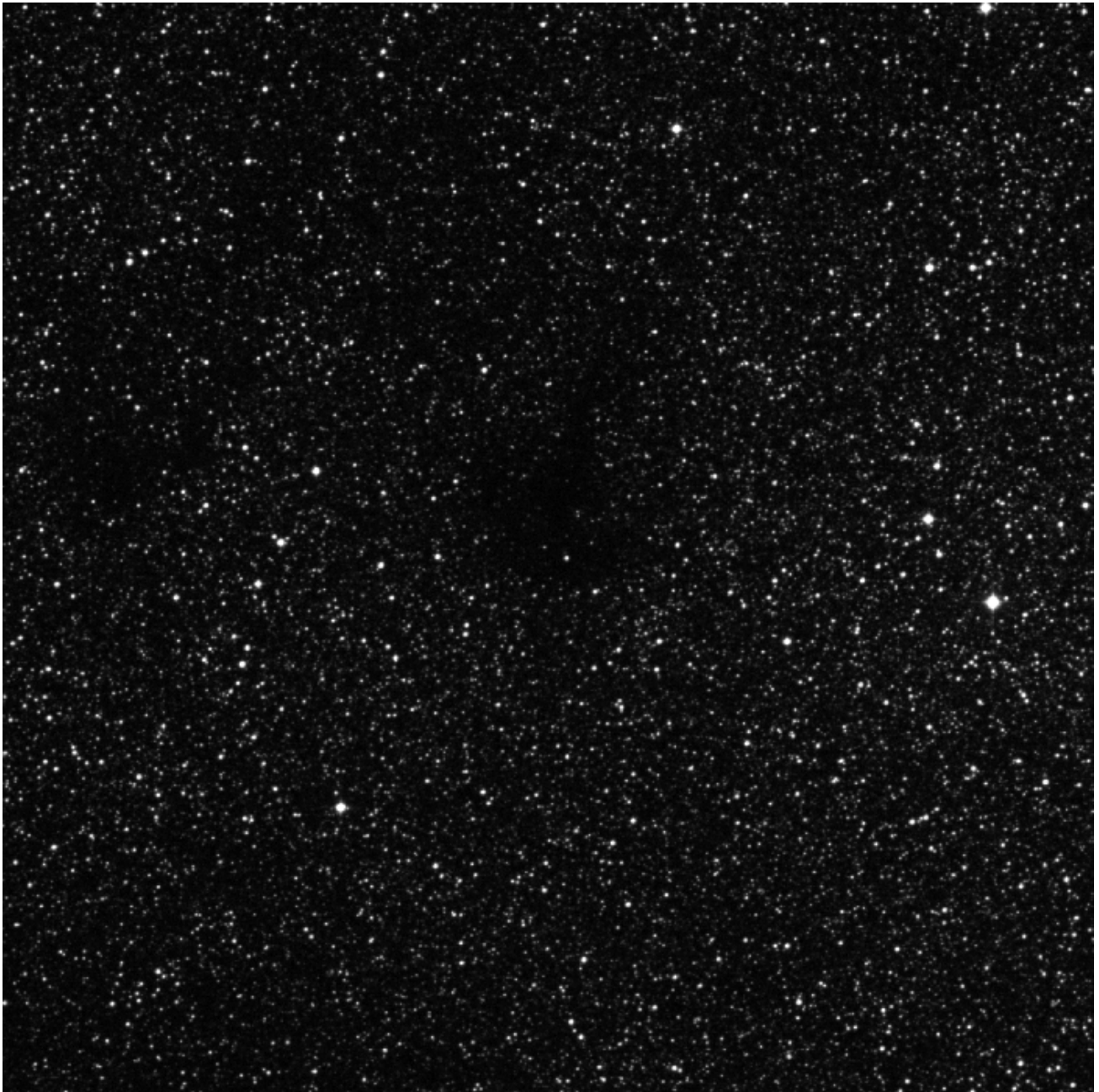
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 115	18 53 19.5	-07 30 00	7.0 x 1.4	5	30 x 30	125

Barnard 117-118



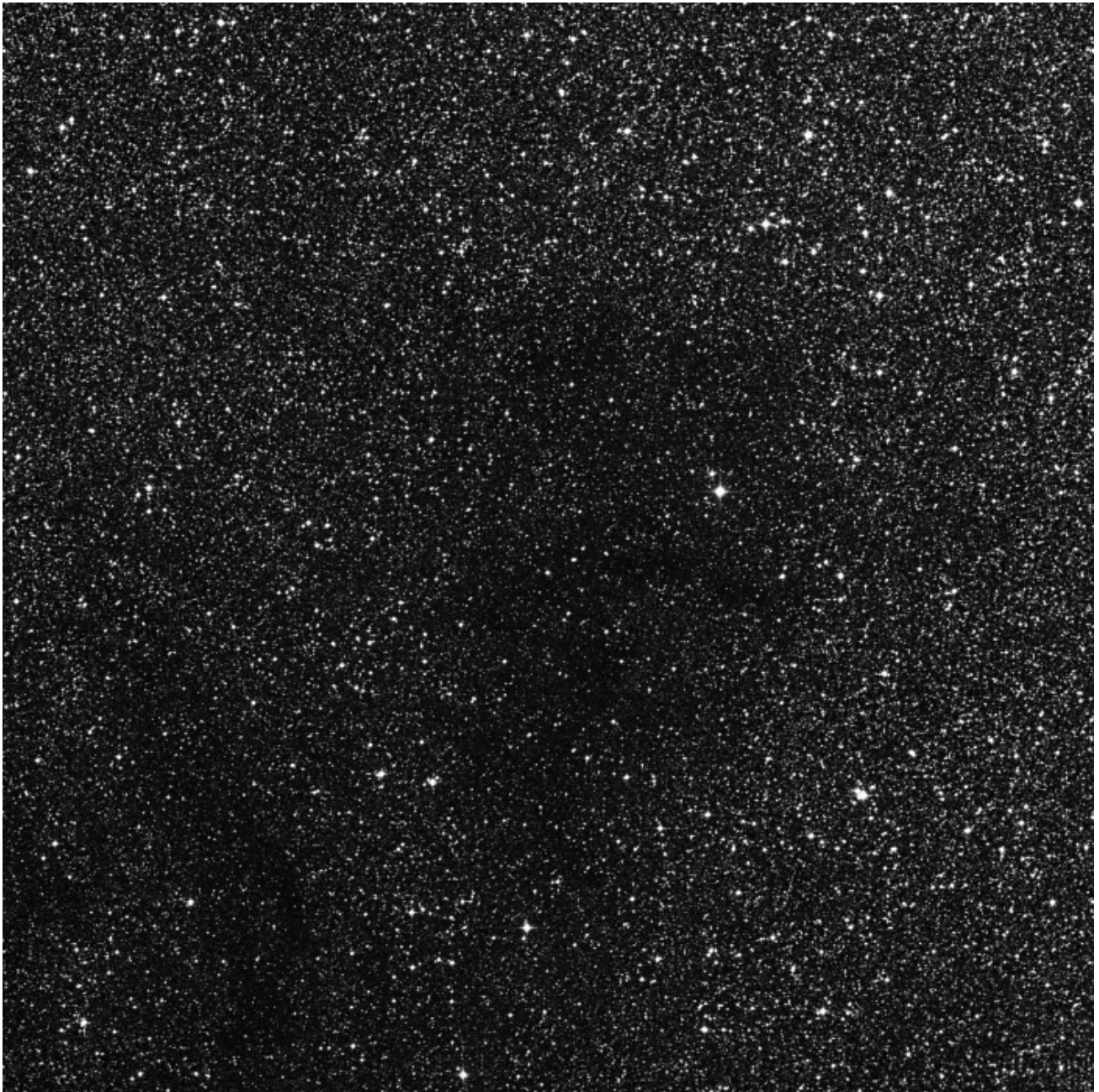
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 117	18 53 43.6	-07 25 00	1 x 1	6	20 x 20	125
Barnard 118	18 53 55.7	-07 26 52	2 x 2	6		

Barnard 122



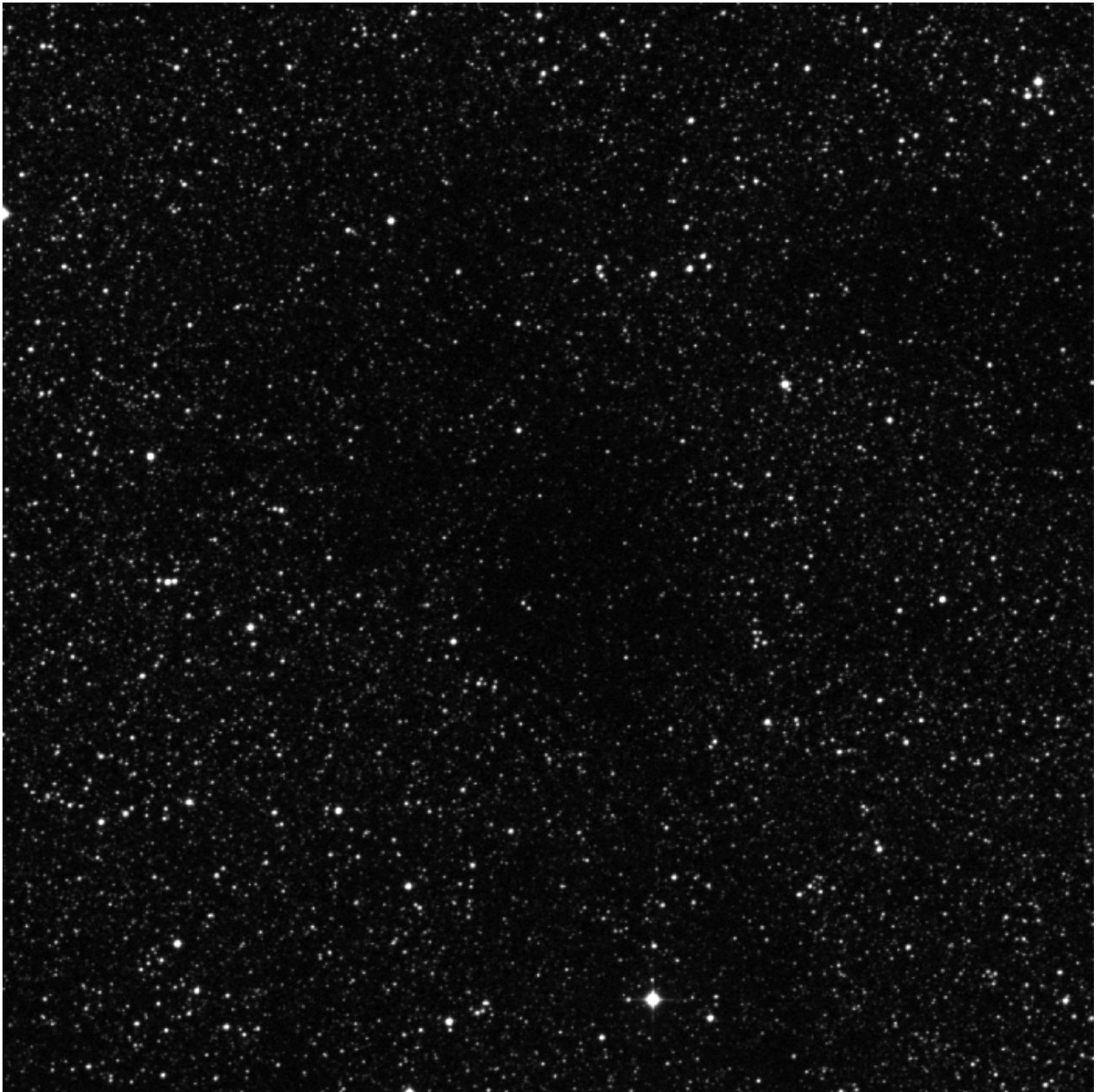
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 122	18 56 49.0	-04 45 00	4 x 4	5	30 x 30	105

Barnard 323



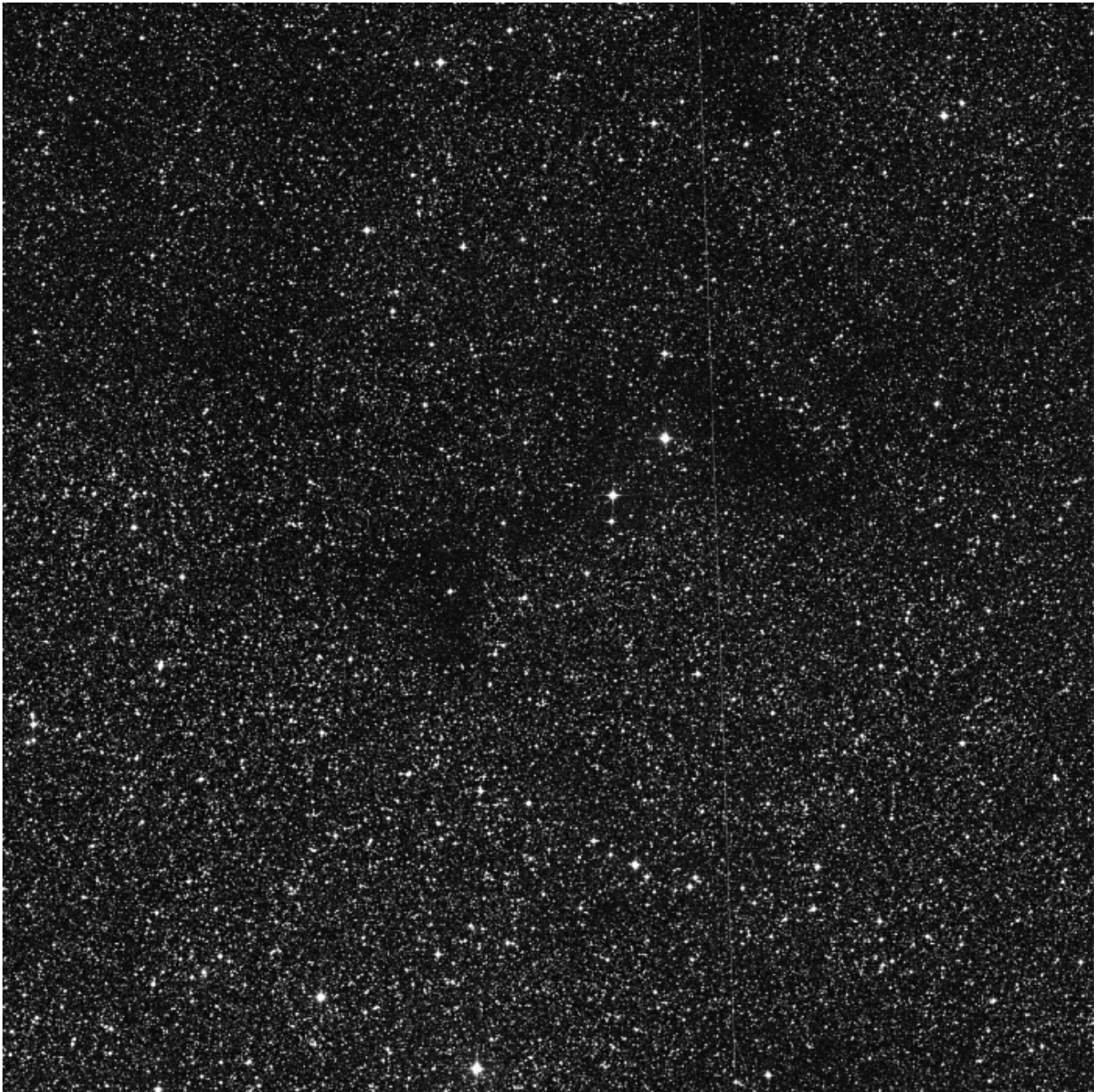
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 323	18 57 34.1	-03 25 00	17 x 8		35 x 35	105

Barnard 126



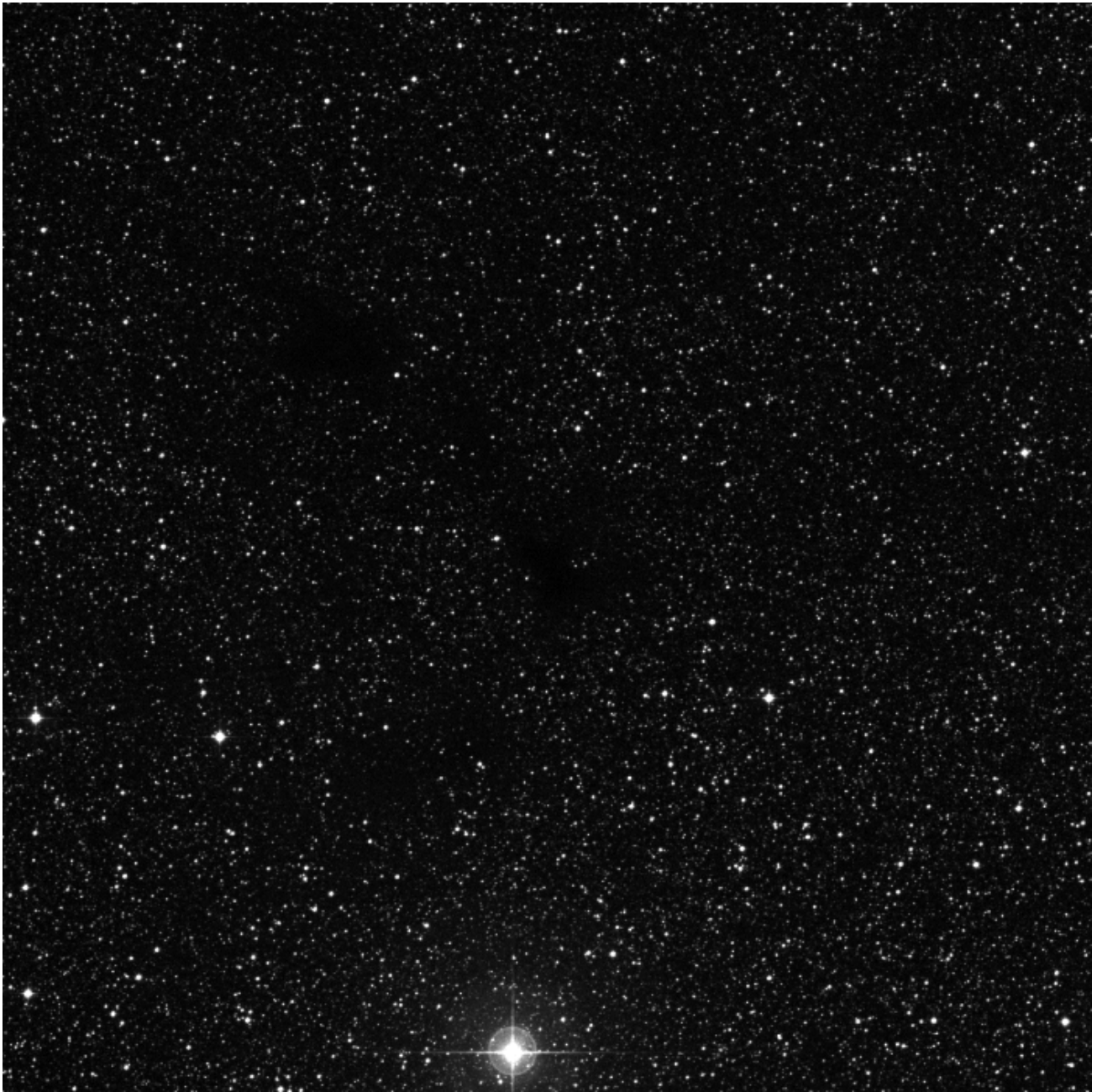
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 126	18 59 02.3	-04 32 00	8 x 8	4	30 x 30	105

Barnard 325



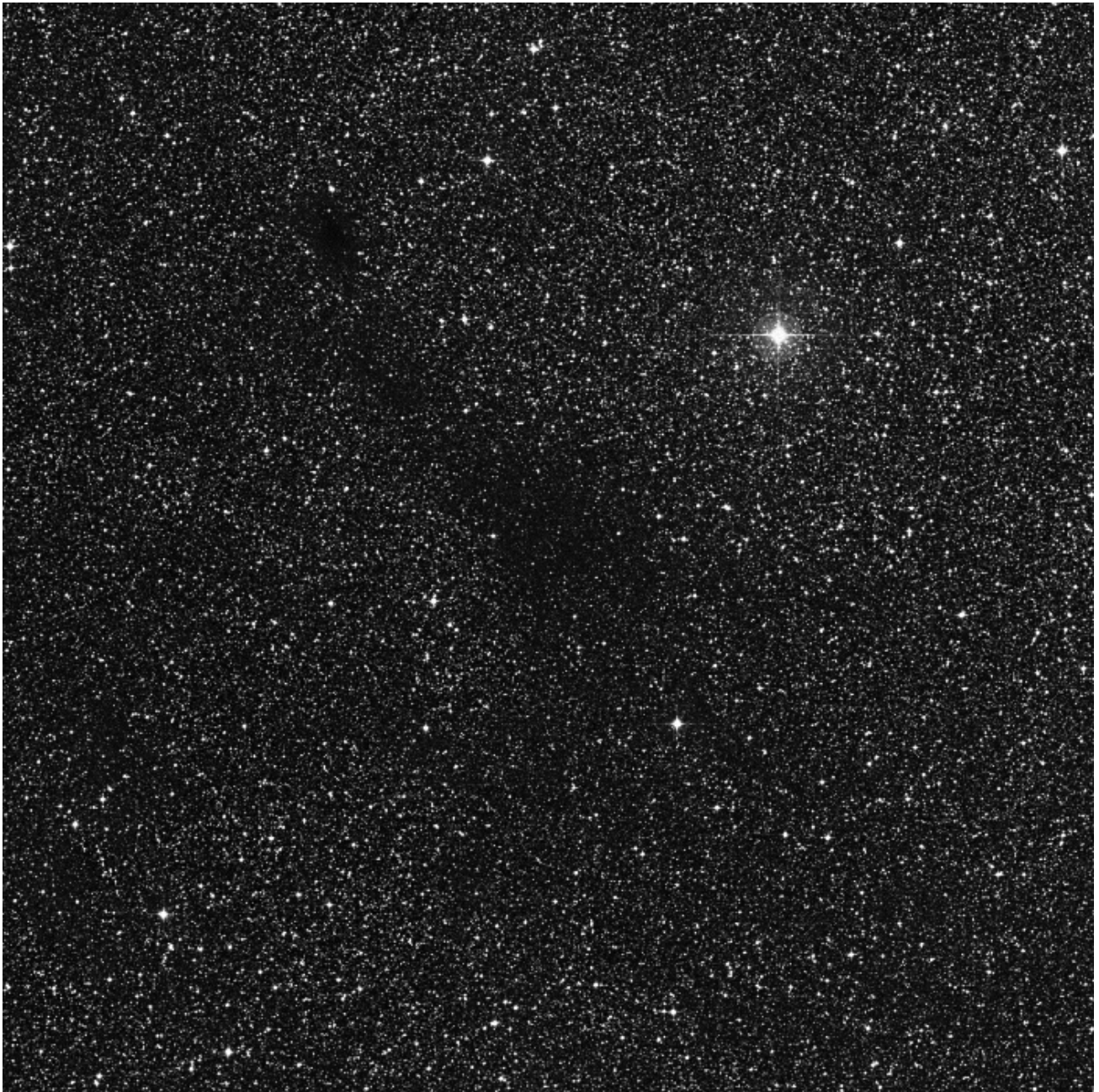
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 325	18 59 54.0	-04 04 00	15 x 3		40 x 40	105

Barnard 127-129-130



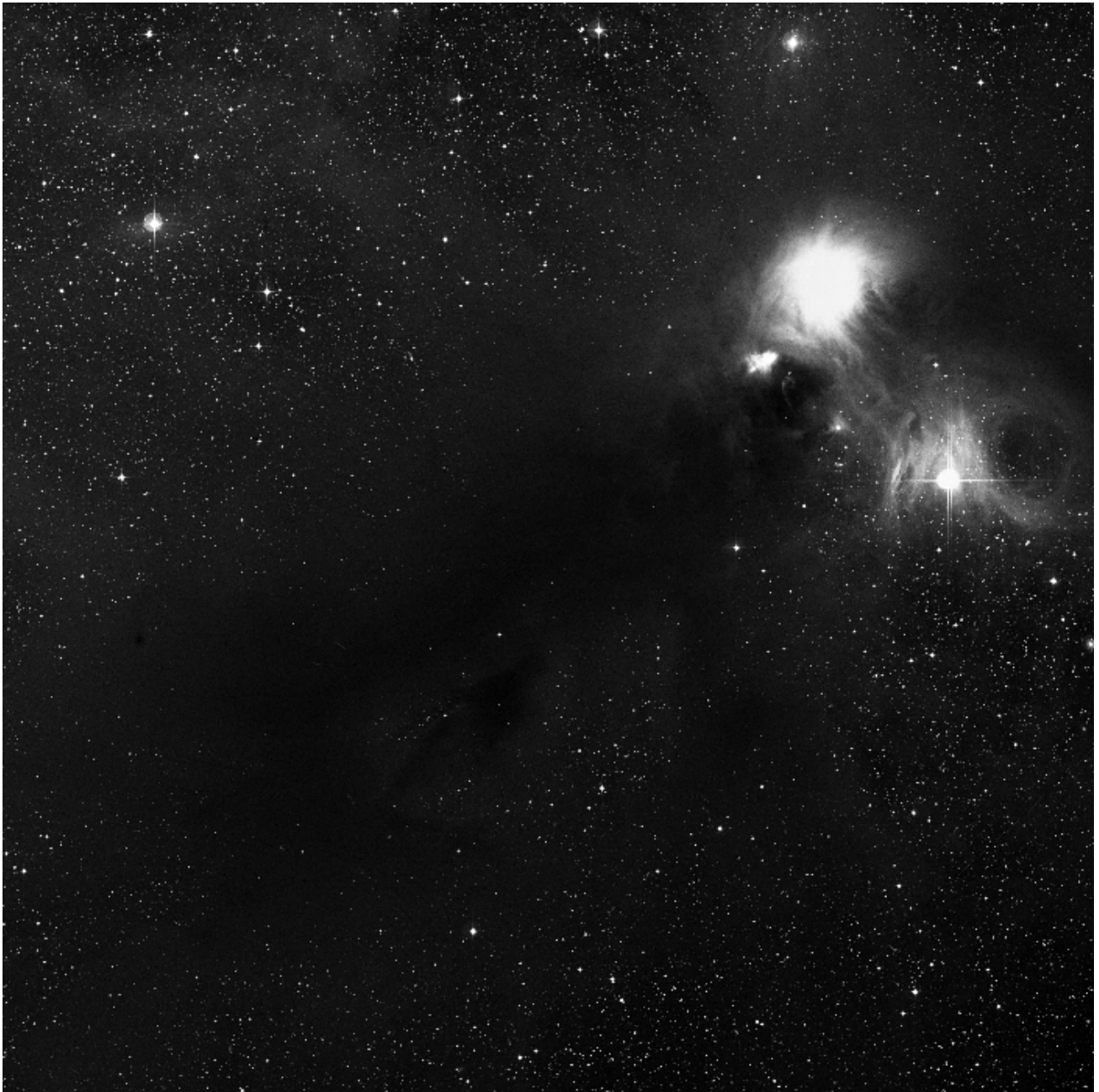
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 127	19 01 31.9	-05 27 00	4 x 4	5	40 x 40	105
Barnard 129	19 02 04.5	-05 18 00	5 x 5	5		
Barnard 130	19 01 56.2	-05 34 00	7 x 7	5		

Barnard 128



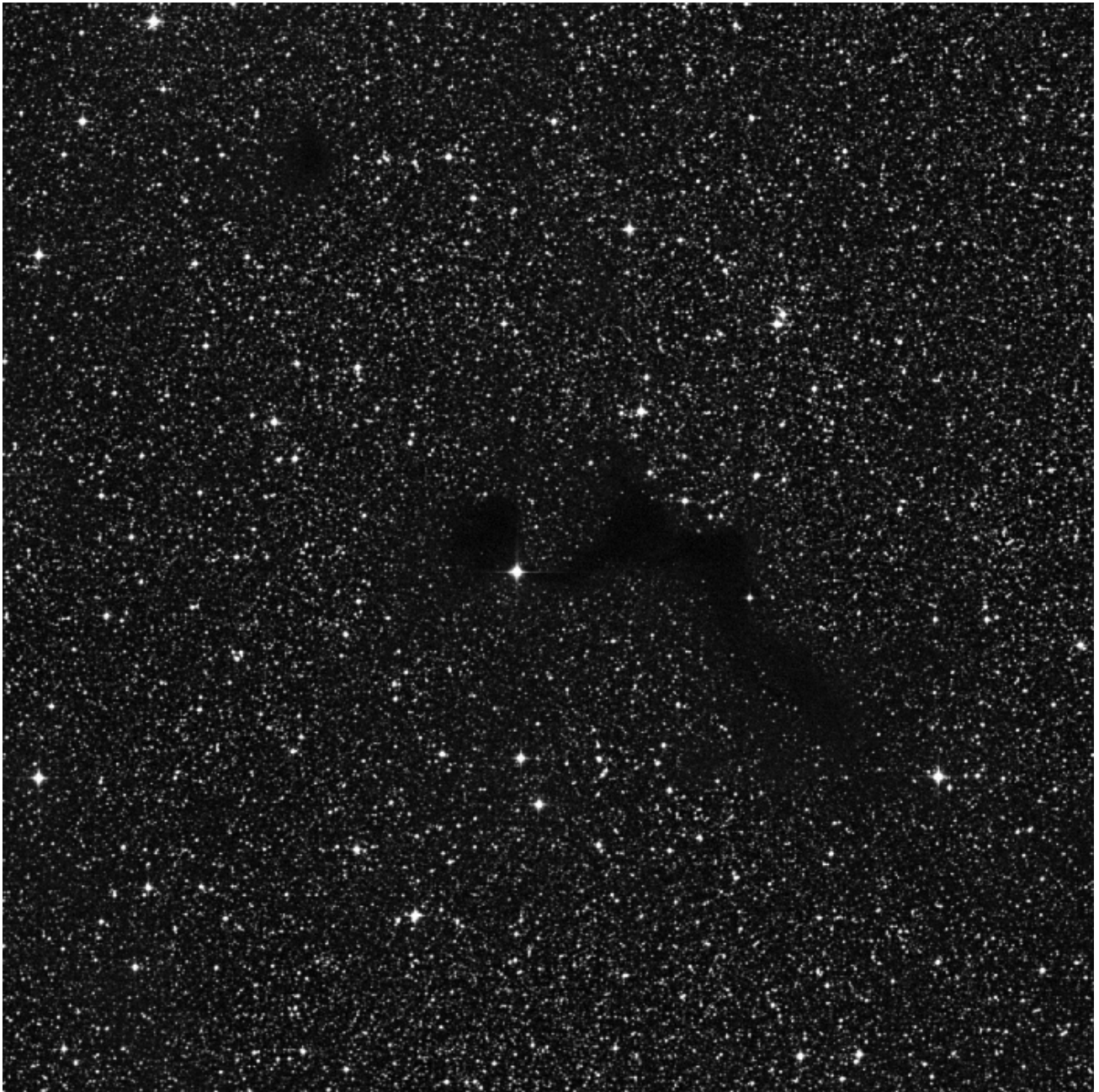
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 128	19 01 40.4	-04 34 00	10 x 10		40 x 40	105

Be 157



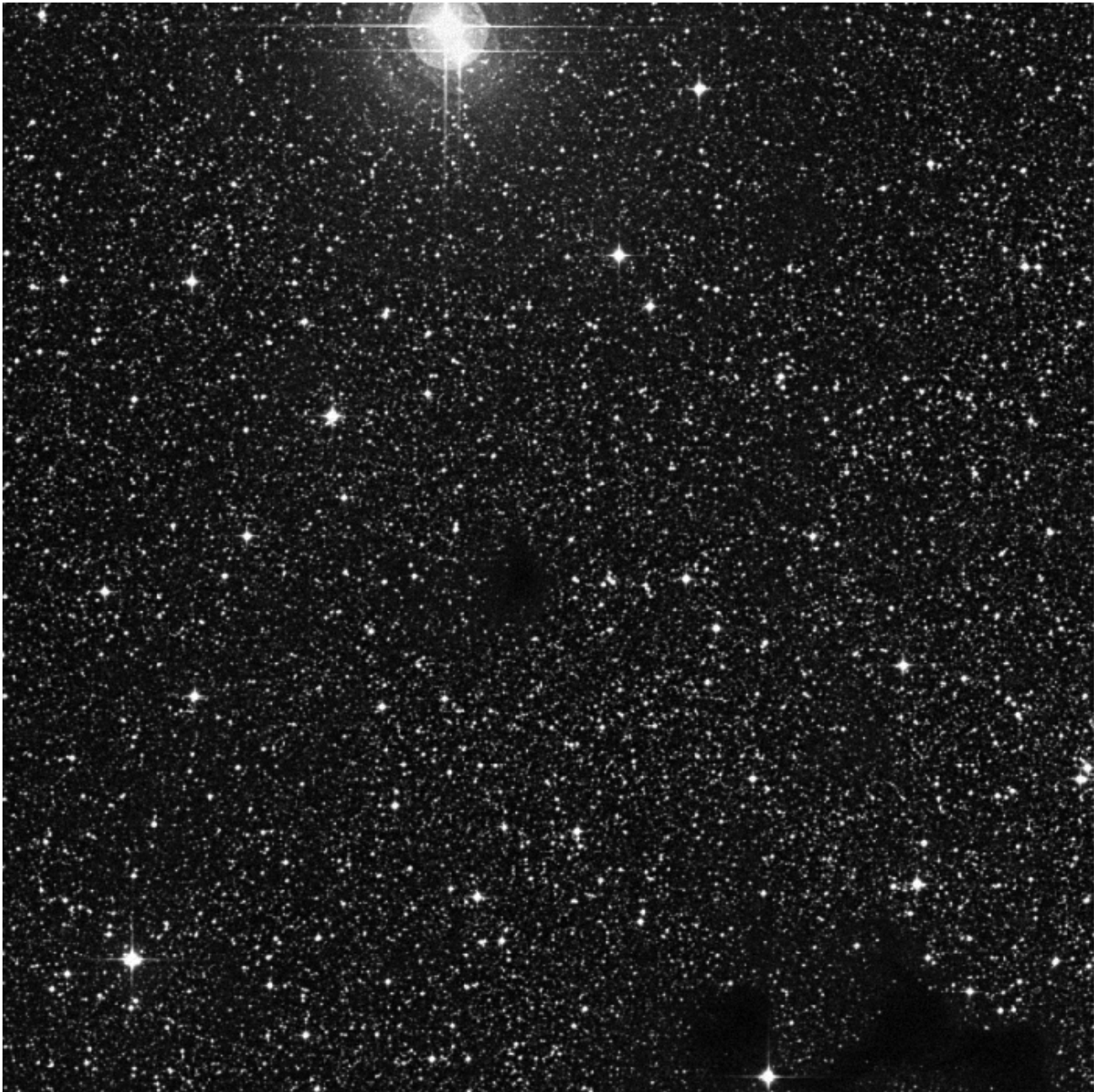
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Be 157	19 02 54.0	-37 08 00	110 x 28	6	60 x 60	163

Barnard 132



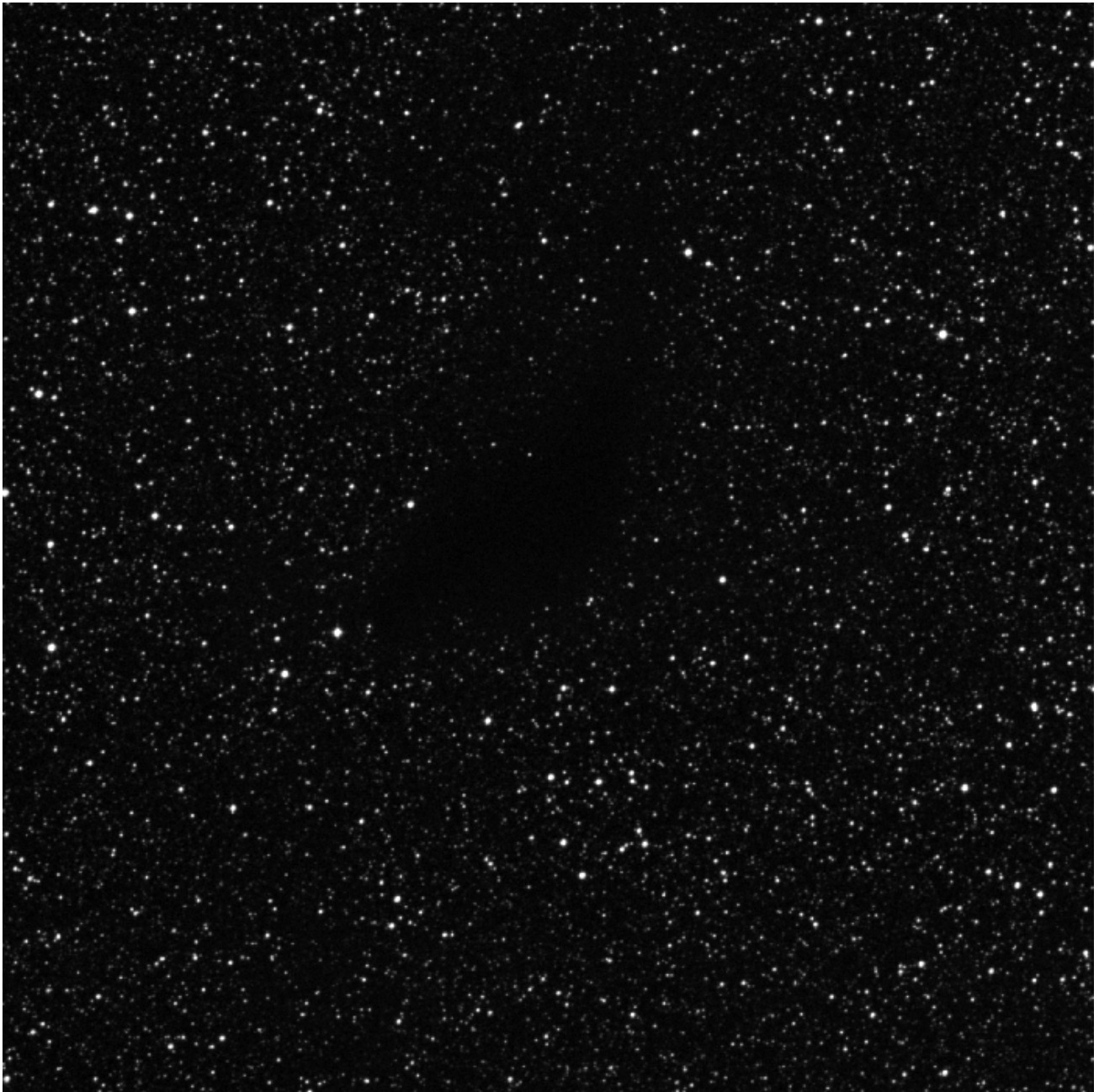
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 132	19 04 28.0	-04 26 00		6	30 x 30	105

Barnard 328



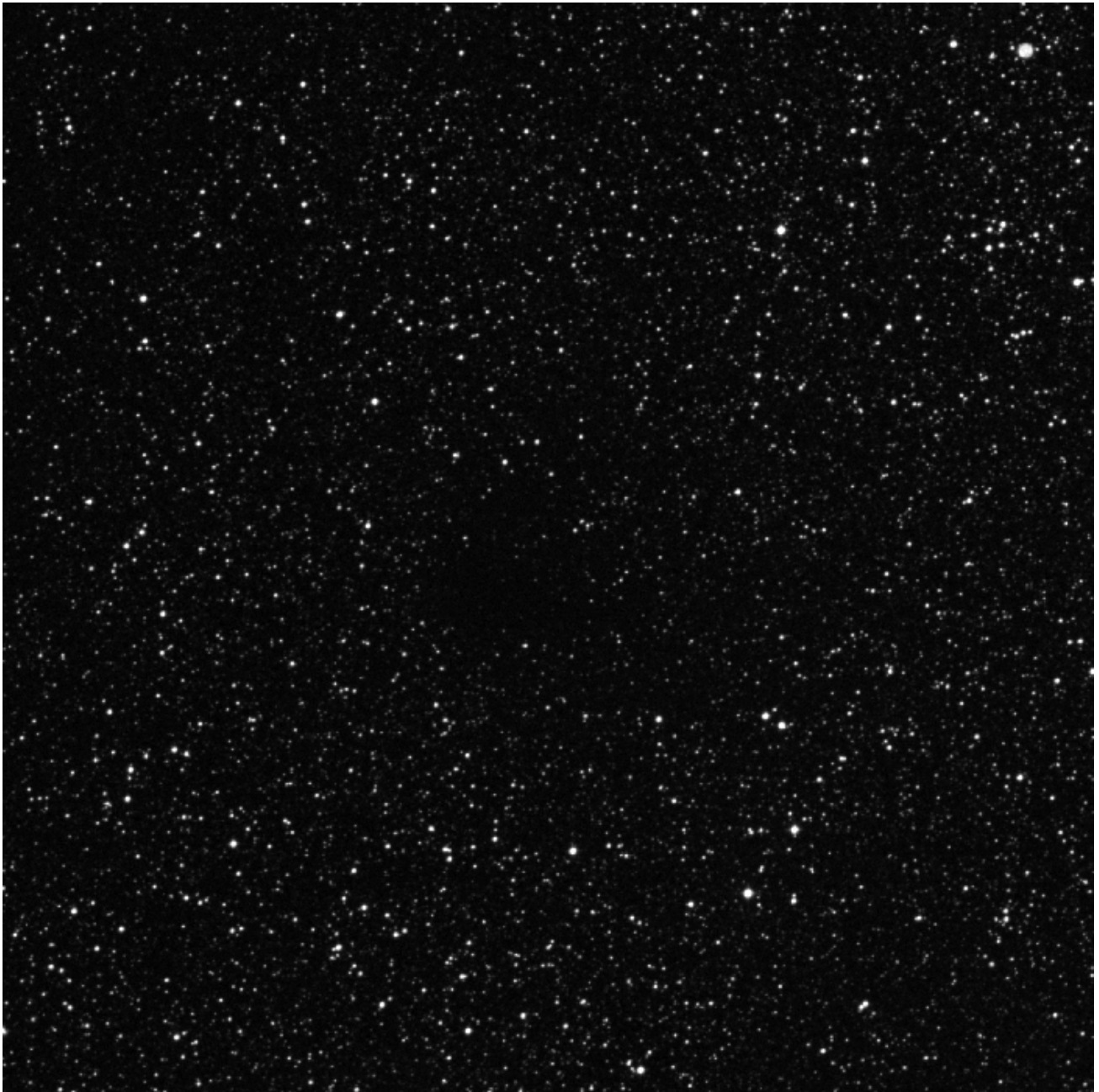
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 328	19 04 49.4	-04 15 00	4 x 4	6	25 x 25	105

Barnard 133



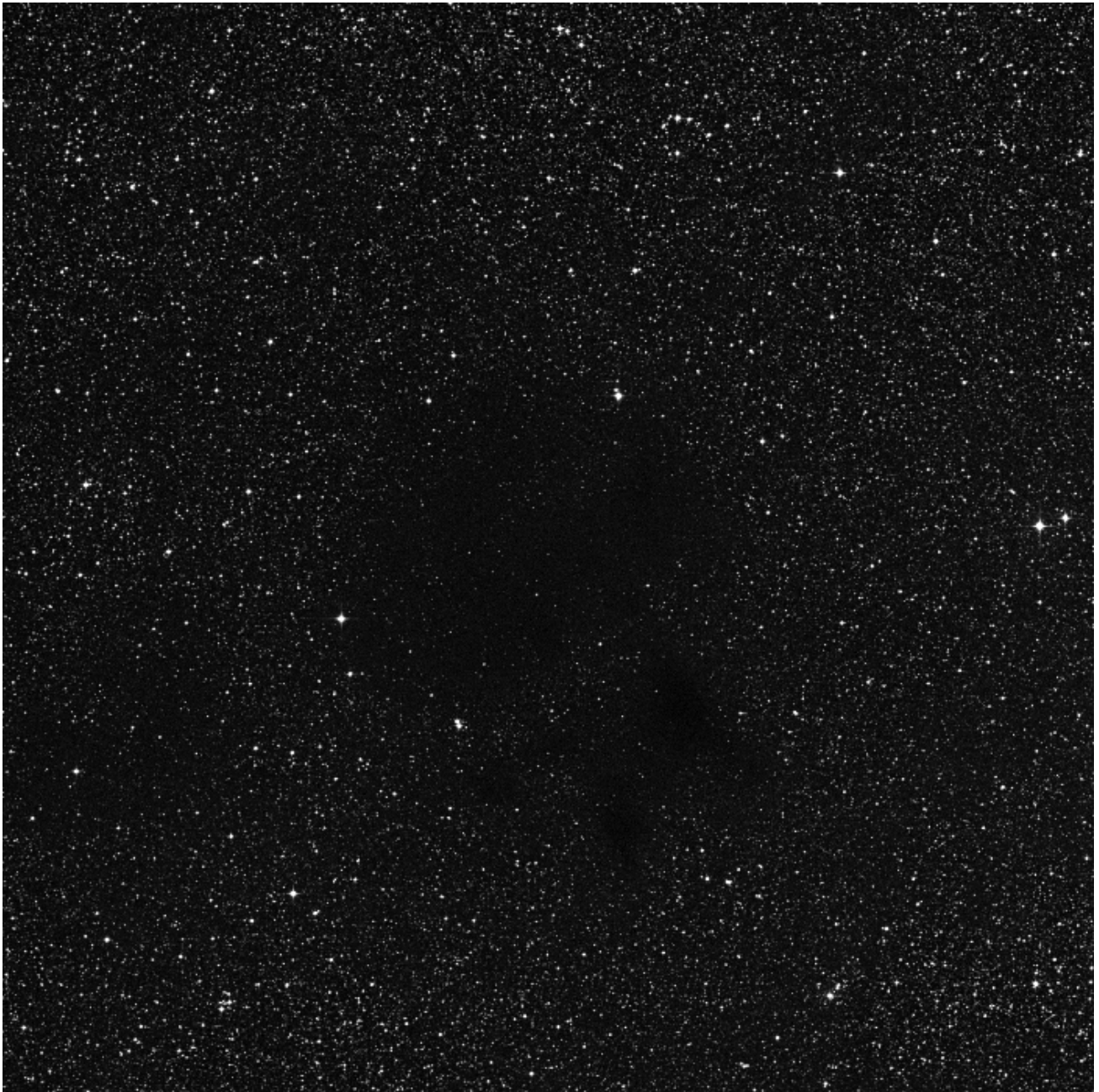
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 133	19 06 12.9	-06 54 00	10 x 3	6	30 x 30	125

Barnard 134



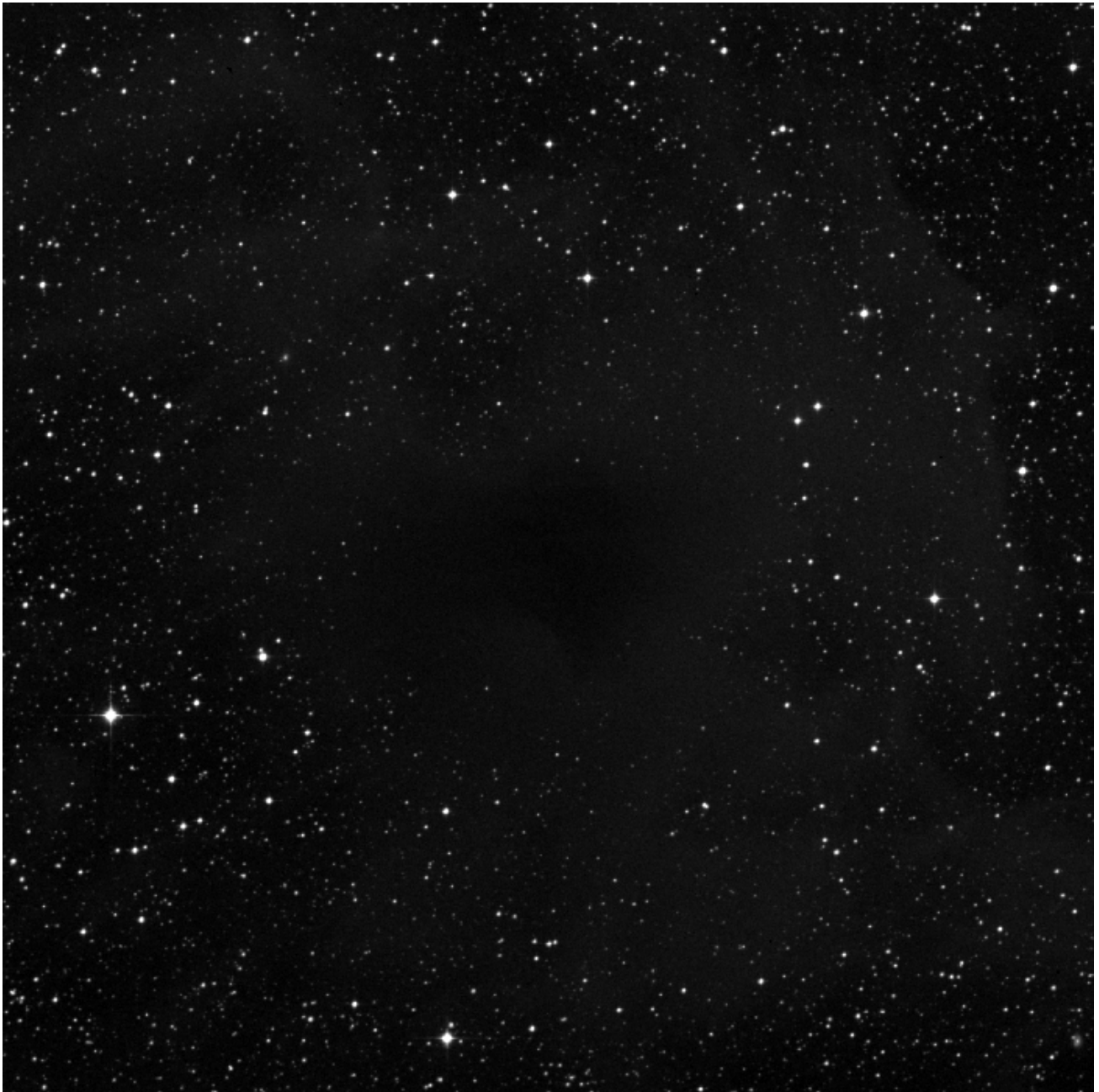
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 134	19 06 53.0	-06 15 00	6 x 6	6	30 x 30	125

Barnard 135



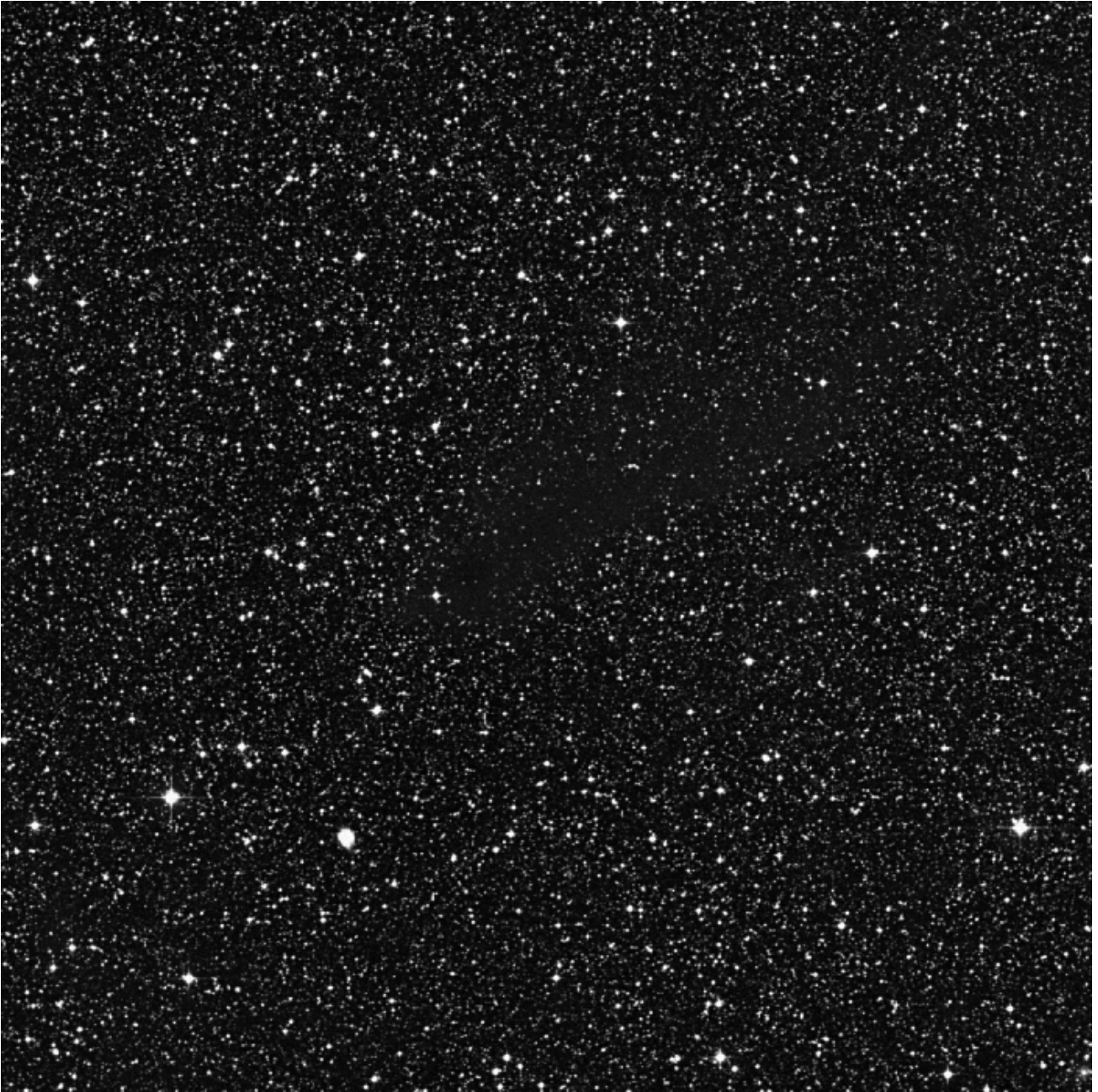
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 135	19 07 32.5	-03 55 00	13 x 13	6	40 x 40	105

SI 42



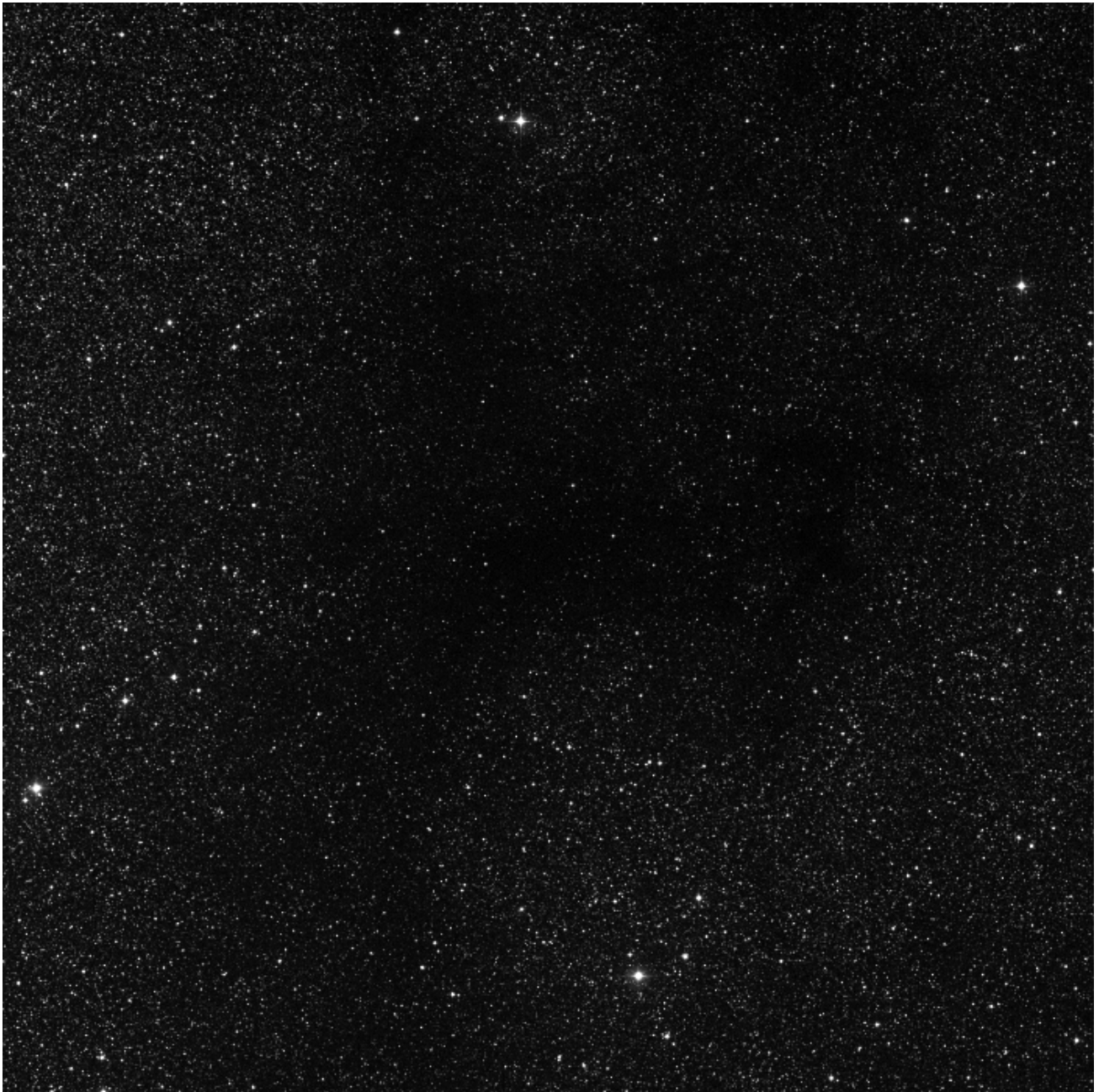
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
SI 42	19 10 20.0	-37 08 00	12 x 7		30 x 30	163

Barnard 139



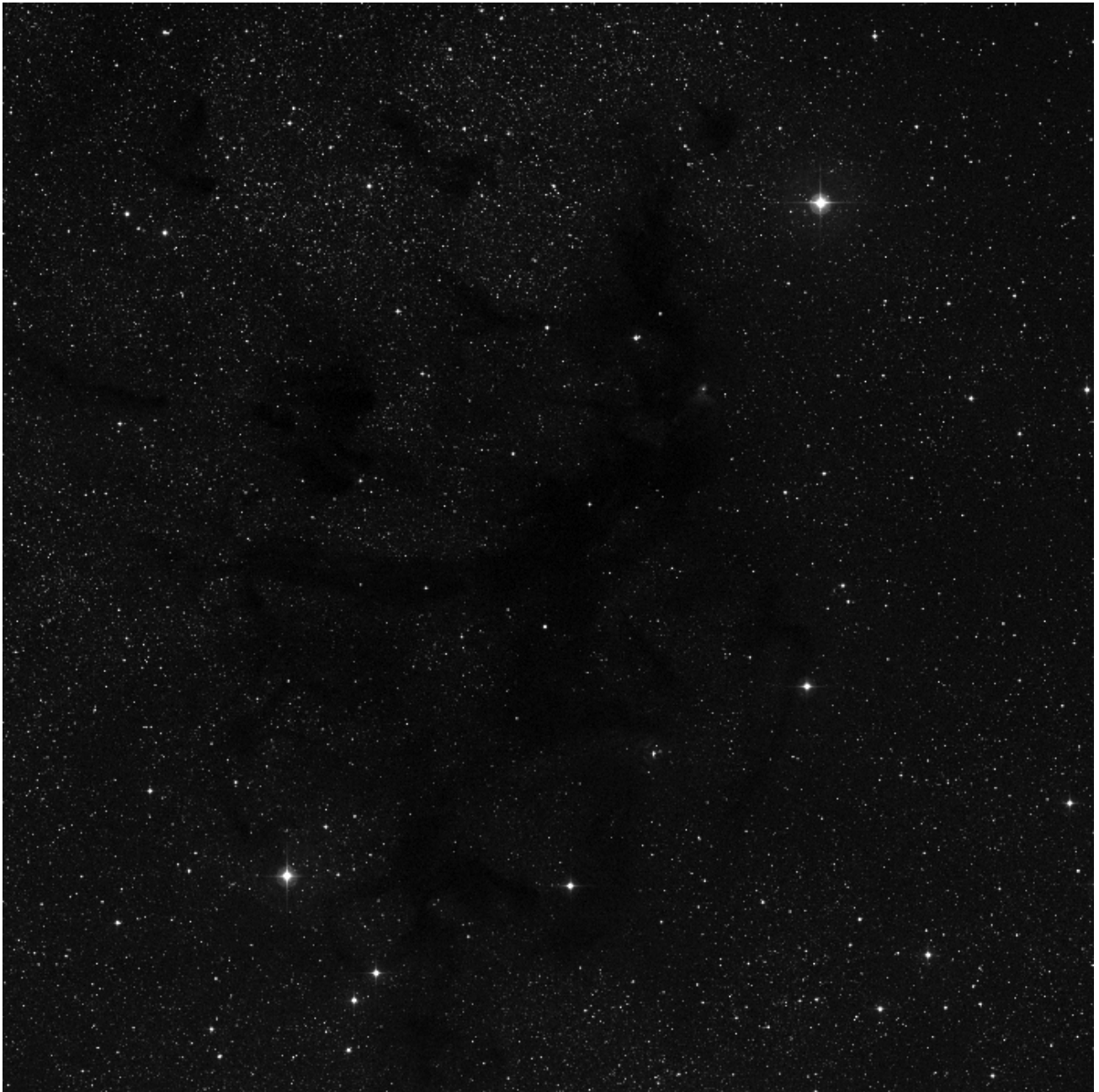
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 139	19 18 00.4	-01 25 00	10 x 2	5	30 x 30	105

Barnard 330



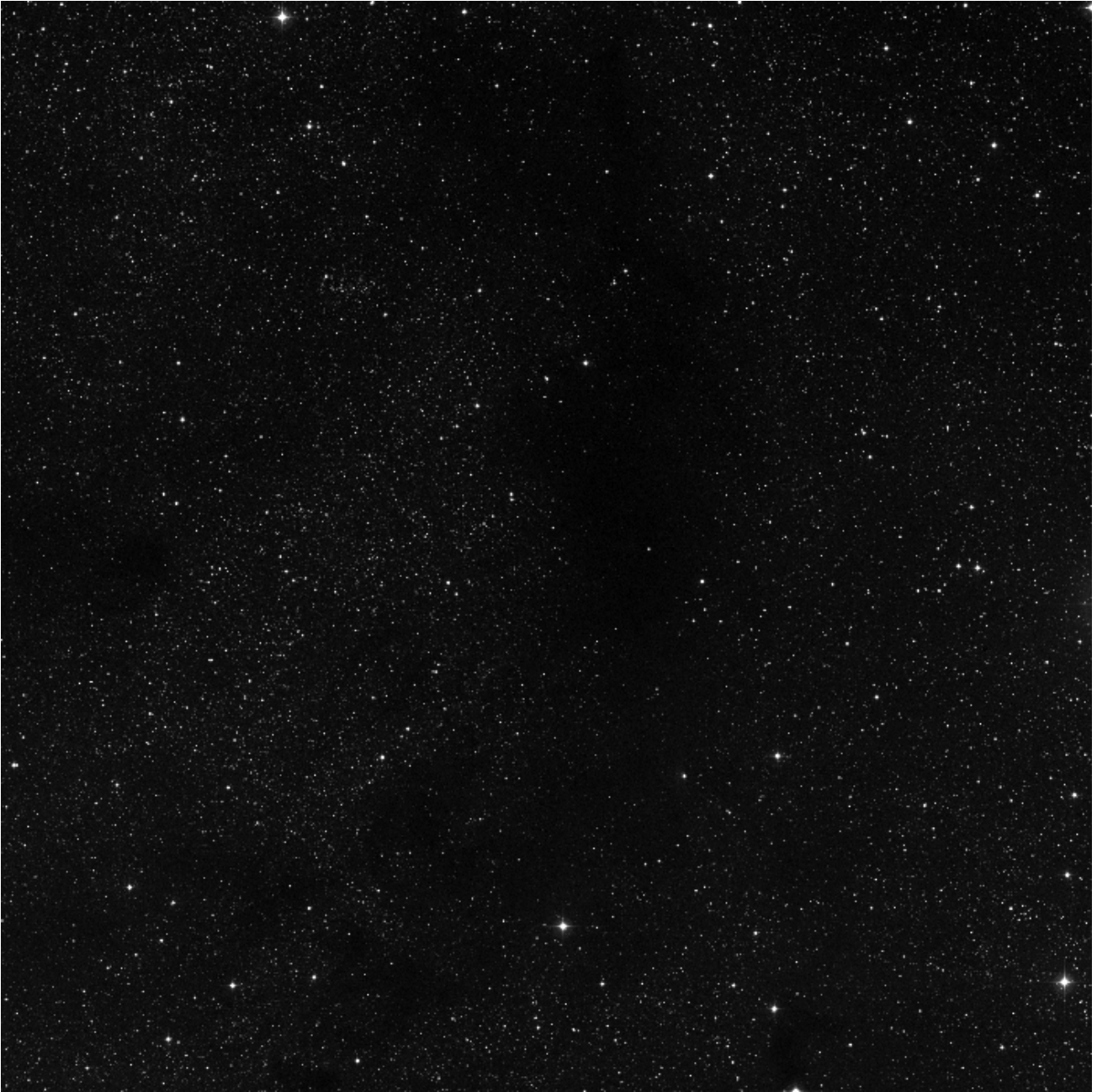
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 330	19 19 33.6	+07 34 00	30 x 30	4	50 x 50	85

LDN 673



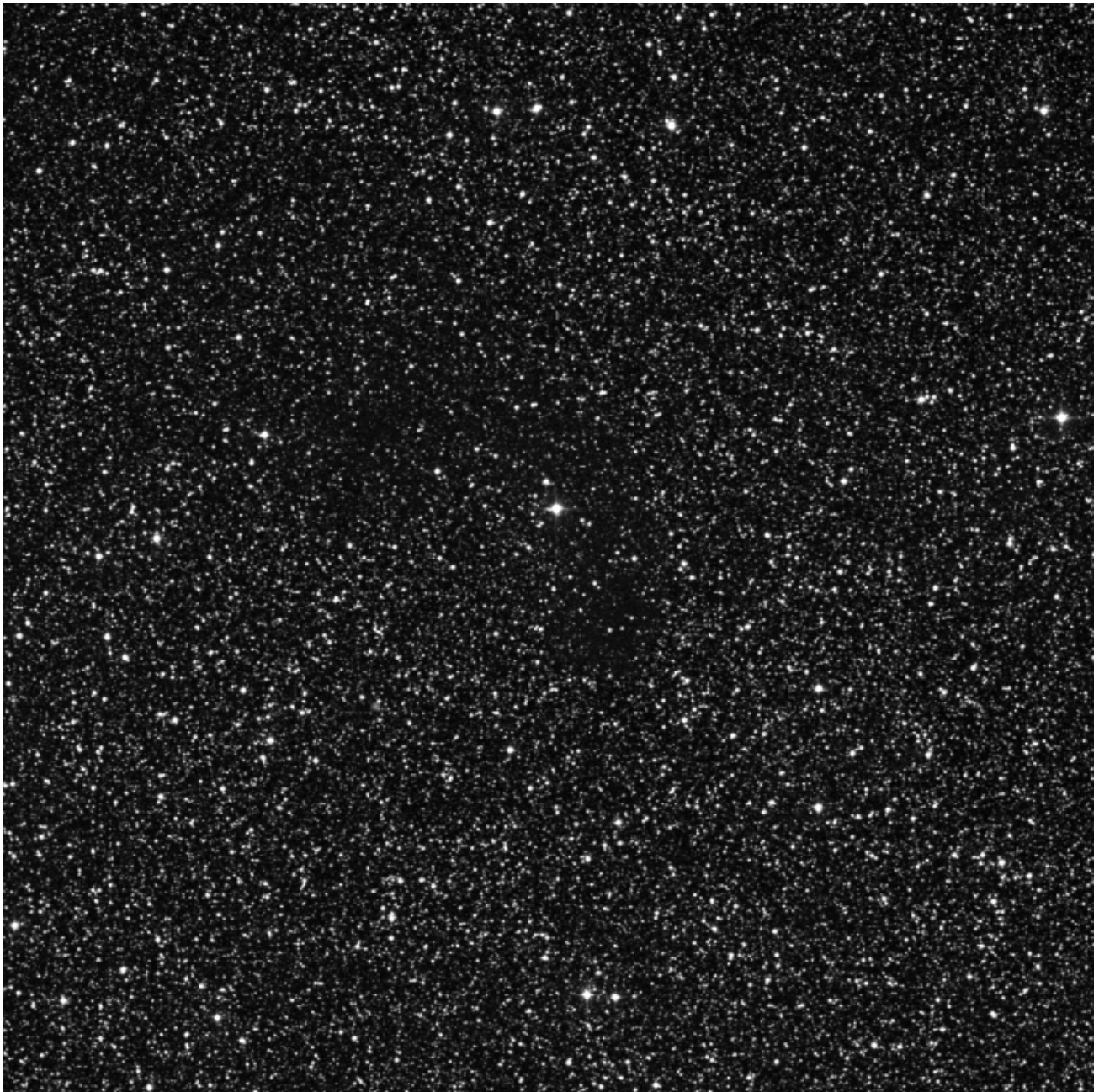
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
LDN 673	19 20 54.0	+11 16 00	55 x 15	6	60 x 60	85

LDN 684



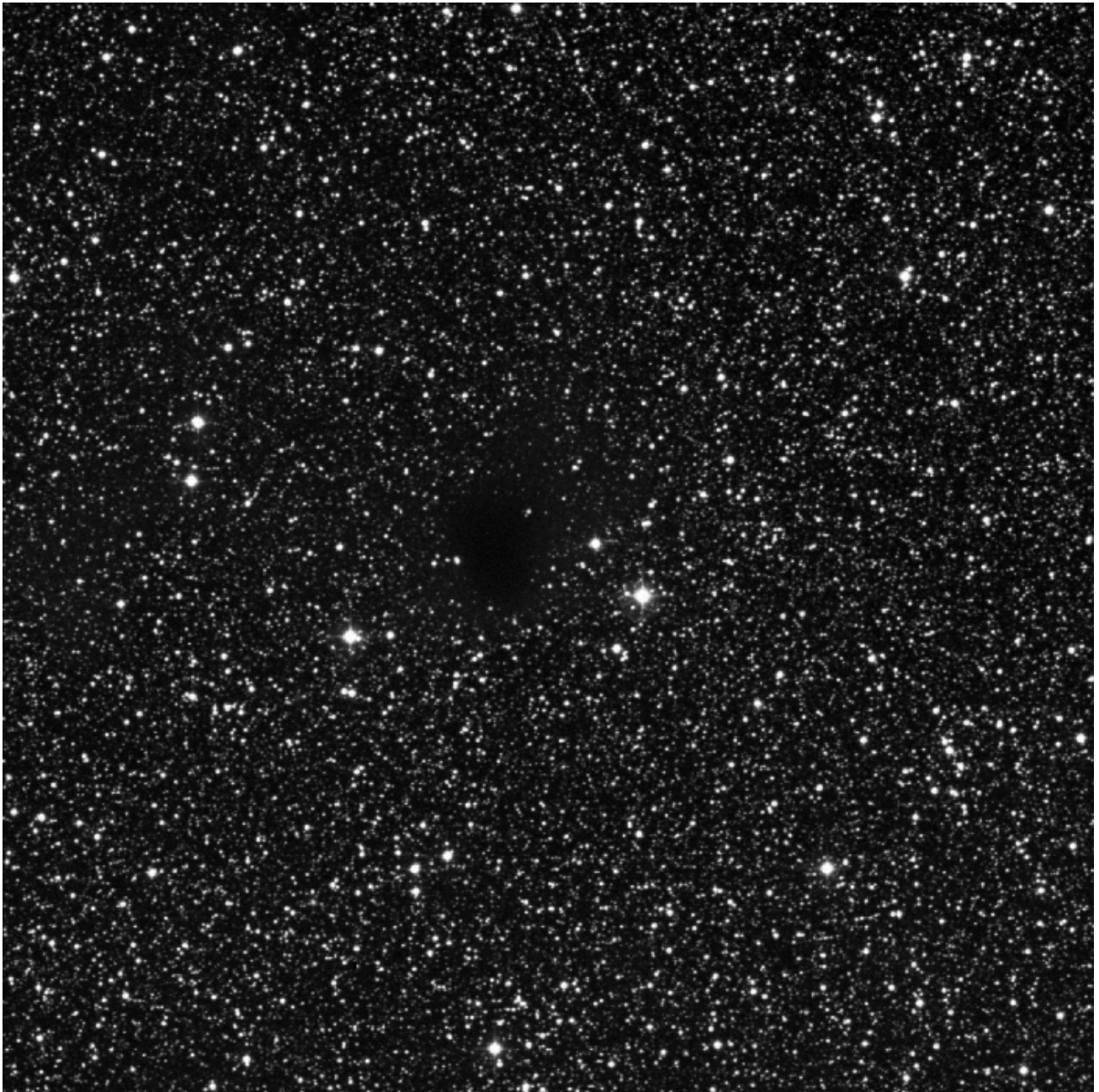
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
LDN 684	19 21 48.0	+12 26 00	50 x 10	5	60 x 60	85

Barnard 334



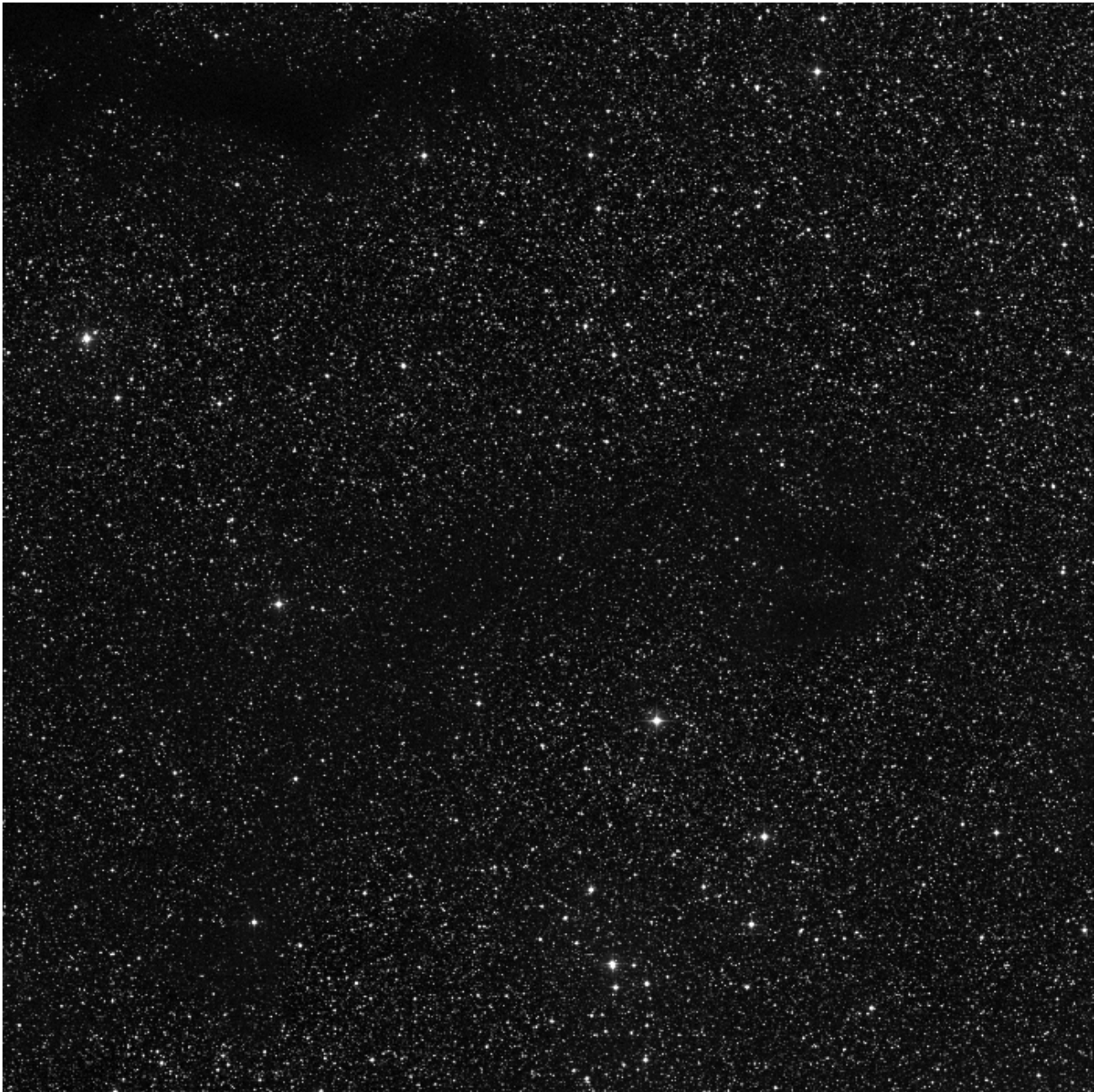
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 334	19 35 06.0	+12 19 20	3 x 3	4	30 x 30	85

Barnard 335



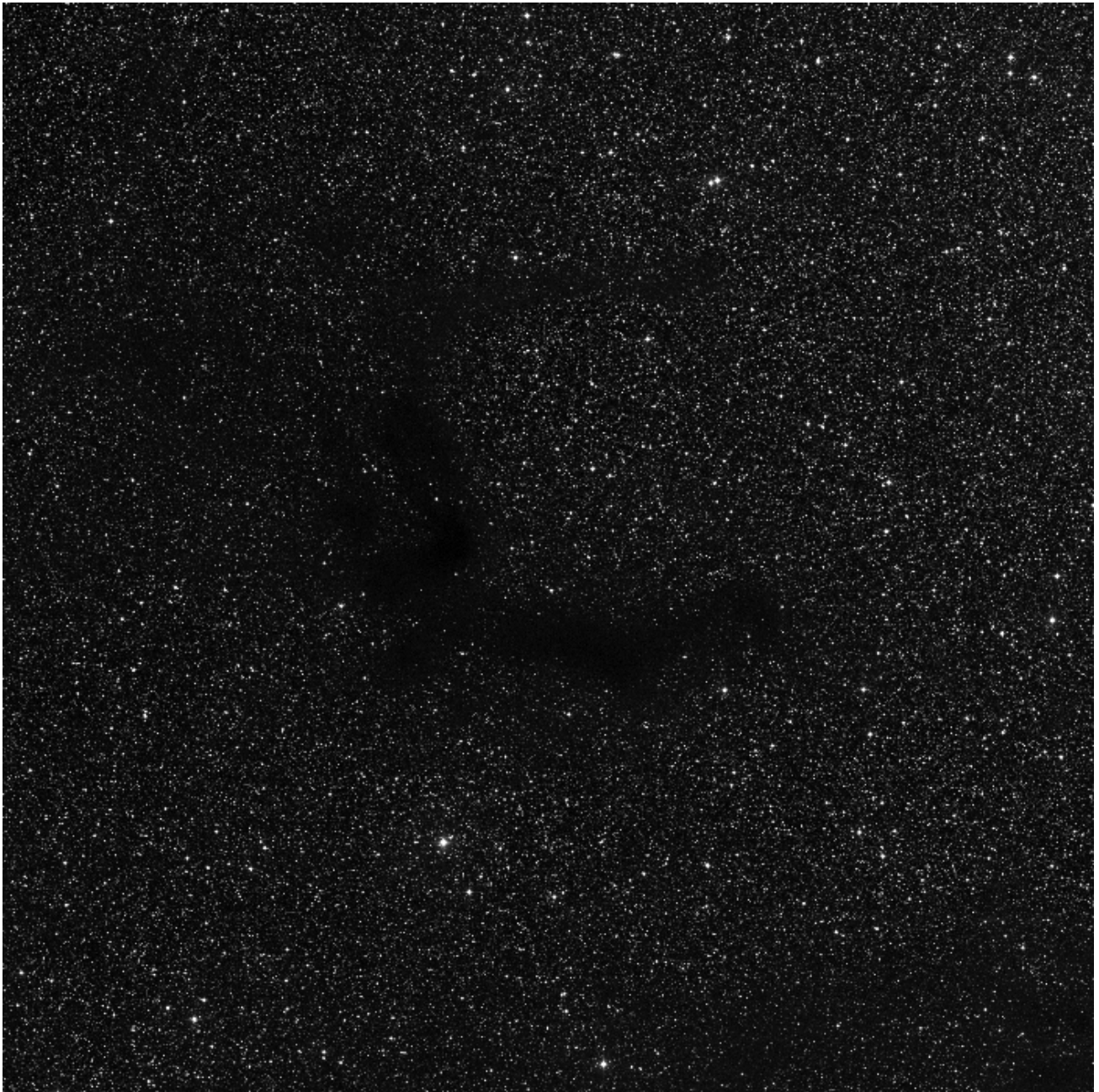
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 335	19 36 54.1	+07 37 00	6 x 6	6	30 x 30	85

Barnard 142



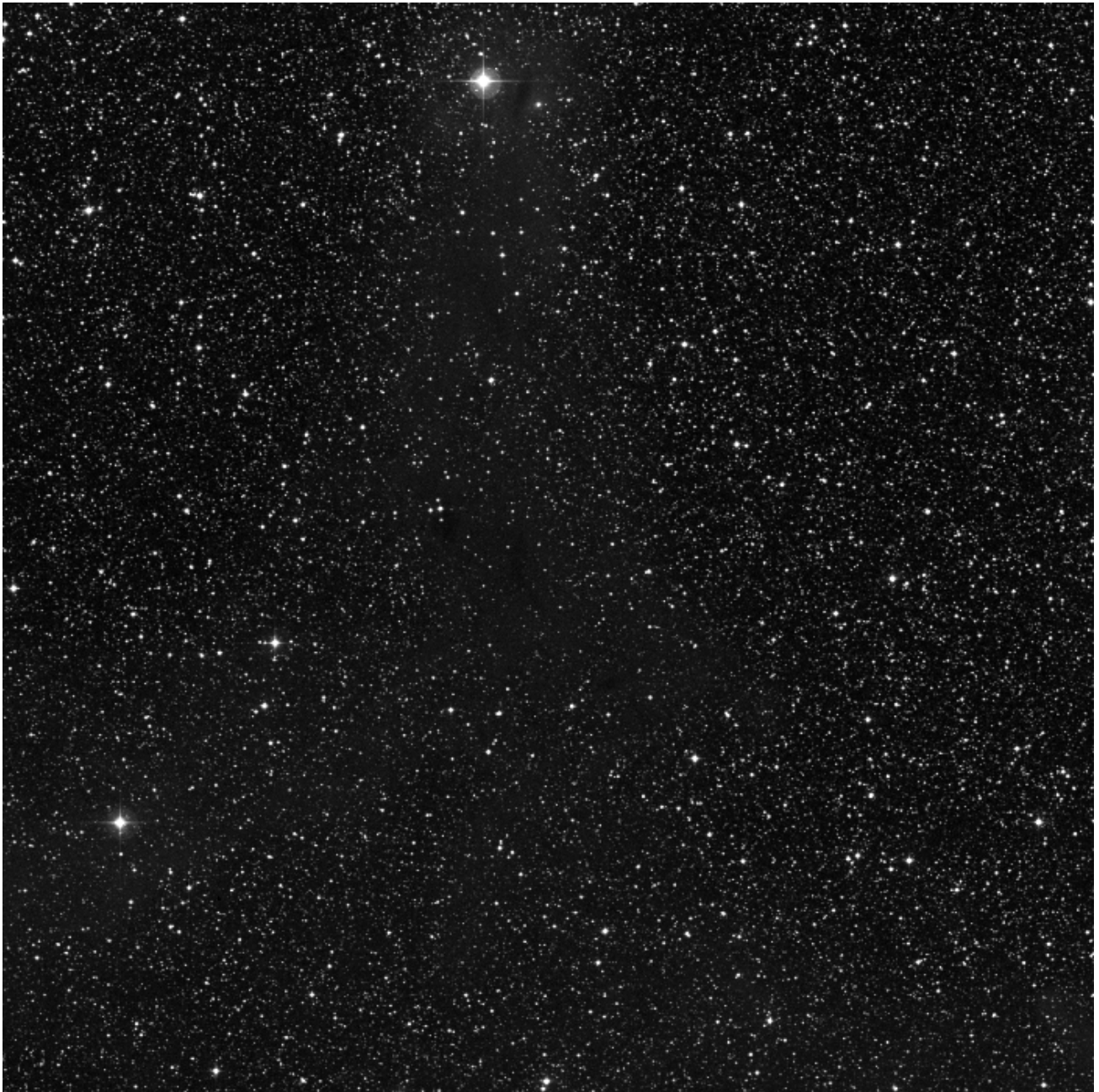
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 142	19 39 41.3	+10 31 00	40 x 40	6	50 x 50	85

Barnard 143



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 143	19 41 25.1	+11 00 00	60 x 60	6	60 x 60	85

Barnard 340



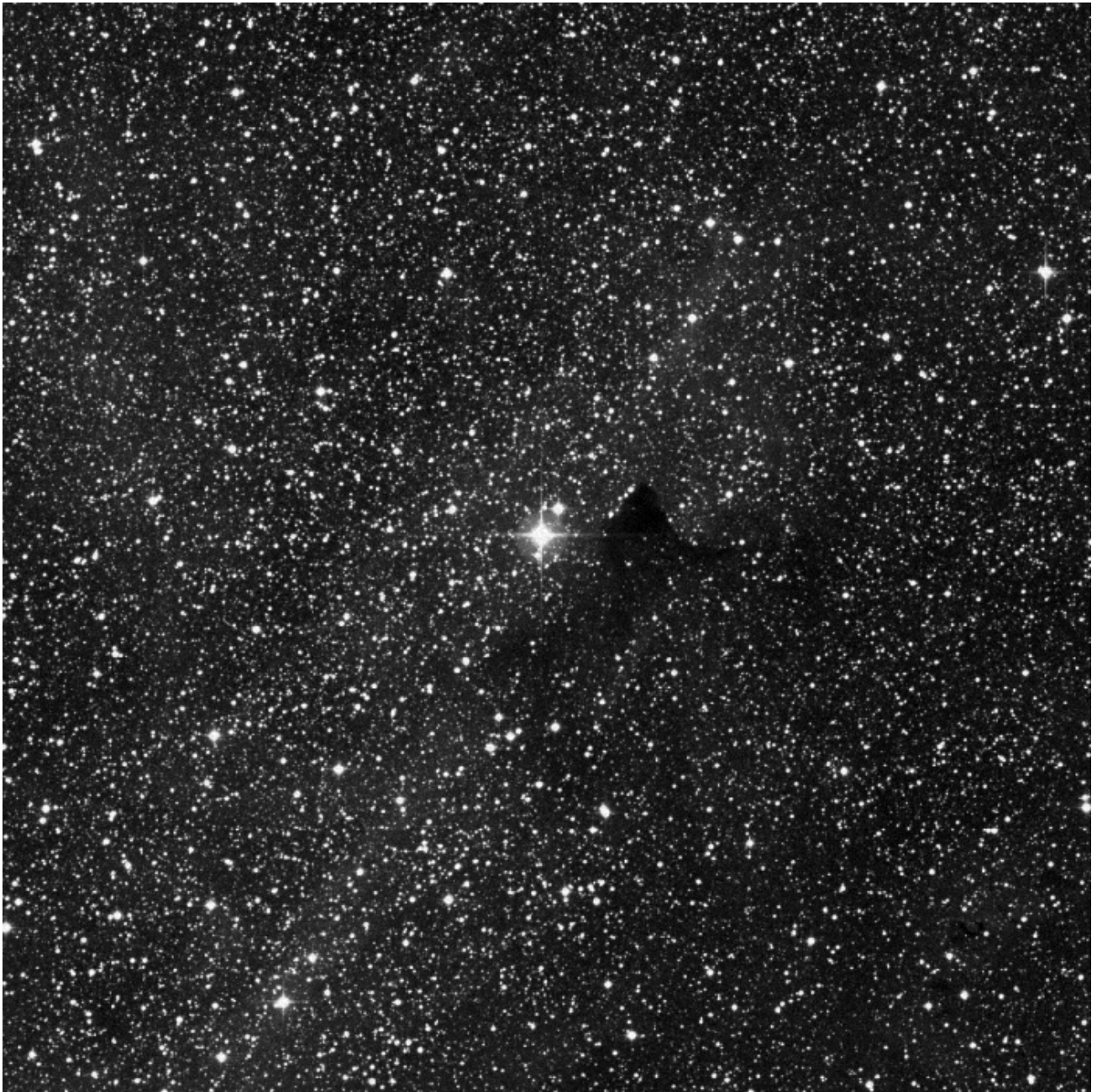
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 340	19 48 44.4	+11 25 00	7 x 7	5	40 x 40	84

Barnard 145



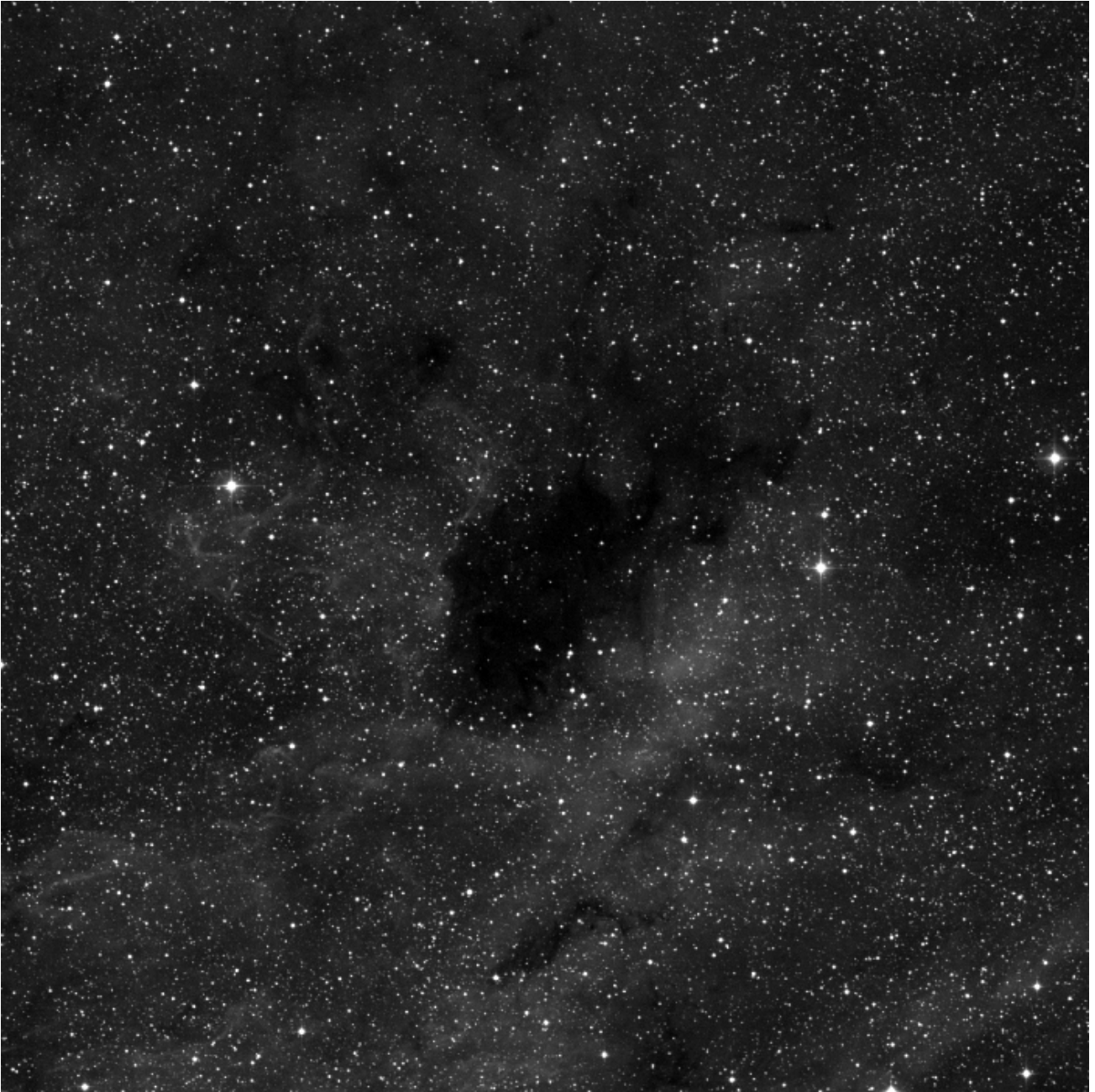
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 145	20 02 49.3	+37 41 00	35 x 6	4	60 x 60	48

Barnard 146



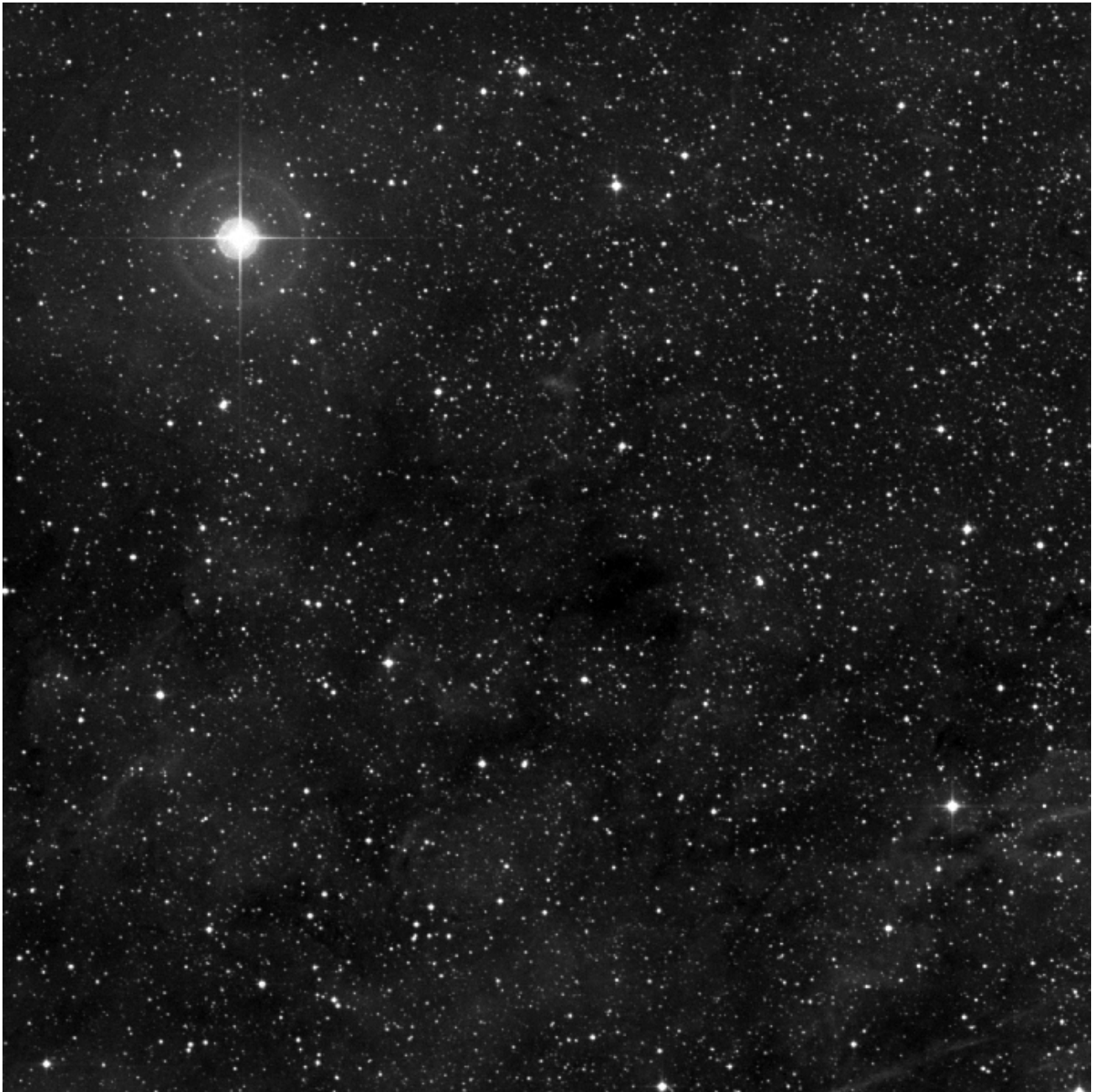
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 146	20 03 29.0	+36 01 00	1 x 1	6	25 x 25	48

Barnard 343



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 343	20 13 26.0	+40 17 00	13 x 5	5	40 x 40	32

Barnard 344



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 344	20 16 12.2	+40 13 00	7 x 3	3	30 x 30	32

LDN 889



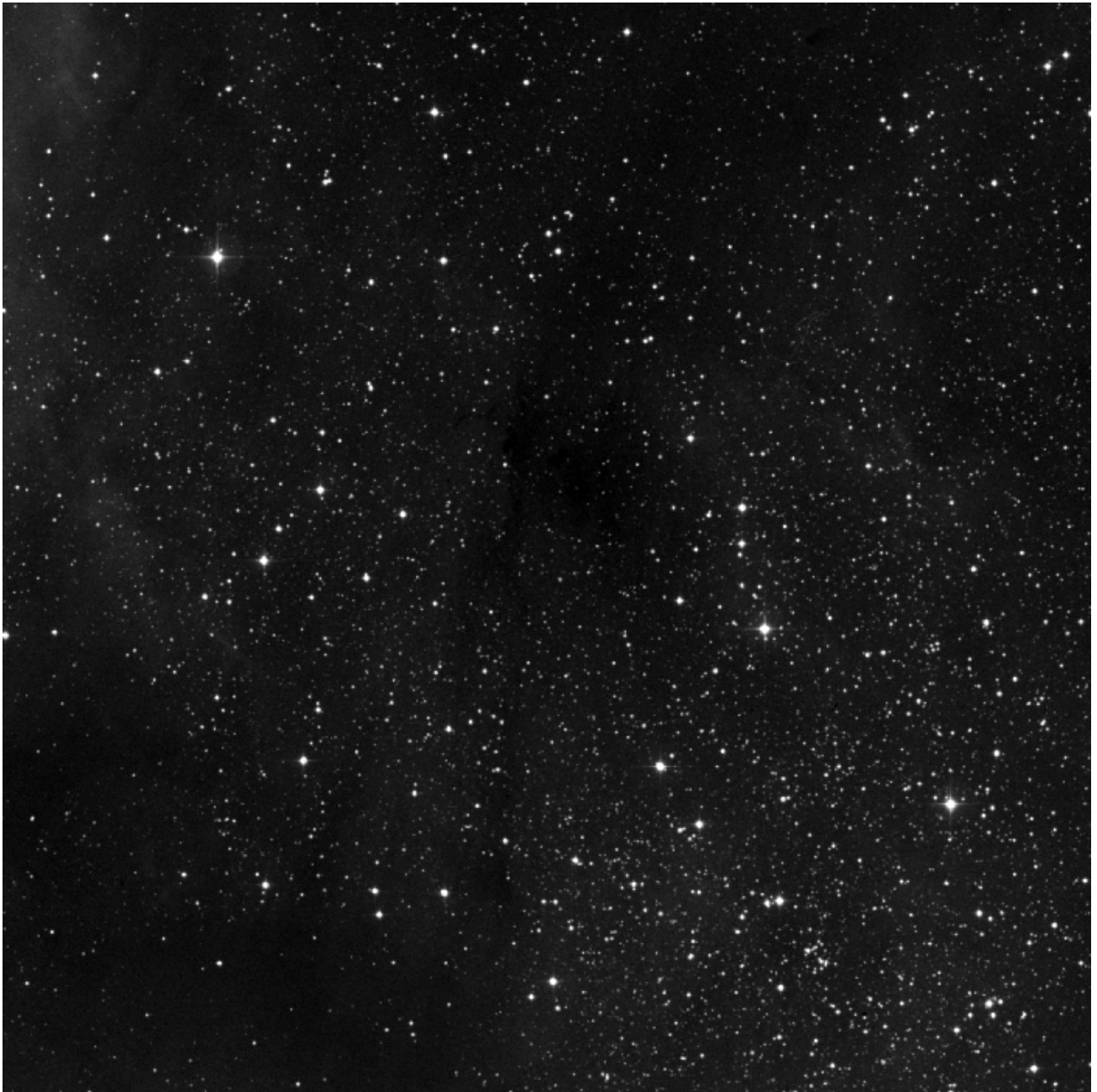
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
LDN 889	20 24 48.0	+40 10 00	180 x 20	4	60 x 60	32

Barnard 347



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 347	20 28 27.8	+39 55 00	4.0 x 0.7	4	30 x 30	48

Barnard 349



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 349	20 47 24.2	+43 58 00	6 x 1		30 x 30	32

Barnard 150



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 150	20 50 39.7	+60 18 00	60 x 3	5	60 x 60	20

LDN 935



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
LDN 935	20 56 48.0	+43 52 00	90 x 20	4	60 x 60	32

Barnard 352



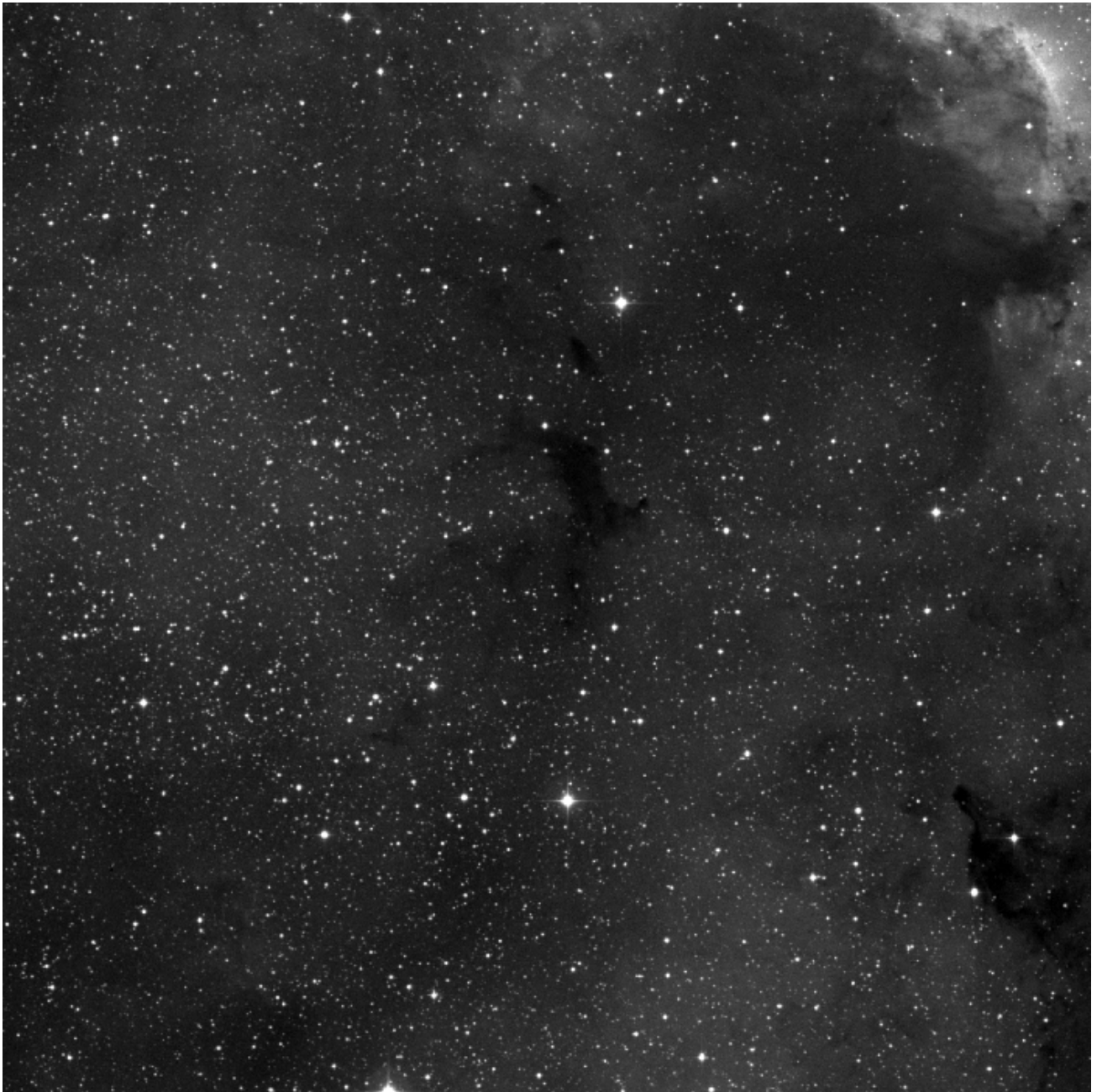
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 352	20 57 10.8	+45 54 00	20 x 10	5	40 x 40	32

Barnard 353



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 353	20 57 22.6	+45 29 00	12 x 6		30 x 30	32

Barnard 355



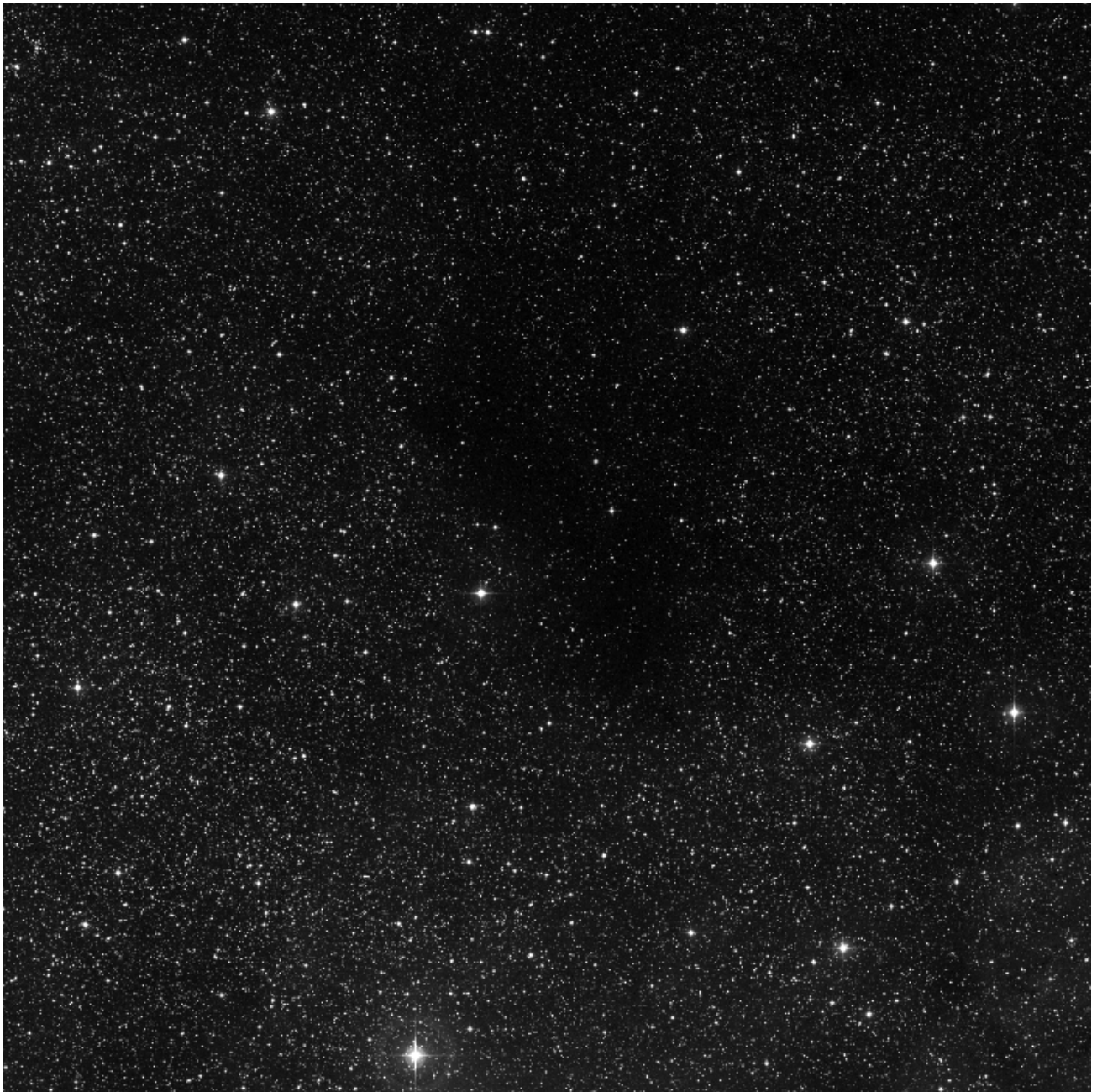
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 355	20 59 38.0	+43 11 00	5 x 5		30 x 30	32

Barnard 357



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 357	20 59 52.1	+55 34 00	30 x 30	5	60 x 60	19

Barnard 356



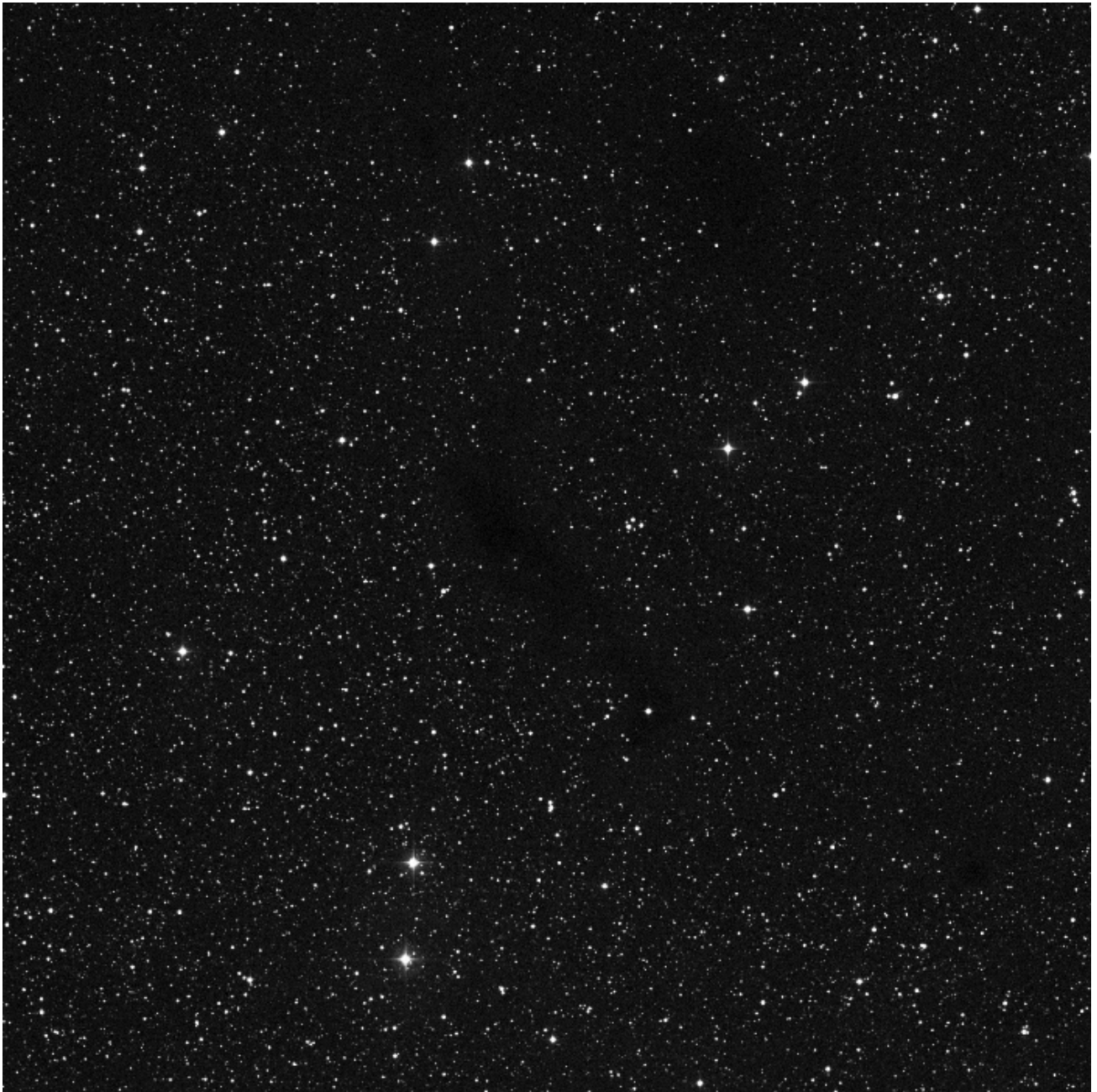
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 356	20 59 58.8	+46 41 00	24 x 24	5	60 x 60	32

Barnard 358



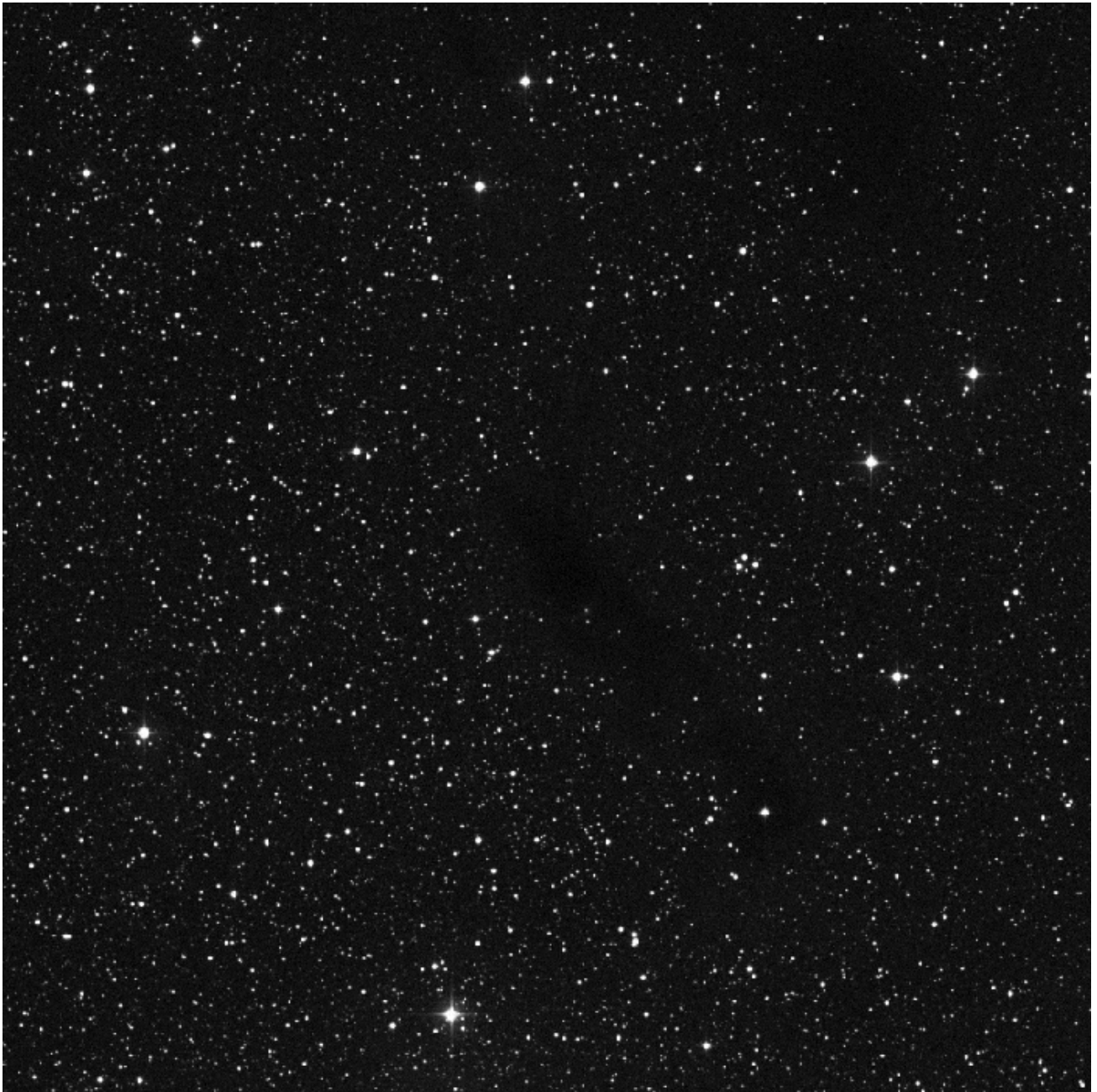
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 358	21 05 40.6	+43 17 00	20 x 20		40 x 40	32

Barnard 360



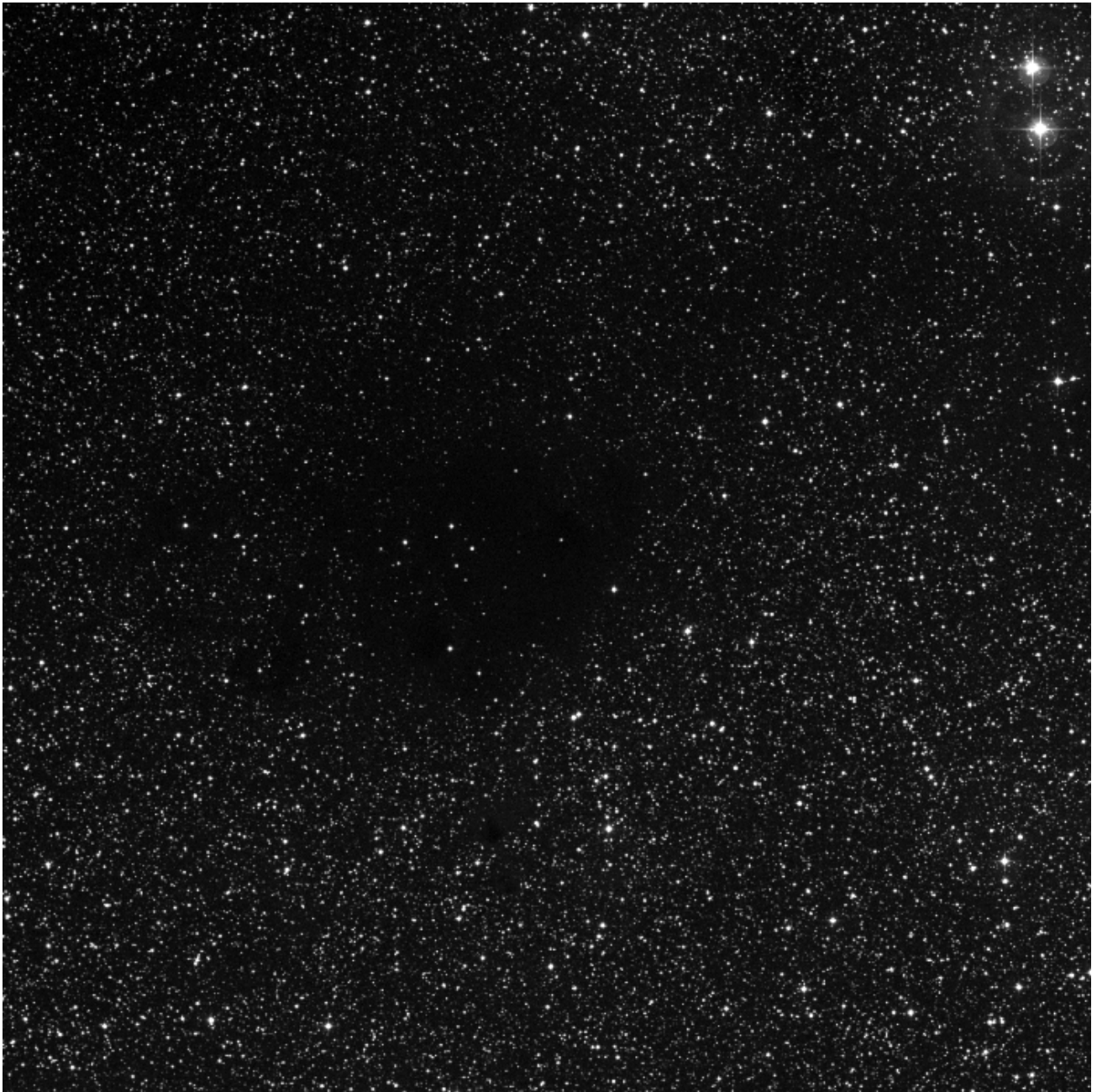
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 360	21 07 52.2	+56 30 00		5	40 x 40	19

Barnard 151



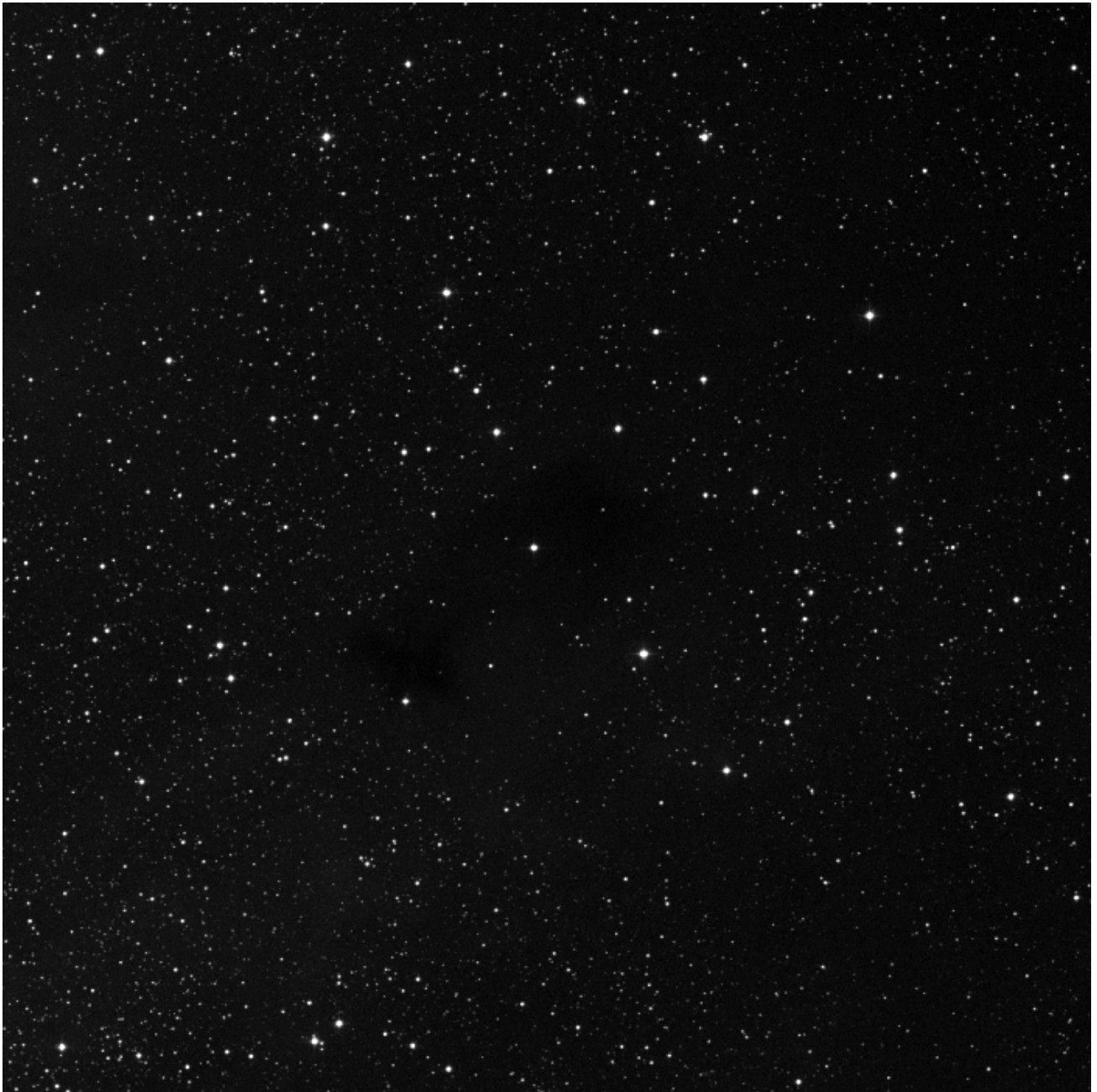
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 151	21 08 13.6	+56 19 20	1 x 1	5	30 x 30	19

Barnard 361



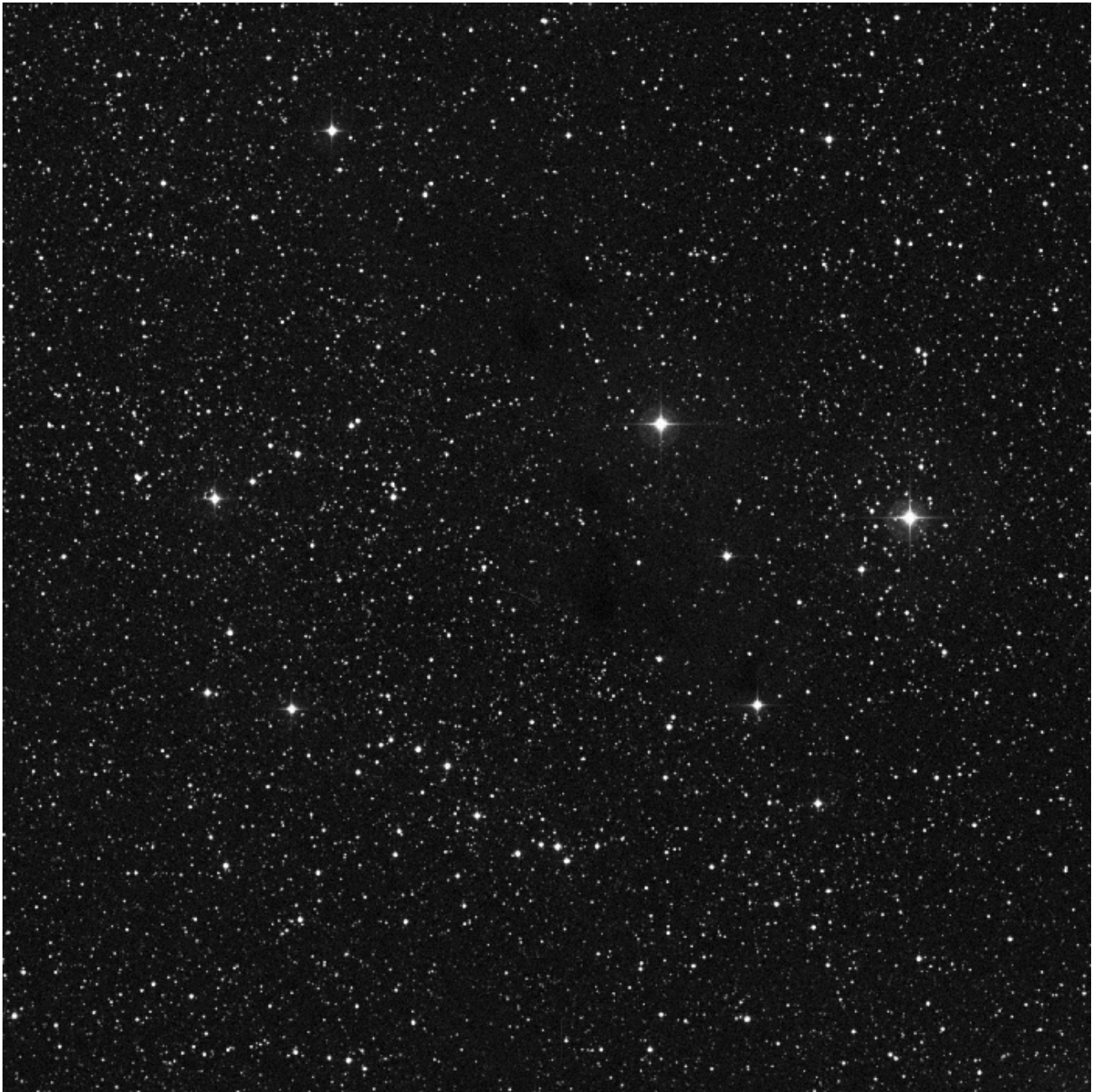
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 361	21 12 45.8	+47 26 00	17 x 17	4	40 x 40	32

Barnard 152



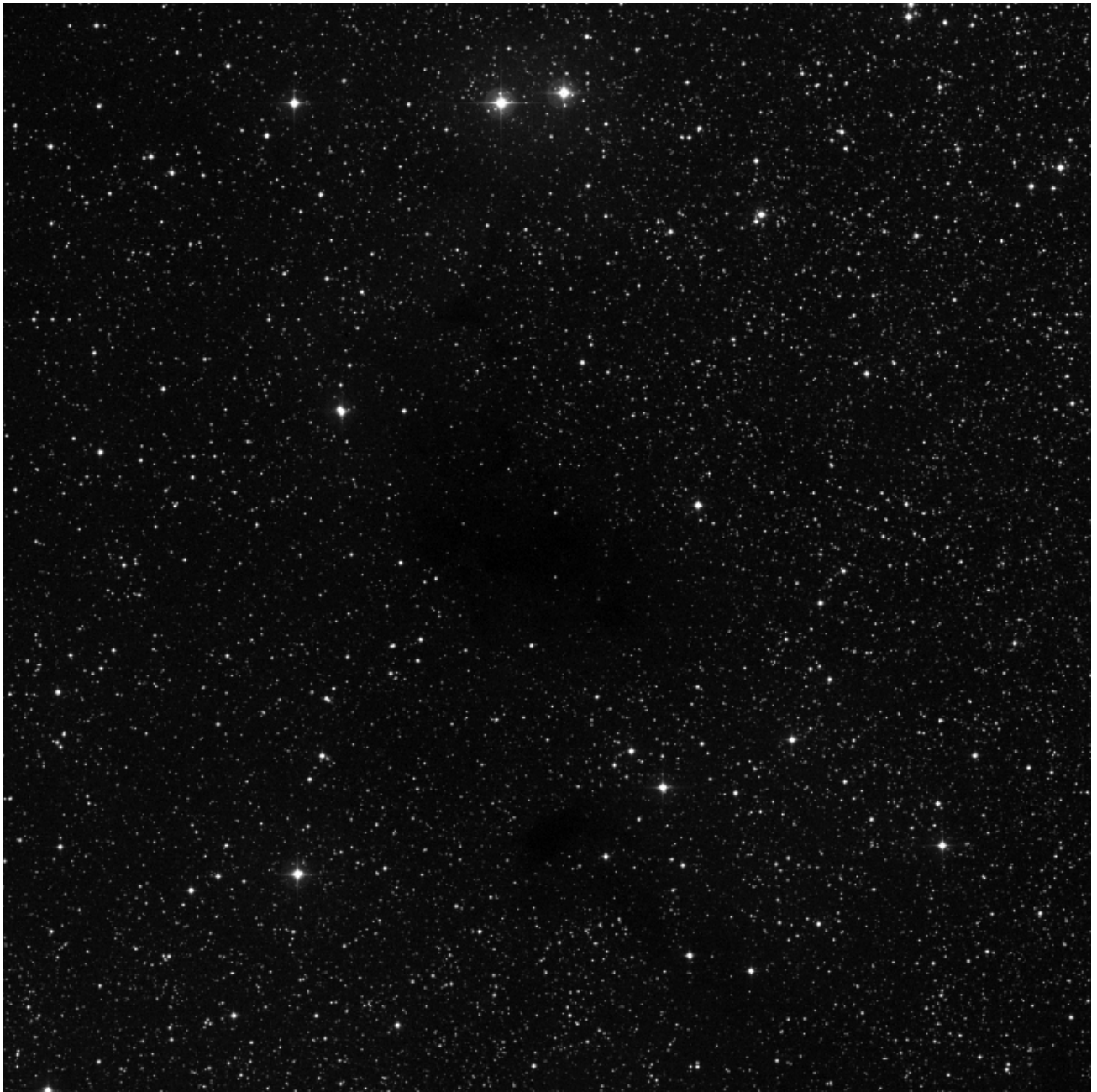
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 152	21 14 29.6	+61 44 00	15 x 3	5	40 x 40	19

Barnard 154



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 154	21 21 22.5	+56 37 00	8 x 2	5	30 x 30	19

Barnard 362



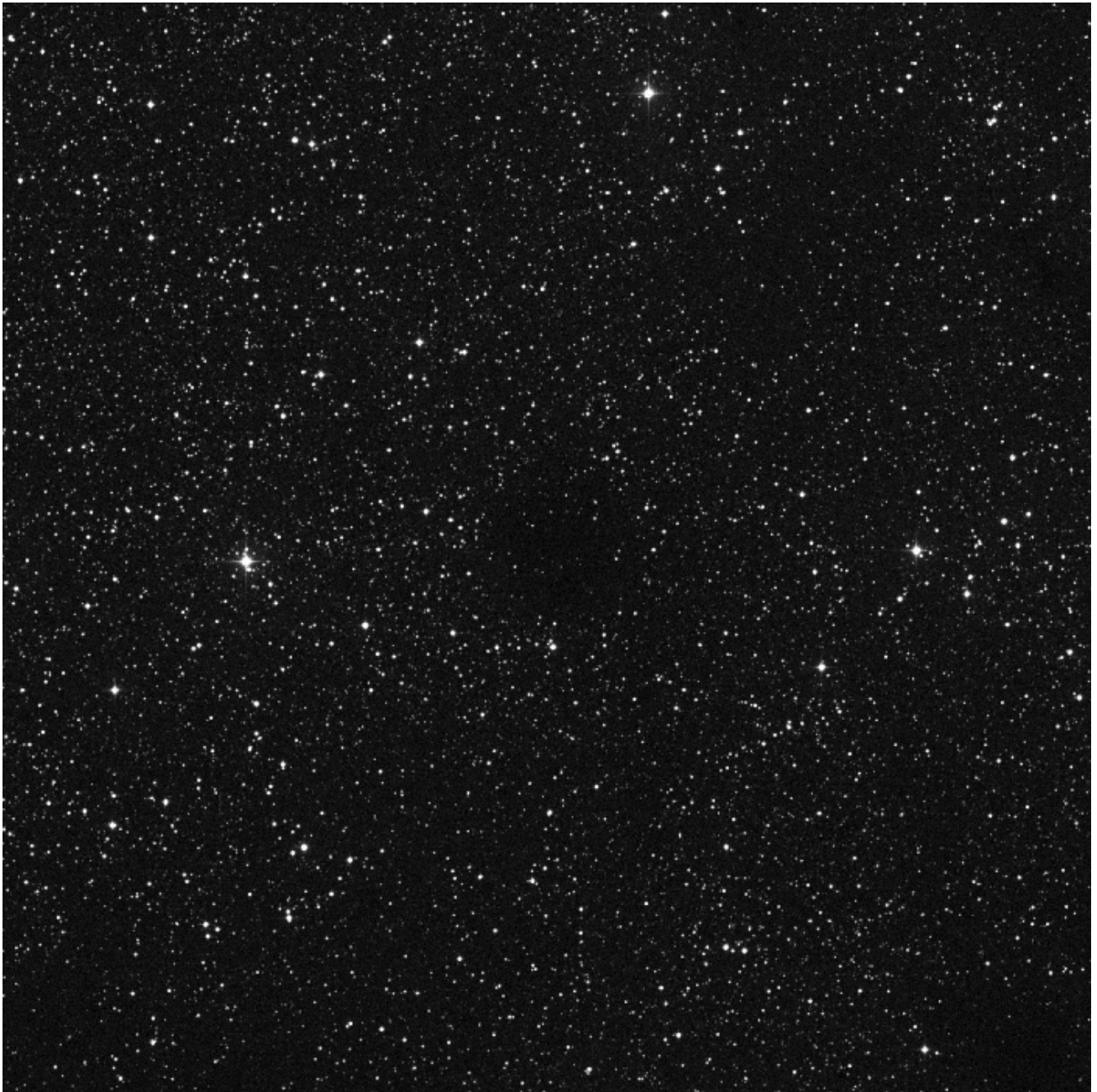
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 362	21 23 57.8	+50 12 00	15 x 8	5	40 x 40	32

Barnard 363



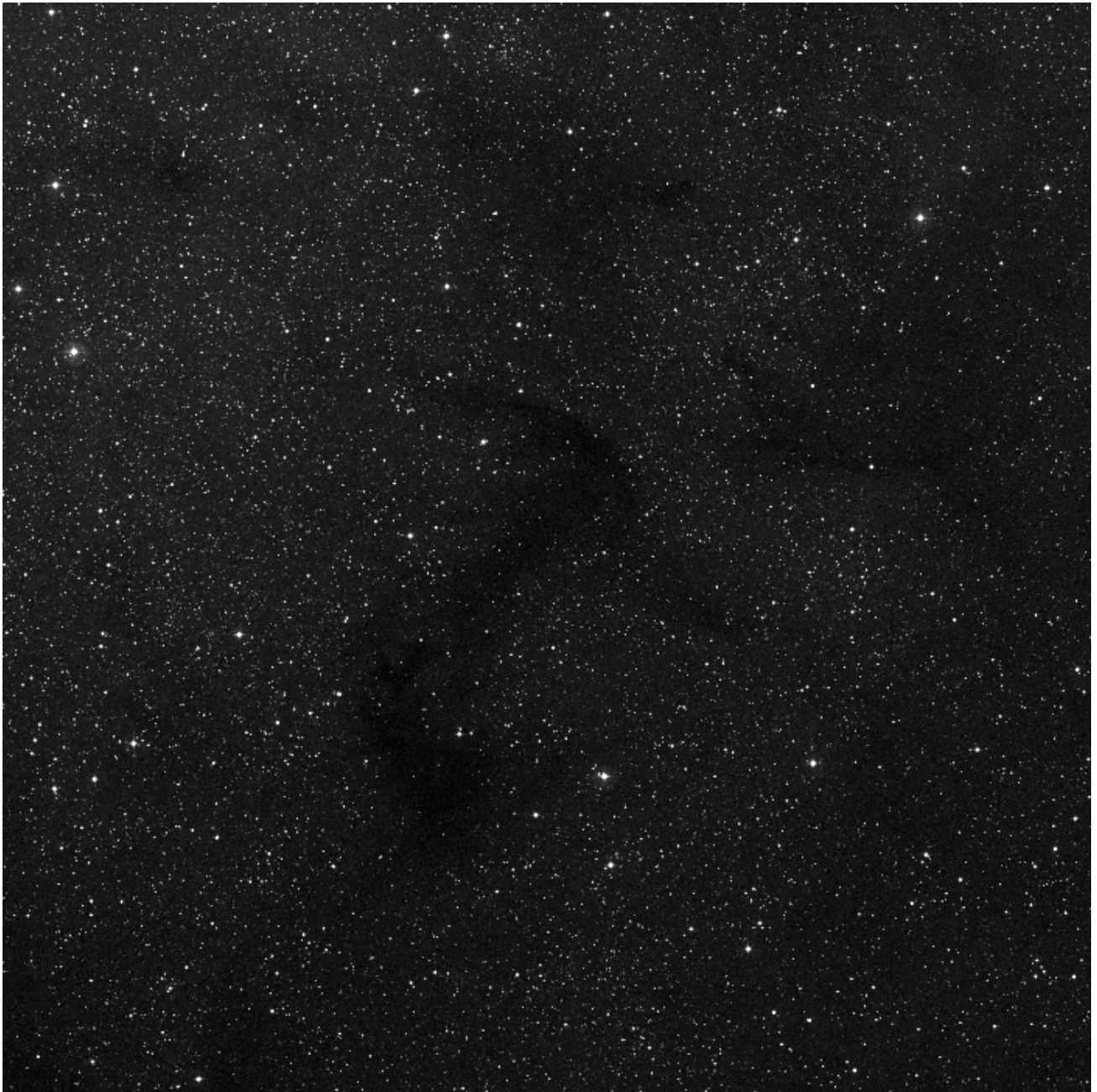
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 363	21 24 53.8	+48 56 00	40 x 15	3	60 x 60	32

Barnard 157



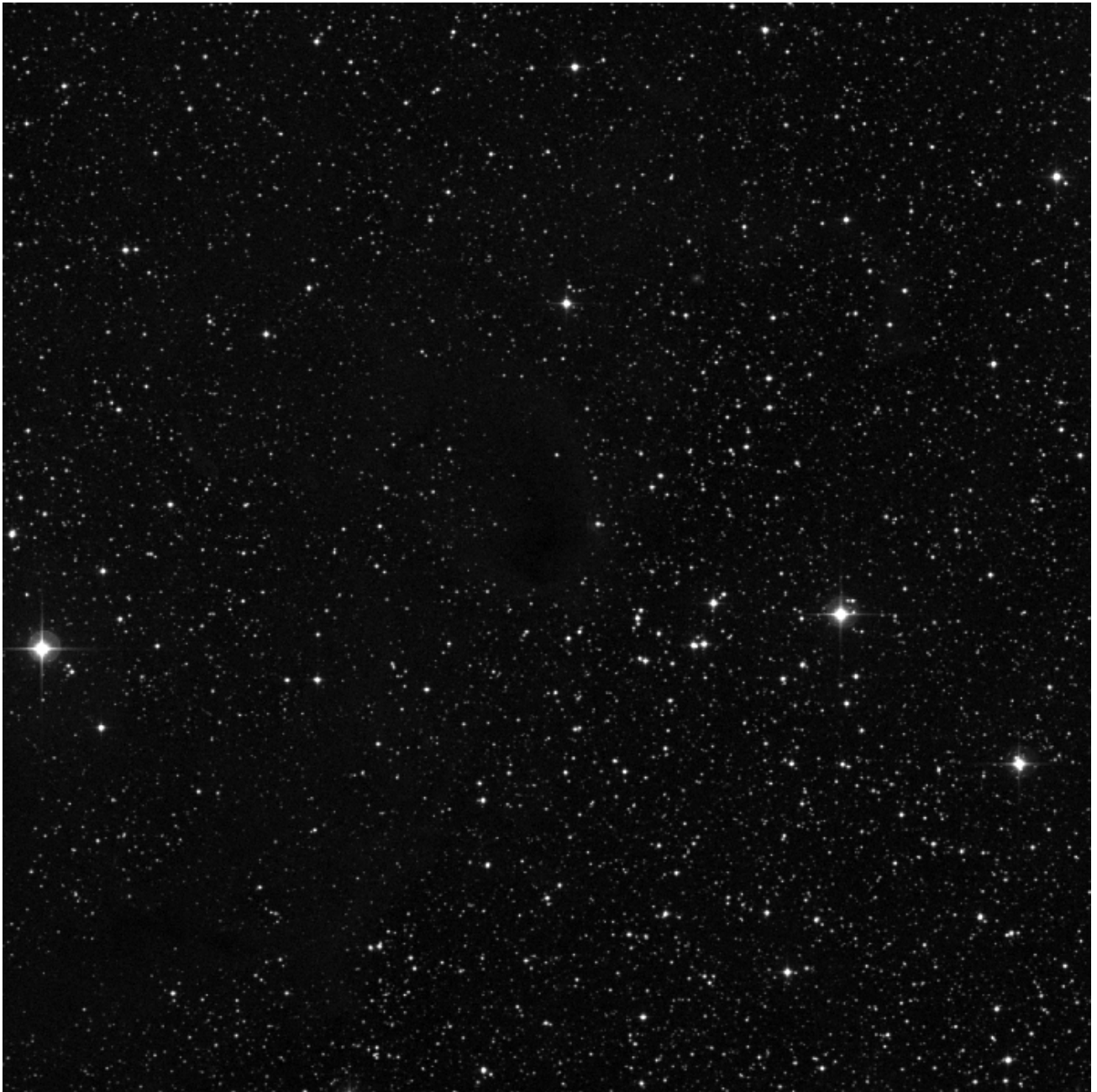
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 157	21 33 41.6	+54 40 00	4 x 4	4	30 x 30	19

Barnard 365



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 365	21 34 53.5	+56 43 00	22 x 3	4	50 x 50	19

Barnard 158



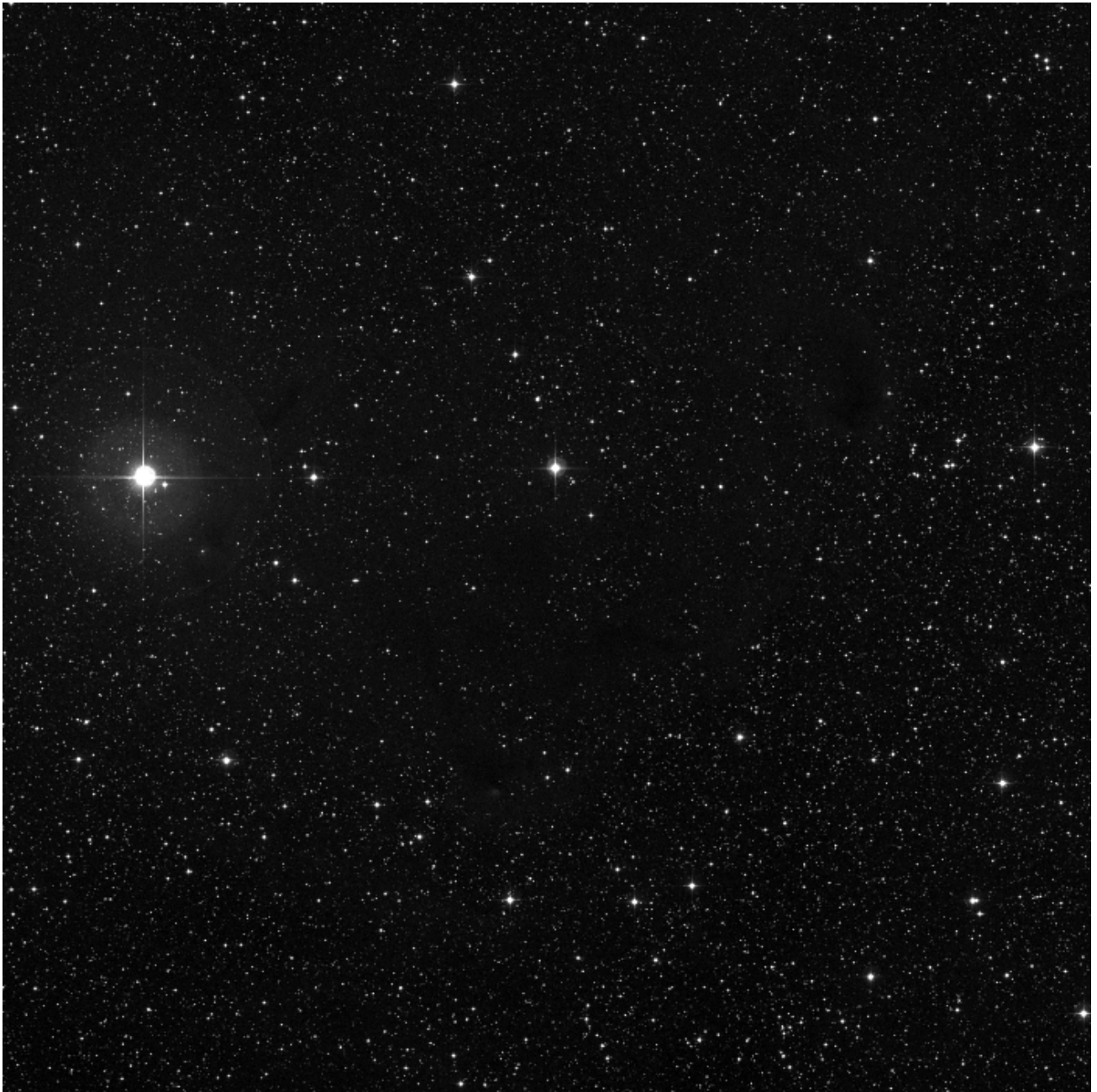
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 158	21 37 13.6	+43 24 40	3 x 3		30 x 30	31

Barnard 160



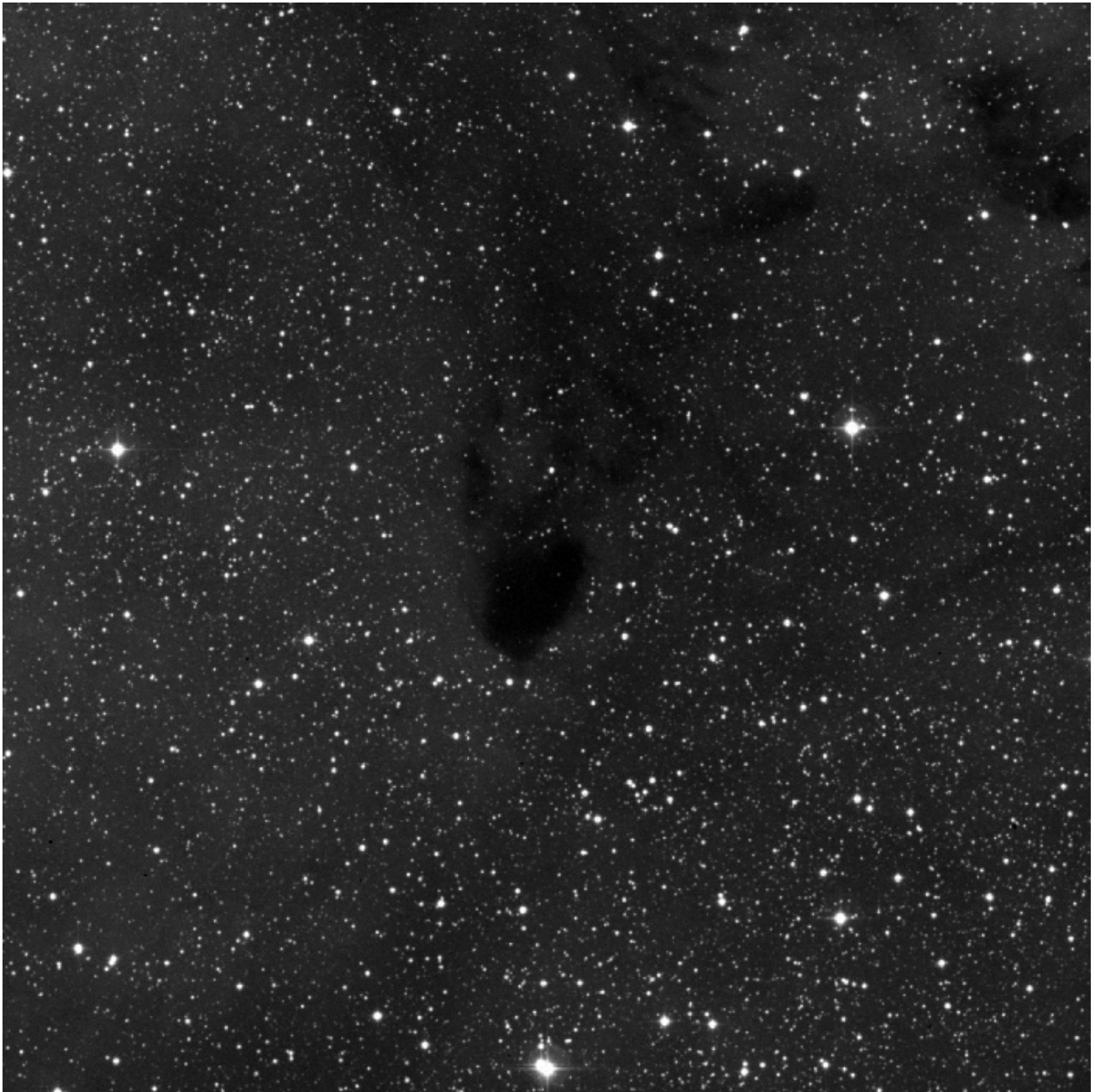
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 160	21 37 58.9	+56 14 00	30 x 15	4	60 x 60	19

Barnard 159



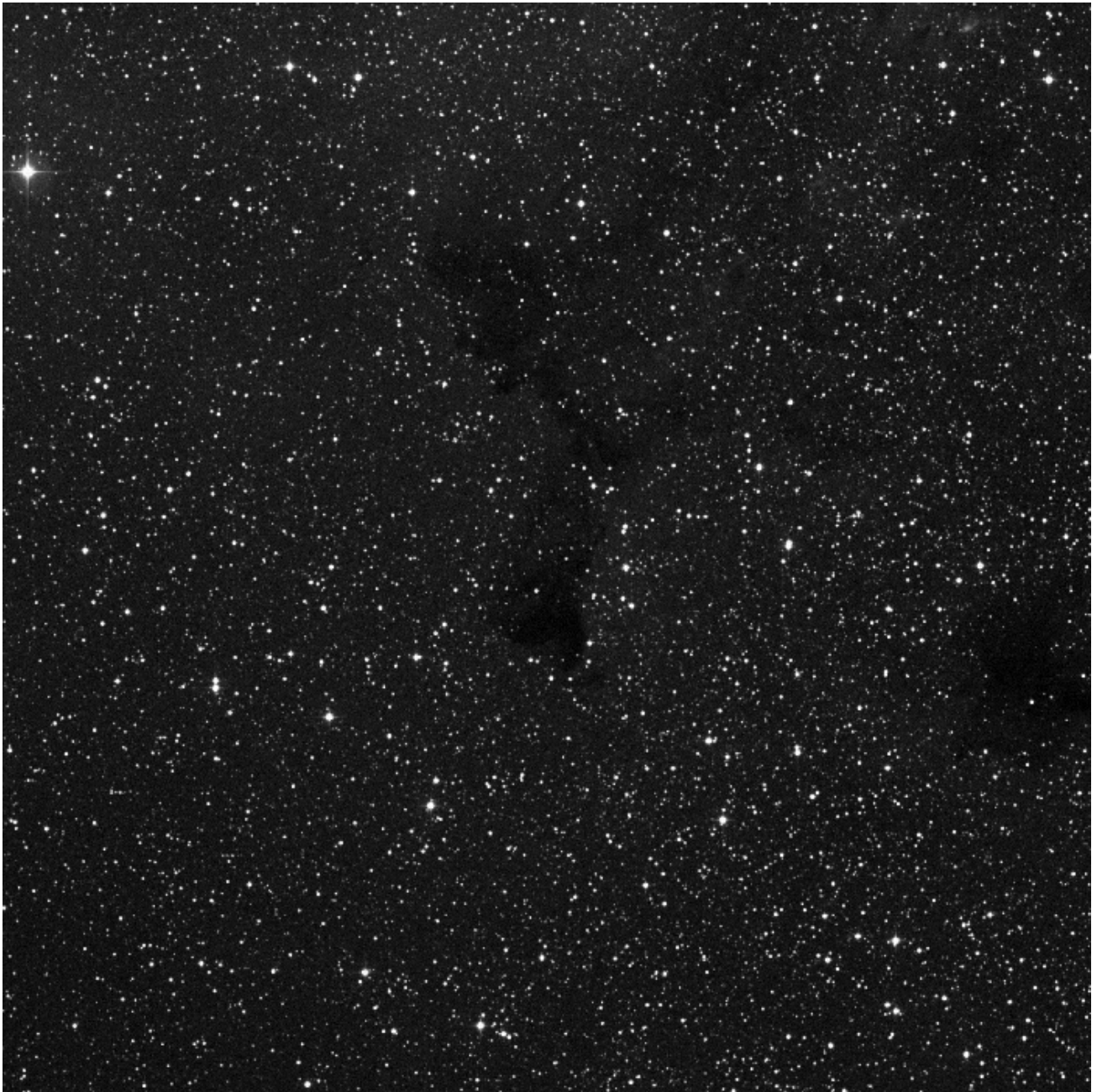
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 159	21 38 22.8	+43 14 00	25 x 25	5	50 x 50	31

Barnard 161



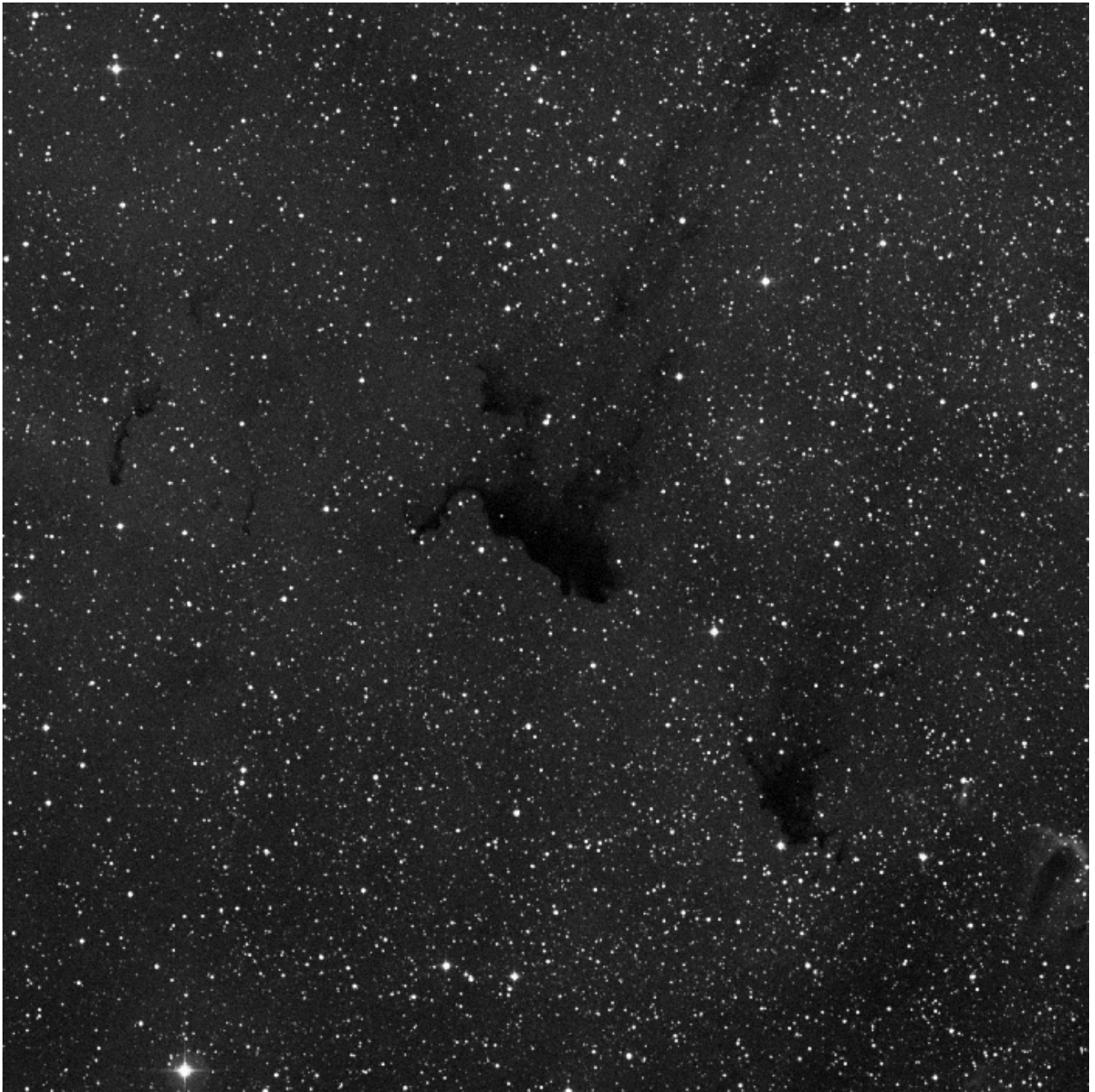
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 161	21 40 22.2	+57 49 00		6	30 x 30	19

Barnard 162



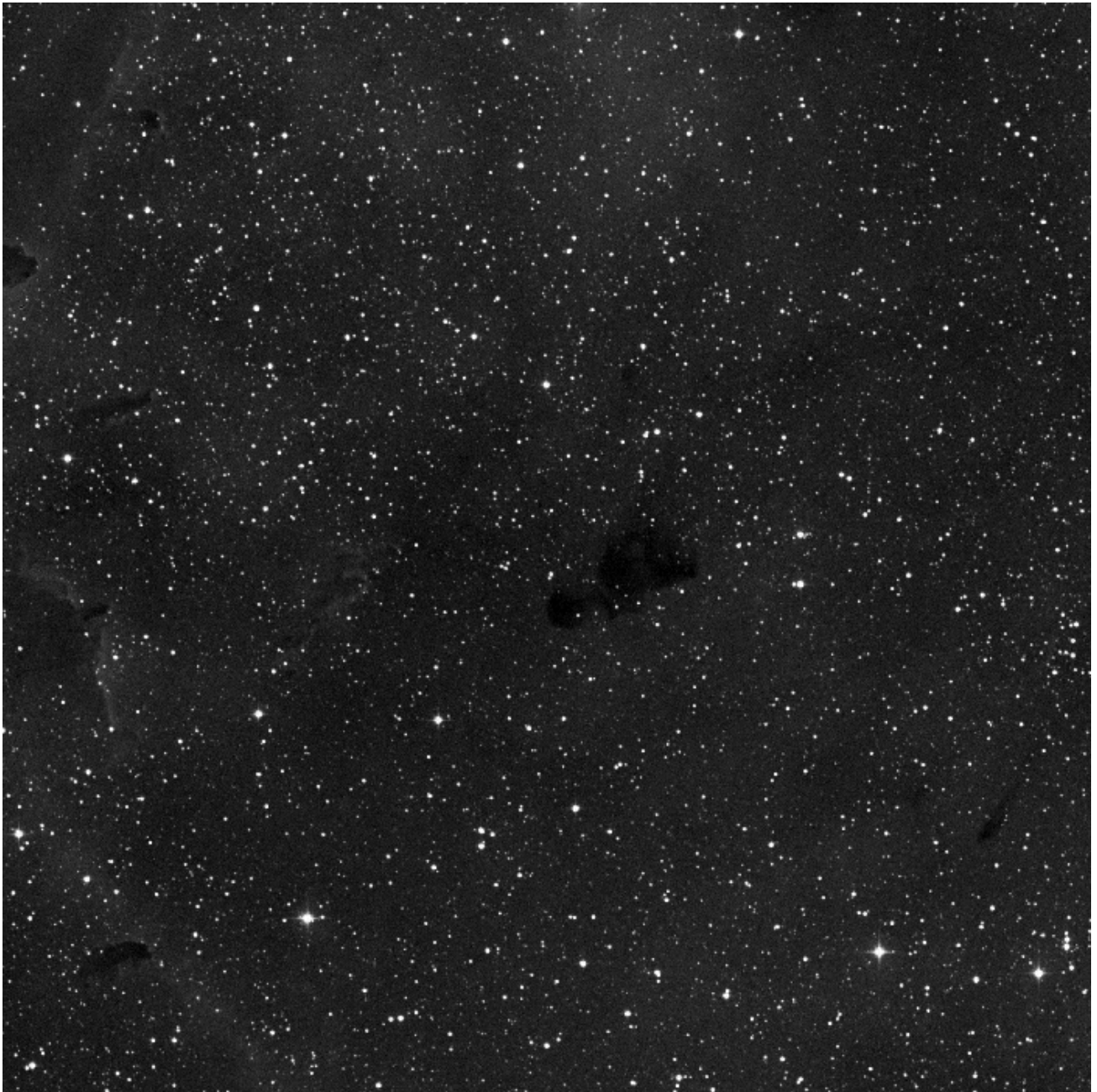
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 162	21 41 09.2	+56 19 00	13 x 2	4	30 x 30	19

Barnard 163



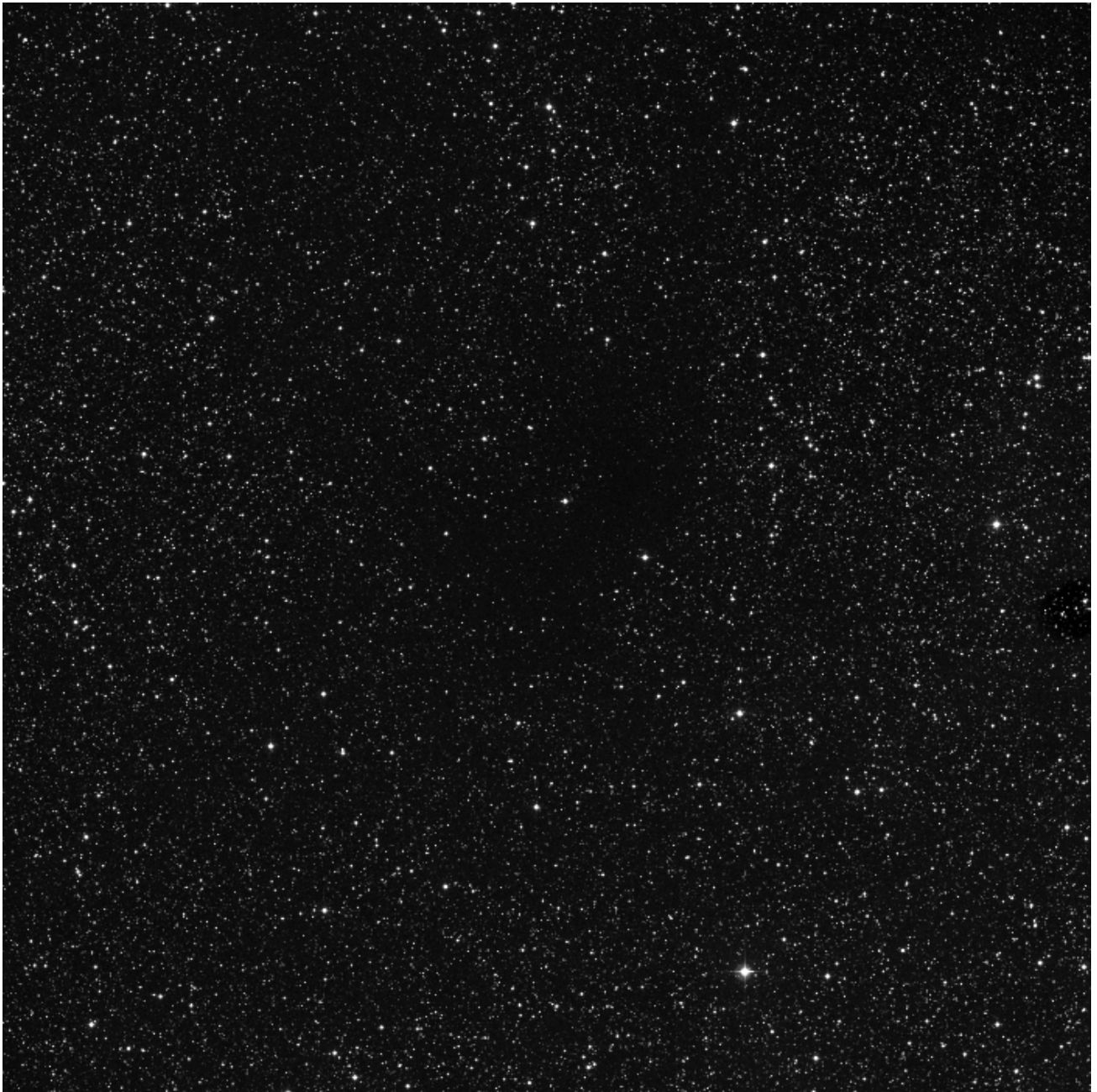
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 163	21 42 10.1	+56 42 00	4 x 4	4	30 x 30	19

Barnard 367



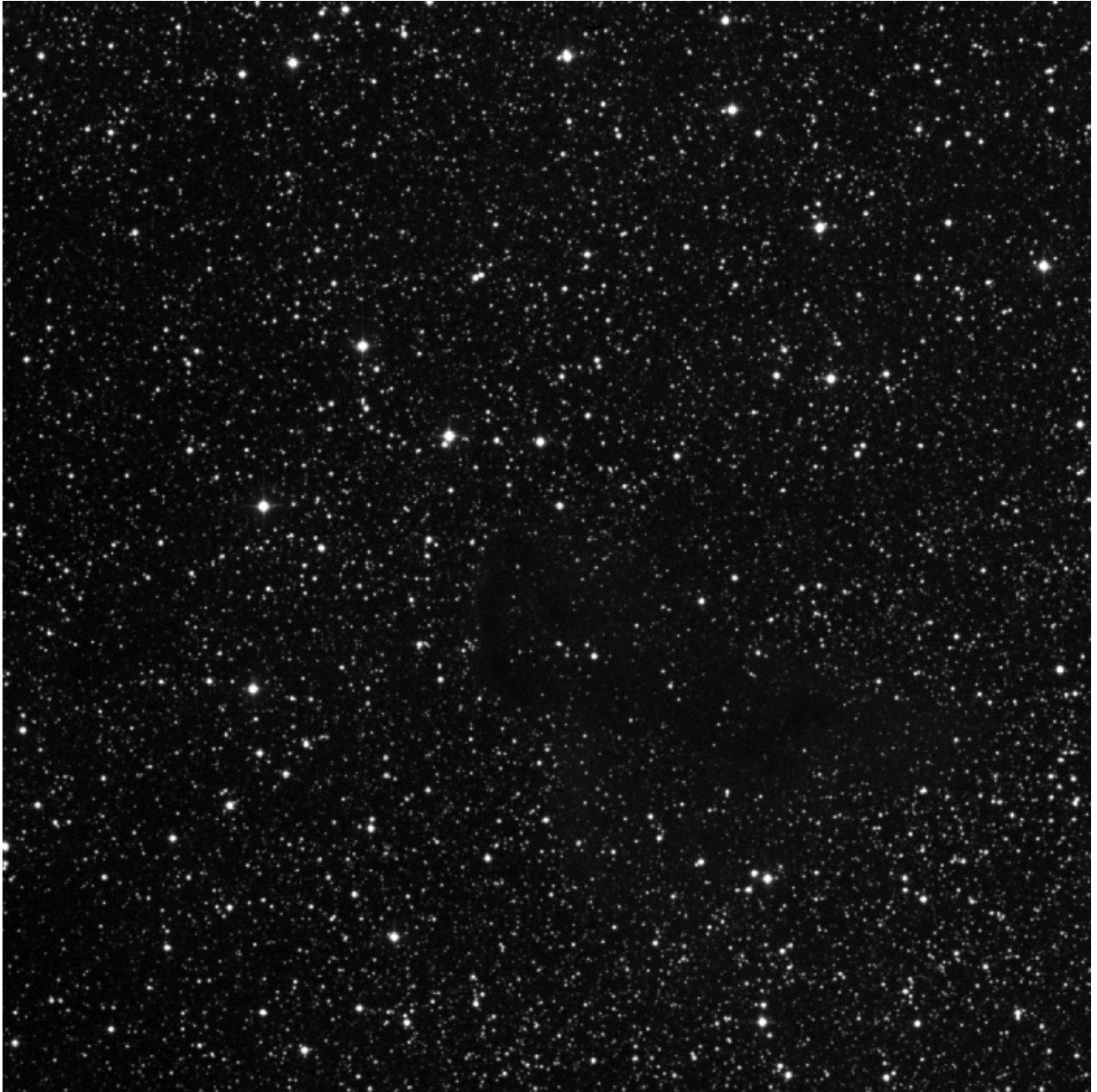
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 367	21 44 24.5	+57 10 00	5 x 5	5	30 x 30	19

Barnard 164



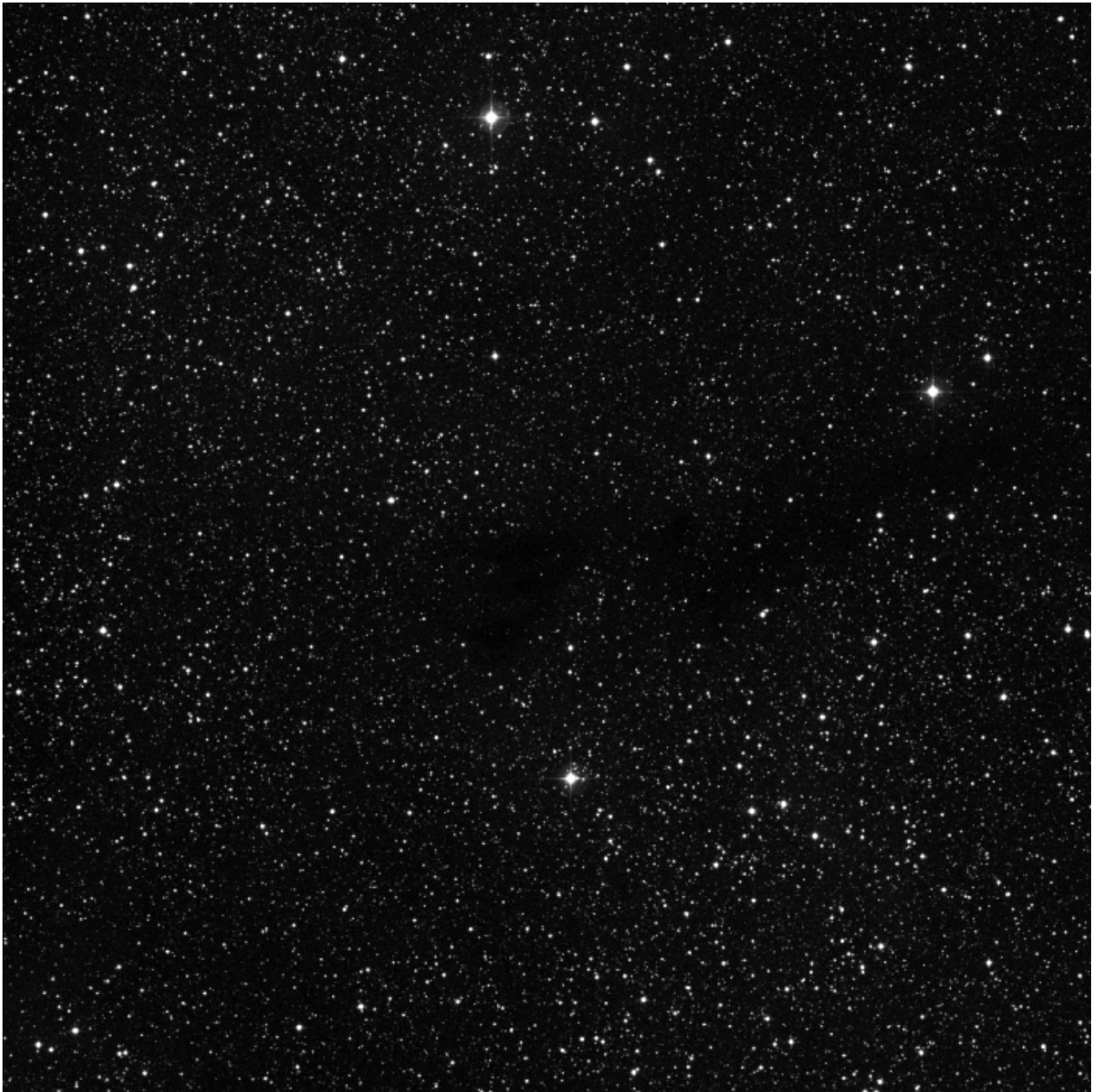
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 164	21 46 31.9	+51 06 00	12 x 6	5	60 x 60	19

Barnard 368



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 368	21 50 55.6	+58 59 00	14 x 3	5	30 x 30	19

Barnard 167



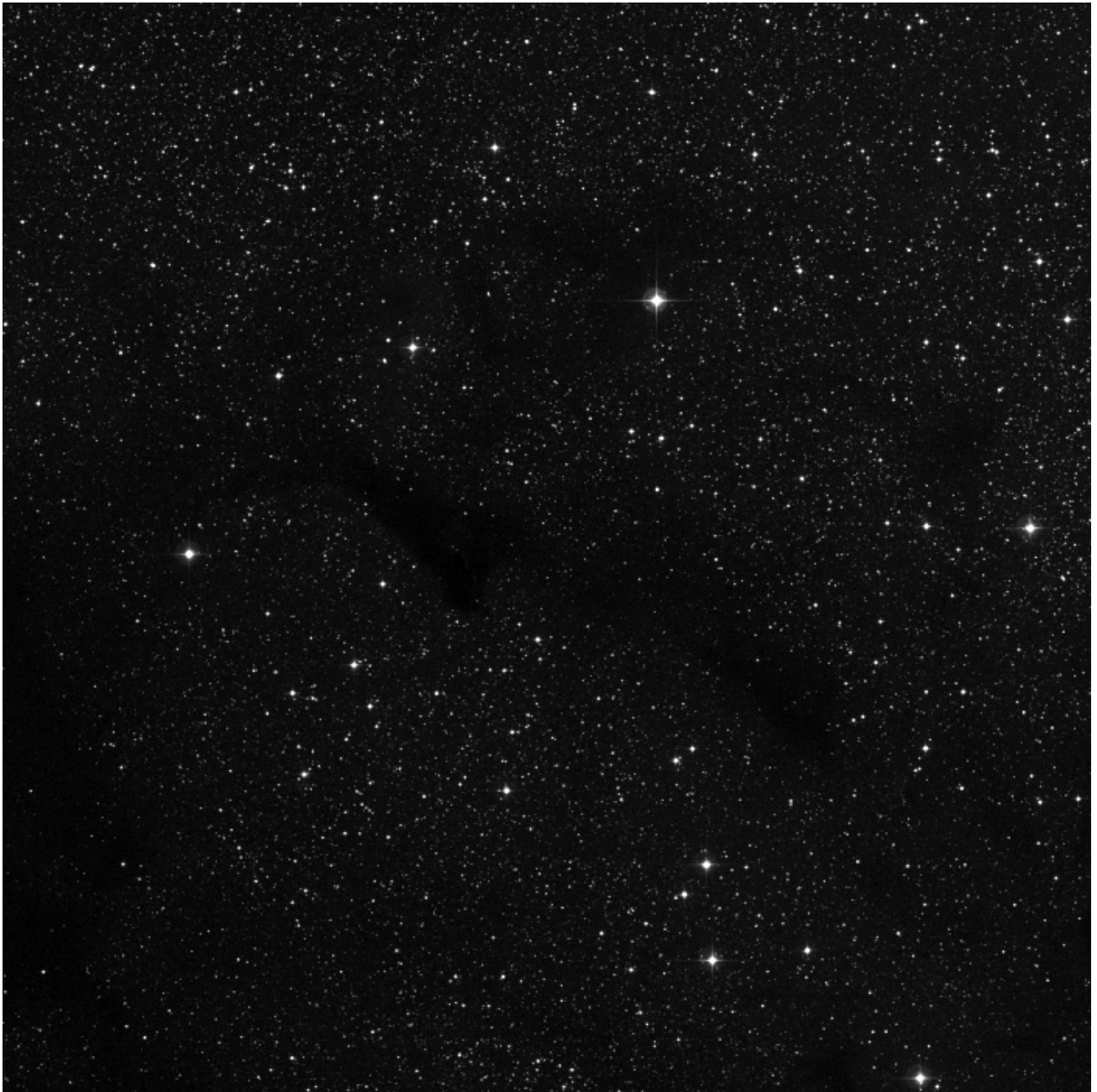
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 167	21 51 58.2	+60 04 00	5 x 5	5	40 x 40	19

Barnard 169



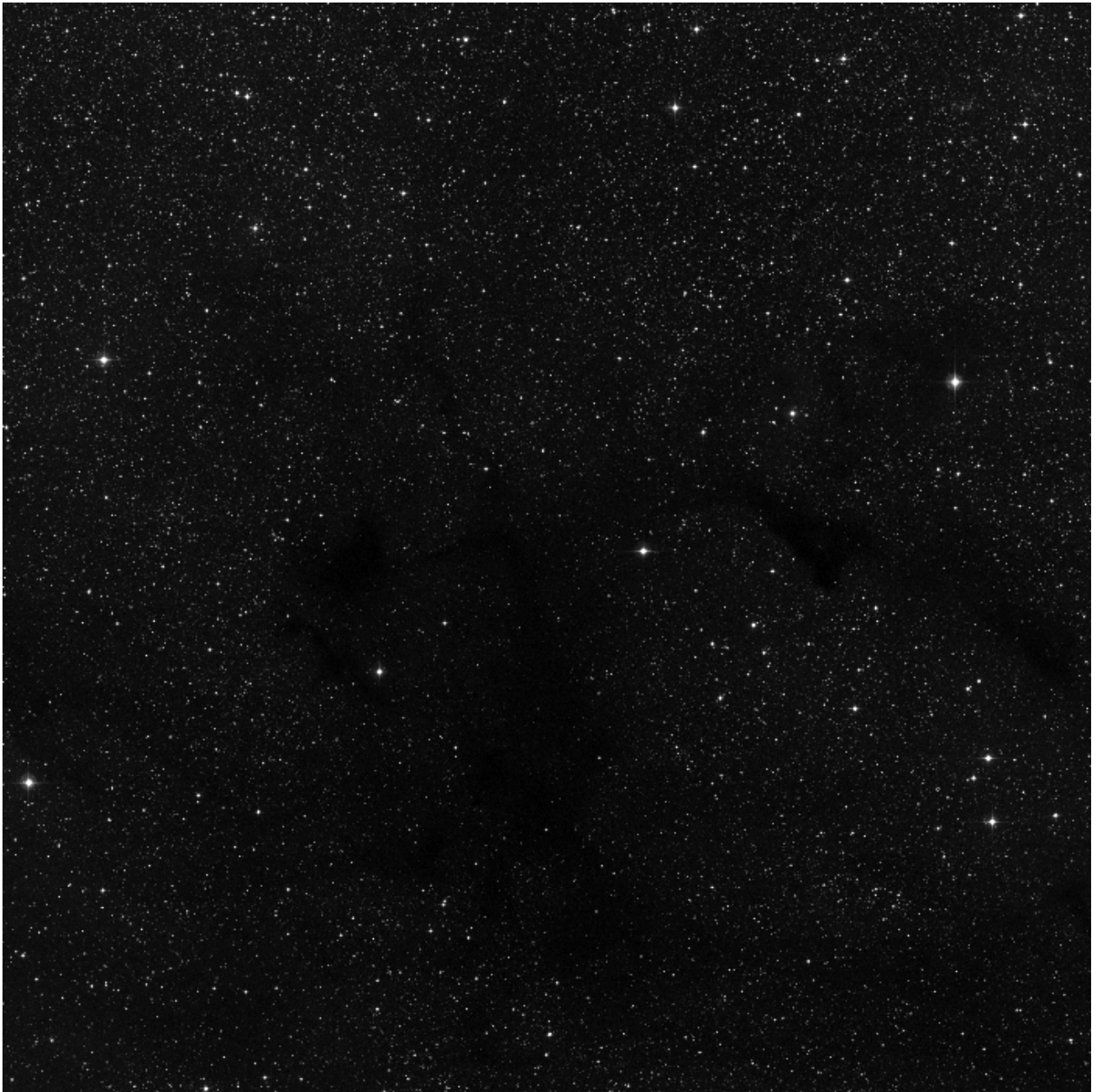
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 169	21 58 52.9	+58 46 00	60 x 60	3	60 x 60	19

Barnard 170



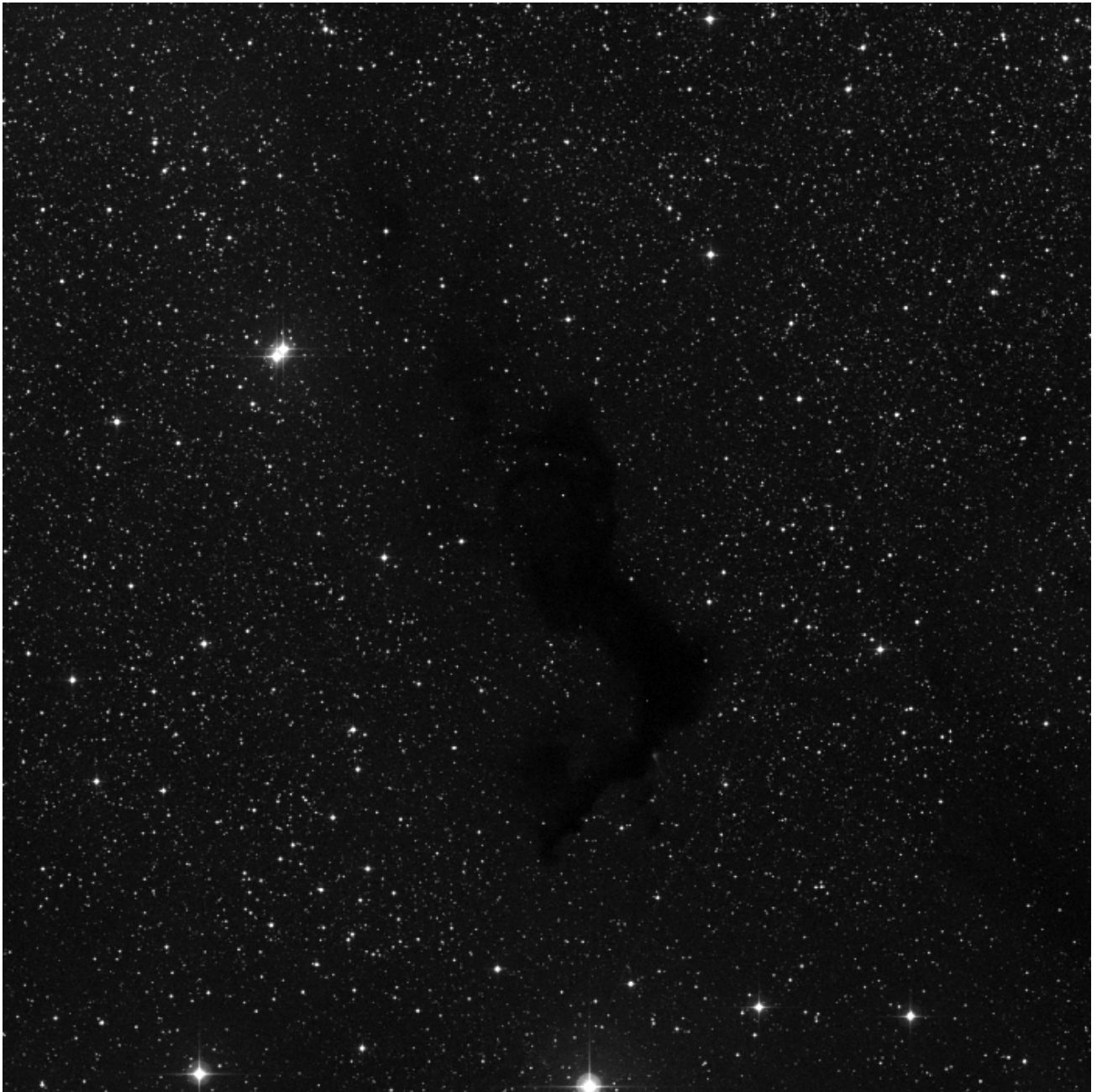
Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 170	21 58 02.9	+58 58 00	26 x 4	4	40 x 40	19

Barnard 171



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 171	22 01 18.8	+58 52 00	19 x 19	5	60 x 60	19

Barnard 174



Object	RA (2000)	DEC (2000)	Dim ' Maj x min	Opacity	Photo size '	Ur 2000.0
Barnard 174	22 07 19.9	+59 05 00	19 x 19	6	40 x 40	19