

Revised list of Sir William Herschel's Fifty-Two Fields of Diffuse Nebulosity

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Abstract

William Herschel's catalogue of more than 2500 nonstellar celestial objects is without doubt one of the great astronomical achievements of this exceptional astronomer. Largely unknown, however, is a list containing fifty-two fields of extensive nebulosity, which Herschel published in 1811 as a supporting argument to his nebular hypothesis (Herschel, 1811: 275–276), all of which were observed as a by-product of his sweeps between 1783 and 1802. For the purpose of a final revision of Herschel's objects, his sister Caroline's copies of the eight observing books containing the results of his decade-long sweeps (Herschel, Herschel and Herschel, 2004) were analyzed. As a result, a number of errors and inaccuracies were found and corrected. Furthermore, the terminology used to describe the observed nebulosities—which differed widely from that used by Herschel to describe non-stellar objects in his better-known catalogues of nebulae—was investigated in order to obtain a clearer impression of the appearance of Herschel's objects. The resulting revised list, being one principal result of the review of Herschel's list of fifty-two nebulosities, contains corrected physical information on each of the nebulosities. It further gives estimates on the reliability of Herschel's observations and finally summarizes all of the noticed peculiarities in a separate column.

1 Introduction

William Herschel's catalogue of more than 2500 nonstellar celestial objects is without doubt one of the great astronomical achievements of this exceptional astronomer. Largely unknown, however, is a list containing fifty-two fields of extensive nebulosity, which Herschel published in 1811 as a supporting argument to his nebular hypothesis (Herschel, 1811: 275–276), all of which were observed as a by-product of his sweeps between 1783 and 1802. For the purpose of a final revision of Herschel's objects, his sister Caroline's copies of the eight observing books containing the results of his decade-long sweeps (Herschel, Herschel and

Herschel, 2004) were analyzed. As a result, a number of errors and inaccuracies were found and corrected. Furthermore, the terminology used to describe the observed nebulosities—which differed widely from that used by Herschel to describe non-stellar objects in his better-known catalogues of nebulae—was investigated in order to obtain a clearer impression of the appearance of Herschel’s objects. The resulting revised list, being one principal result of the review of Herschel’s list of fifty-two nebulosities, contains corrected physical information on each of the nebulosities. It further gives estimates on the reliability of Herschel’s observations and finally summarizes all of the noticed peculiarities in a separate column.

Thus, this list contains all the information found about each object in the observing books, which in case of multiple entries partially resulted in more than one row per object. Also, six notes on objects with characteristics that were similar as the nebulosities but excluded from Herschel’s list have been added. The first seven rows show the original datasets of Herschel’s list of extensive fields of nebulosity as published in 1811, with the epoch of the coordinates 1800.0. The abbreviation ‘RA’ stands for ‘right ascension’ and ‘Decl’ for ‘declination’, but Herschel used ‘polar distance’ (‘PD’; $PD = 90^\circ - \text{declination}$) instead of declination. The next ten columns catalogue the extracted information from Herschel’s observational logs. The column ‘Recorded description’ contains the unchanged records of Herschel’s visual impressions during his observation(s) of each field.

2 The List

The list is given in the Appendix.

References

- Herschel, W., 1811. Astronomical observations relating to the construction of the heavens, arranged for the purpose of a critical examination, the result of which appears to throw some new light upon the organization of the celestial bodies. *Philosophical Transactions of the Royal Society of London*, 101, 269–336.
- Herschel, W., Herschel, L., and Herschel, J.F.W., 2004. *The Herschel Archive*. London, Royal Astronomical Society (electronic resource: 3 computer optical discs).
- Latusseck, A. 2008. William Herschel’s Fifty-Two Fields of Diffuse Nebulosity – a Revision, *Journal of Astronomical History and Heritage*, 11(3), 235–246.

Abbreviations:

RA	-	right ascension	PD	-	polar distance
Decl.	-	declination	B / B.	-	bottom
n, s	-	north, south	p, f	-	preceding (west), following (east)

Herschel's 1811 description							recorded datasets (from logbook)									Remarks
No.	RA 1800.0	Decl. 1800.0	RA extension	Decl. extension	Size	Account of the Nebulosity	Sweep no.	Date of observa- tion	Recorded descrip- tion	RA 1800.0 Most probable eastern border	Object RA 1800.0	RA 1800.0 Most probable western border	Breadth of Sweep	Decl. top 1800.0	Decl. bottom 1800.0	
1	00h 05m 02s	+08° 53'	1° 44'	1° 55'	3,3°	Much affected with nebulosity	52	1783 Dec 19	Much nebulosity.	23h 41m 02s	00h 02m 02s	00h 08m 02s	01° 40'	+09° 43'	+08° 03'	
							52	1783 Dec 19	Much nebulosity many L. [large stars]	00h 02m 02s	00h 08m 02s	00h 18m 02s	01° 40'	+09° 43'	+08° 03'	
2	00h 12m 31s	+04° 26'	3° 00'	2° 34'	7,7°	Much affected	338	1784 Dec 13	B much affected.	00h 05m 01s	00h 07m 01s	00h 18m 01s	02° 19'	+04° 36'	+02° 17'	Succeeding sweep record is nebu- losity #4.
3	00h 17m 17s	+28° 36'	0° 41'	2° 40'	1,8°	Affected	266	1784 Sept 11	The ground affected.	00h 15m 17s	00h 16m 17s	00h 19m 29s	02° 25'	+29° 50'	+27° 25'	Possible weather interference: preceding: „Very clear”; following: „A faint haziness, very clear, flying haziness, clear again”
4	00h 20m 31s	+03° 26'	1° 30'	2° 34'	3,6°	Much affected	338	1784 Dec 13	B very much affected, rather more so than I have seen it before. I wish it were possible to compare it with some very distant situation.	00h 07m 01s	00h 18m 01s	00h 28m 01s	02° 19'	+04° 36'	+02° 17'	Continuation of nebulosity #2 (from same sweep). Deception? Succeeding record: „In this sweep I found the faint kind of suspected nebulosity again as before at 0h 10'; but removing the tele- scope sideways to a part 10 or 12 degrees preceding where I had found B very pure I could perceive no difference and believe this kind of deception is owing to the snow which covers the ground, northern lights that illuminate the snow, and a pretty high wind that agitates the air.”
5	00h 25m 05s	+22° 52'	0° 29'	2 34'	1,2°	Much affected	328	1784 Dec 4	B much affected.	00h 22m 35s	00h 24m 35s	00h 26m 41s	02° 20'	+24° 04'	+21° 44'	Possible weather interference: „A very thin whitish haziness all over.”

No.	RA 1800.0	Decl. 1800.0	RA extension	Decl. extension	Size	Account of the Nebulosity	Sweep no.	Date of observa- tion	Recorded descrip- tion	RA 1800.0 Most probable eastern border	Object RA 1800.0	RA 1800.0 Most probable western border	Breadth of Sweep	Decl. top 1800.0	Decl. bottom 1800.0	Remarks
6	00h 31m 22s	-00° 04'	2° 30'	2° 19'	5,7°	Appeared to be affected with very faint nebulosity	988	1790 Dec 28	The whole sweep appeared to be af- fected with very faint nebulosity.	00h 11m 51s	00h 35m 51s	00h 35m 51s	02° 04'	+00° 50'	-01° 14'	Eastern and western borders are RA borders of the whole sweep (begin- ning and end); RA extension calculation could not be re-enacted.
7	00h 32m 54s	+40° 37'	1° 22'	3° 01'	4,7°	Affected with nebu- losity	613	1786 Oct 17	B. still affected; almost the whole breadth of the sweep.	00h 32m 25s	00h 35m 18s	00h 38m 40s	02° 46'	+41° 51'	+39° 05'	Possible interference by aurora borealis. This observation is the immediate successor to M31/M32 observation.
8	00h 34m 21s	+38° 43'	1° 17'	2° 49'	3,6°	Unequally affected	618	1786 Oct 18	B. affected.	00h 32m 22s	00h 34m 00s	00h 35m 00s	02° 34'	+39° 54'	+37° 20'	Near M 31.
							618	1786 Oct 18	B. still affected, the whole breadth of the sweep, but unequally.	00h 34m 00s	00h 35m 00s	00h 37m 00s	02° 34'	+39° 54'	+37° 20'	Near M 31.
							618	1786 Oct 18	Even now it becomes doubtful whether B. be not still affected.	00h 35m 00s	00h 37m 00s	00h 38m 40s	02° 34'	+39° 54'	+37° 20'	Near M 31.
9	00h 36m 13s	+42° 57'	2° 37'	3° 18'	8,6°	Suspected faint nebulosity	-	-	[nonexisting]							Near M 31. Duplicate entry – nebulosity #9 is identical to #10. Both nebulosities cover almost the same sky region; #10 immediately follows #9. The log entry records the sky bottom to be affected with nebulosity at RA=0h37m, to be corrected by 0h06m which results in RA=0h43m. Obviously, because both positions for this region are recorded in the same place, Herschel later must have regarded them as two separate objects. Thus, nebulosity #9 was assigned the uncorrected coordi- nates, while #10 was assigned he corrected ones.
10	00h 43m 32s	+43° 02'	0° 26'	3° 18'	1,4°	Suspected faint nebulosity	621	1786 Oct 24	I suspect F. [faint] nebulosity diffused over the sweep; but may be a deception.	00h 30m 06s	00h 43m 02s	00h 49m 06s	03° 03'	+44° 23'	+41° 20'	Near M 31. Possible deception, according to Herschel; „diffused over the sweep”: RA extensions only one field of view plus 1 min in RA

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11	01h 35m 32s	+29° 18'	0° 26'	3° 18'	1,4°	Suspected to be tinged with milky nebulosity	680	1787 Jan 11	I suspect the heavens throughout the breadth of the sweep, to be tinged with milky nebulosity.	01h 30m 18s	01h 35m 02s	01h 41m 32s	02° 25'	+30° 29'	+28° 04'	Near M 33.
12	02h 22m 19s	+18° 33'	0° 28'	2° 40'	1,3°	Much affected with nebulosity	481	1785 Nov 29	B. much affected.	02h 19m 25s	02h 21m 49s	02h 29m 16s	02° 14'	+19° 35'	+17° 21'	Possible interference by aurora borealis.
13	03h 56m 14s	+24° 54'	0° 29'	2° 29'	1,2°	Much affected	485	1785 Dec 7	The stars very unequally scattered and B much affected.	03h 48m 14s	03h 55m 14s	03h 58m 33s	02° 12'	+25° 59'	+23° 47'	
14	04h 17m 21s	+34° 53'	0° 29'	2° 27'	1,7°	Suspected pretty strong nebulosity	1057	1794 Jan 2	Pretty strong nebulosity all over the sweep; there is however a possibility of a deception.	04h 18m 21s	04h 19m 21s	04h 22m 21s	02° 33'	+35° 51'	+33° 18'	Possible weather interference, according to Herschel (see below).
							1057	1794 Jan 2	The faint nebulosity continues.	04h 19m 21s	04h 22m 21s	04h 25m 21s	02° 33'	+35° 51'	+33° 18'	Possible weather interference, according to Herschel (see below).
							1057	1794 Jan 2	I found the sky covered with a faint haziness; so that the apparent nebulosity may be owing to that cause; though the stars I saw were not affected with halo's as they generally are when surrounded by haziness.	04h 22m 21s	04h 25m 21s	04h 25m 21s	02° 33'	+35° 51'	+33° 18'	Possible weather interference, according to Herschel.
15	04h 18m 21s	+34° 54'	1° 04'	2° 38'	2,8°	Suspected nebulosity	1057	1794 Jan 2	I suspect faint nebulosity over the whole breadth of the sweep, I perceived it 3 or 4 minutes ago.	04h 16m 52s	04h 18m 21s	04h 19m 21s	02° 33'	+35° 51'	+33° 18'	

No.	RA 1800.0	Decl. 1800.0	RA extension	Decl. extension	Size	Account of the Nebulosity	Sweep no.	Date of observa- tion	Recorded descrip- tion	RA 1800.0 Most probable eastern border	Object RA 1800.0	RA 1800.0 Most probable western border	Breadth of Sweep	Decl. top 1800.0	Decl. bottom 1800.0	Remarks
16	04h 21m 35s	-07° 44'	1° 53'	2° 38'	5,0°	Strong milky nebulo- sity	782	1787 Nov 18	Strong milky nebulo- sity throughout the whole breadth of the sweep; but I have not been long enough perfectly to distin- guish it from the appearance occa- sioned by the impres- sion of light.	04h 10m 05s	04h 21m 05s	04h 24m 11s	02° 00'	-06° 44'	-08° 44'	Possible deception due to insuffi- cient dark adaption of the eyes.
17	04h 23m 14s	+20° 37'	0° 30'	2° 15'	1,1°	Much affected	329	1784 Dec 5	B much affected.	04h 18m 44s	04h 22m 44s	04h 29m 44s	02° 20'	+21° 45'	+19° 25'	Possible interference with gegen- schein (sun 173° east). Possible weather interference. Weather records around the time of observation: „A very thin whitish haziness all over”; „The haziness encreases”; „Cloudy”.
18	04h 38m 17s	+20° 37'	0° 29'	2° 36'	1,3°	Much affected	329	1784 Dec 5	B much affected.	04h 33m 14s	04h 33m 44s	04h 34m 44s	02° 21'	+21° 48'	+19° 27'	Possible interference with gegen- schein (sun 173° east). Position in RA deviates by 3 arcmin from listed value.
19	04h 46m 17s	+26° 35'	0° 29'	2° 36'	1,3°	Strong suspicion of very faint milky nebulosity	627	1786 Oct 26	A strong suspicion of very F. [faint] milky nebulosity, throughout the whole breadth of the sweep.	04h 31m 22s	04h 43m 02s	04h 46m 22s	02° 16'	+27° 45'	+25° 29'	
							627	1786 Oct 26	Still the same; but may be a deception.	04h 43m 02s	04h 46m 22s	04h 49m 47s	02° 16'	+27° 45'	+25° 29'	Possible deception, according to Herschel.
							627	1786 Oct 26	On making a great deal of side motion, I still cannot come to any certainty of the suspected nebulosity; however the motion is neither sufficiently extensive, nor quick enough.	04h 49m 47s	04h 51m 22s	05h 25m 53s	02° 16'	+27° 45'	+25° 29'	Uncertain observation, according to Herschel.

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20	05h 09m 44s	+24° 54'	1° 46'	2° 31'	4,4°	Very much affected	485	1785 Dec 7	B. very much affected.	04h 58m 08s	05h 07m 14s	05h 18m 14s	02° 12'	+25° 59'	+23° 47'	Possible interference with gegen- schein (sun 177° west). The record for #20 is followed by the #21 entry. Thus, both records describe the same area of nebulosi- ty.
21	05h 13m 14s	+24° 54'	1° 23'	2° 27'	3,4°	Affected	485	1785 Dec 7	Most S.S. [small stars] and B affected.	05h 07m 14s	05h 18m 14s	05h 16m 57s	02° 12'	+25° 59'	+23° 47'	Possible interference with gegen- schein (sun 177° west). The #21 record is preceded by the #20 record both fields represent the same area of nebulosity.
22	05h 23m 59s	-07° 01'	0° 29'	2° 27'	1,7°	Affected with milky nebulosity	528	1786 Feb 23	A star with milky chevelure; but the milkyneess belongs to the rest that is diffused over the sweep in this place. 36 (ψ) Orionis f 4'29'' n 0°37' ...	05h 25m 51s	05h 26m 41s	05h 27m 49s	02° 15'	-05° 50'	-08° 05'	Possible weather interference: weather records around observation: „Flying clouds“, „Clouds inter- rupted observation“; then „...the evening being remarkably clear.“
							529	1786 Feb 24	B. affected with milky nebulosity all the breadth of the sweep, sometime before Y was taken. Mem. v, certainly affected; but no more than what the tinge of the bottom in this neighbourhood will account for (1308)	05h 15m 10s	05h 22m 12s	05h 26m 38s	02° 16'	-05° 53'	-08° 09'	No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area.
							529	1786 Feb 24	A star with a milky chevelure; much stronger, than what the milky nebulosity with which the ground is affected intitles it to. 36 (ψ) Orionis f 4'26'' n 0°36' RA 5 26'38'' PD 96°51' (1145)	05h 22m 18s	05h 26m 38s	05h 28m 00s	02° 16'	-05° 53'	-08° 09'	No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area.

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22 / 26	05h 23m 59s	-07° 01'	0° 29'	2° 27'	1,7°	Affected with milky nebosity	529	1786 Feb 24	B. still certainly affected. From RA 5h28'0'' to 5h28'45'' and PD from 95°51' to 98°7'.	05h 26m 38s	05h 28m 00s	05h 28m 45s	02° 16'	-05° 53'	-08° 09'	V-35 No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area. Original dataset is that of #22.
							528	1786 Feb 23	From the transit of the four stars 5h28'12'' to this last 5h31'7''; the whole breadth of the sweep contains very evidently milky nebosity of different degrees of brightness in different parts. RA from 5h25'29'' to 5h28'18 & PD from 95°51' to 98°04' (1321)	05h 26m 41s	05h 27m 49s	05h 28m 18s	02° 15'	-05° 50'	-08° 05'	V-35 Possible weather interference. Succeeding record: „Clouds inter- rupt the observations”. No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area. Original dataset is that of #22.
23	05h 25m 16s	-02° 48'	2° 31'	2° 31'	6,3°	Affected	518	1786 Feb 1	ε passed, and I am pretty sure is involved in Nebulosity, un- equally diffused. ...	05h 22m 38s	05h 25m 39s	05h 28m 42s	02° 18'	-01° 24'	-03° 42'	V-35
24	05h 27m 02s	-04° 23'	0° 30'	2° 40'	1,3°	Visible and unequally bright nebosity. I am pretty sure this joins to the great nebula in Orion	510	1786 Jan 18	I returned to the c's Orionis and the stars about them; and found them as suspected involved in very visibly, and unequally bright milky nebulo- sity. I am pretty sure this joins to the great nebula.	05h 27m 00s	05h 27m 00s	05h 43m 00s	02° 17'	-03° 20'	-05° 37'	V-35 Possible interference by moonlight. RA value is not very accurate - Herschel did not compute the correction value for this sweep. According to the other records made during the sweep, the most probable RA correction value is about - 00h05m00s.

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25	05h 30m 40s	-02° 35'	1° 48'	2° 32'	4,6°	Diffused nebulousity milky	518	1786 Feb 1	Beginning of Nebulosity: RA 5h30'8''9 PD 92°0'	05h 30m 08s	05h 30m 08s	05h 31m 26s	02° 18'	-02° 00'	-03° 42'	V-35; IC 434 region. Position corrected according to Herschel's remark.
							518	1786 Feb 1	Wonderful black space included in Nebulosities. 48 (σ) Orionis f. 2'46''n 0°44' RA 5h31'27'' PD 92°0' (1280)	05h 30m 07s	05h 31m 26s	05h 31m 29s	02° 18'	-01° 24'	-03° 42'	V-35 Discovery of Horsehead Nebula (IC 434 / Barnard 33). σ Orionis is not, as recorded, following („f”) but preceding („p”) the „black space” by the noted angle.
							518	1786 Feb 1	Nebulosity continues. RA 50h31'30'' [sic!]	05h 31m 26s	05h 31m 29s	05h 32m 19s	02° 18'	-01° 24'	-03° 42'	V-35; IC 434 region. The RA position actually reads: „50h31'30'' “
26	05h 31m 58s	-07° 01'	2° 45'	2° 33'	7,0°	A pretty strong suspicion of nebulosity	529	1786 Feb 24	It becomes doubtful now. From RA 5h29'20'' to 5h30'14'', and PD from 95°51' to 98°7'	05h 26m 38s	05h 28m 23s	05h 29m 20s	02° 16'	-05° 53'	-08° 09'	V-35; IC 434 region. No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area.
							529	1786 Feb 24	Still a suspicion. From RA 5h31'0'' to 5h31'21'' & PD from 95°51' to 98°7'.	05h 28m 45s	05h 31m 00s	05h 32m 27s	02° 16'	-05° 53'	-08° 09'	V-35 No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area.
							529	1786 Feb 24	B. pretty pure. From RA 5h32'29'' to 5h32'52'' & PD from 95°51' to 98°7'	05h 31m 21s	05h 32m 27s	05h 34m 25s	02° 16'	-05° 53'	-08° 09'	V-35 Position corresponds with nebulosity #26, but sky bottom observed „pure”! No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area.
							529	1786 Feb 24	Still a pretty strong suspicion. From RA 5h34'27'' to 5h36'11' and PD from 95°51' to 98°7'	05h 32m 50s	05h 35m 04s	05h 41m 40s	02° 16'	-05° 53'	-08° 09'	V-35 RA for this entry is the third of six successive records. No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area.

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27	05h 38m 05s	+01° 05'	1° 56'	2° 31'	4,9°	Affected with milky nebulosity	526	1786 Feb 22	I am pretty sure this space is attached with milky nebulosity. RA between 5h38'36''- 39'46'' PD between 87°45' 90° 7'	05h 36m 36s	05h 39m 23s	05h 42m 02s	02° 22'	+02° 18'	-00° 04'	Region of <i>Barnard's Loop</i> . RA position is mean value of those recorded consecutively during this sweep. No positional corrections despite Herschel's remark: all records for #22 and #26 cover a continuous sky area.
28	05h 55m 55s	+03° 43'	1° 06'	2° 37'	2,9°	Much affected	337	1784 Dec 12	B much affected.	05h 47m 25s	05h 55m 25s	05h 59m 31s	02° 23'	+04° 53'	+02° 30'	Possible weather interference: Conditions change repeatedly from „cloudy” to „very clear”
29	05h 56m 36s	-20° 28'	0° 30'	2° 34'	1,3°	Affected	304	1784 Oct 20	B affected.	05h 49m 12s	05h 53m 18s	05h 59m 54s	02° 33'	-19° 11'	-21° 44'	Favourable weather conditions: „The morning remarkably clear.”
30	06h 33m 07s	+41° 21'	1° 48'	2° 48'	5,0°	Affected	813	1788 Mar 4	B. not pure.	06h 20m 43s	06h 32m 33s	06h 35m 13s	02° 49'	+42° 44'	+39° 55'	
31	09h 22m 56s	-18° 03'	0° 26'	3° 04'	1,3°	Affected	368	1785 Feb 7	B affected.	09h 16m 26s	09h 22m 26s	09h 23m 40s	02° 36'	-17° 04'	-19° 40'	
32	09h 27m 19s	+71° 39'	0° 29'	2° 30'	1,2°	Much affected with very faint whitish nebulosity	1112	1802 Sep 30	B. much affected with very faint whitish nebulosity, especially the lowest half of the sweep.	09h 24m 48s	09h 26m 19s	09h 32m 20s	03° 49'	+73° 30'	+69° 41'	
33	10h 06m 56s	-08° 33'	0° 24'	4° 04'	1,6°	Very faint whitish nebulosity	1035	1793 Apr 5	There seems to be a very faint whitish nebulosity all over the sweep; at first I supposed it to be owing to having been in the light, but now I suspect it to be in the heavens.	09h 48m 26s	10h 14m 26s	10h 17m 26s	02° 02'	-09° 29'	-11° 31'	Published declination value deviates 2° from observed position. The eastern and western RA boundaries represent the whole length of the sweep in RA, accord- ing to Herschel's explicit record.
34	10h 16m 01s	+52° 02'	3° 58'	2° 17'	9,1°	Much affected	950	1790 Mar 18	B. much affected.	09h 59m 31s	10h 15m 31s	10h 17m 45s	03° 54'	+54° 28'	+50° 34'	

No.	RA 1800.0	Decl. 1800.0	RA extension	Decl. extension	Size	Account of the Nebulosity	Sweep no.	Date of observa- tion	Recorded descrip- tion	RA 1800.0 Most probable eastern border	Object RA 1800.0	RA 1800.0 Most probable western border	Breadth of Sweep	Decl. top 1800.0	Decl. bottom 1800.0	Remarks
35	10h 34m 29s	+63° 16'	0° 24'	4° 09'	1,7°	Affected with very faint nebulosity	1102	1801 Nov 28	L. cB. IE [large, considerably bright, largely extended] in the mer. [meridian] about 5' long and 3' broad vgbM [very gradually brighter in the middle]. The nebulosity seems to be of the milky kind, it loses itself imperceptibly all around. The whole breadth of the sweep seems to be affected with iF [irregular faint] nebulosity. ...	10h 30m 40s	10h 33m 17s	10h 37m 06s	03° 00'	+65° 00'	+62° 00'	
36	10h 58m 24s	+63° 16'	0° 29'	3° 15'	1,6°	Affected	1102	1801 Nov 28	B. much clearer than it was some time ago.	10h 51m 06s	11h 00m 12s	11h 13m 47s	03° 00'	+65° 00'	+62° 00'	Doubtful observation. Herschel's description suggests affected sky bottom east of the noted position, but not in this very place.
37	11h 56m 59s	+31° 10'	0° 42'	3° 15'	2,3°	Affected with whitish nebulosity	805	1788 Feb 3	A few minutes ago I thought my field was affected with whitish nebulosity throughout the whole breadth, also some short time before the Nebula 11h52'25', but I could not verify it.	12h 02m 13s	12h 06m 34s	12h 07m 25s	02° 39'	+32° 39'	+30° 00'	Uncertain observation, according to Herschel. The mentioned nebula is recorded as: „F. vL. vgmbM. with vF. nebulosity surrounding it to a great distance. ...” [„faint – very large – very gradually much brighter in the middle with very faint nebulosity surrounding it to a great distance ...”].
38	12h 07m 34s	+31° 10'	0° 41'	2° 54'	2,0°	Affected with whitish nebulosity	1036	1793 Apr 6	B. considerably affected.	12h 06m 29s	12h 08m 59s	12h 21m 17s	02° 50'	+67° 45'	+70° 35'	Erroneous record! Except for RA, the complete dataset of the preceding nebulosity #37 has been copied by mistake and taken as #38, including description. Nebulosity #38 does indeed exist, but has this completely differing dataset.

39	13h 07m 33s	+34° 40'	0° 41'	2° 54'	2,0°	Much affected	407	1785 May 3	B. much affected.	13h 04m 47s	13h 07m 03s	13h 09m 13s	02° 02'	+35° 41'	+33° 39'	
No.	RA 1800.0	Decl. 1800.0	RA extension	Decl. extension	Size	Account of the Nebulosity	Sweep no.	Date of observa- tion	Recorded descrip- tion	RA 1800.0 Most probable eastern border	Object RA 1800.0	RA 1800.0 Most probable western border	Breadth of Sweep	Decl. top 1800.0	Decl. bottom 1800.0	Remarks
40	13h 58m 00s	+34° 40'	0° 27'	2° 17'	1,0°	Very much affected; and many faint nebulae suspected	406	1785 May 2	B very much affected, and very many faint nebulae suspected in this neighbourhood.	13h 55m 12s	13h 57m 00s	14h 18m 00s	02° 02'	+35° 53'	+33° 51'	
41	15h 05m 07s	+19° 20'	0° 42'	2° 17'	1,6°	Affected with very faint nebulosity	1006	1791 May 24	The whole breadth of the sweep is affected with vF. [very faint] nebulosity and has been so since the time 14h56'4'' when I took the involved star.	05h 04m 05s	15h 06m 37s	05h 08m 52s	02° 16'	+20° 30'	+18° 14'	
							1006	1791 May 24	The whole breadth of the sweep still af- fected; the heavens to the naked eye per- fectly clear.	15h 06m 37s	15h 08m 52s	15h 12m 07s	02° 16'	+20° 30'	+18° 14'	
							1006	1791 May 24	... Apparently envel- oped in extensive milky nebulosity; but I am not sure whether there may not be a deception till I have another star of about the same size. ...	14h 42m 04s	14h 58m 09s	14h 58m 48s	02° 16'	+20° 30'	+18° 14'	Uncertain observation, according to Herschel.
42	20h 58m 00s	-02° 17'	1° 52'	2° 31'	4,7°	Much affected with whitish nebulosity	1110	1802 Sep 26	B. affected with very faint whitish nebulos- ity.	20h 28m 01s	20h 45m 19s	20h 51m 19s	02° 06'	-01° 20'	-03° 26'	Erroneous record! RA is 0h10' larger than listed originally. Nebulosities #42, #45 possibly represent the same object; log entries for both fields succeed each other during the same sweep.

No.	RA 1800.0	Decl. 1800.0	RA extension	Decl. extension	Size	Account of the Nebulosity	Sweep no.	Date of observa- tion	Recorded descrip- tion	RA 1800.0 Most probable eastern border	Object RA 1800.0	RA 1800.0 Most probable western border	Breadth of Sweep	Decl. top 1800.0	Decl. bottom 1800.0	Remarks
43	20h 48m 50s	+16° 22'	0°29'	2° 52'	1,4°	A good deal affected	290	1784 Oct 15	B a good deal af- fected.	20h 37m 20s	20h 46m 20s	20h 59m 20s	02° 37'	+17° 40'	+15° 03'	
43	20h 48m 50s	+16° 22'	0°29'	2° 52'	1,4°	A good deal affected	276	1784 Sep 18	The ground not quite pure; but here & there affected with stars too small to be distin- guished.	20h 13m 28s	20h 35m 04s	21h 05m 28s	02° 40'	+19° 56'	+17° 16'	Inexact coordinates, RA record for description is 2.5° away from listed position. East and west RA bounda- ries are separated by 12.5°, nebulos- ity #43 might be placed anywhere in between.
44	20h 51m 04s	+43° 09'	1° 45'	2° 21'	4,1°	Faint milky nebulos- ity scattered over this space, in some places pretty bright	620	1786 Oct 24	vL. [very large] diffused nebulosity plainly visible ... and loosing itself gradu- ally.	20h 50m 11s	20h 51m 09s	20h 52m 13s	03° 03'	+44° 17'	+41° 14'	
							959	1790 Sep 11	B. considerably affected.	20h 47m 08s	20h 48m 54s	20h 49m 30s	02° 38'	+43° 59'	+41° 21'	
45	20h 52m 28s	-01° 57'	0° 29'	2° 52'	1,4°	Much affected with whitish nebulosity	1110	1802 Sep 26	From this PD (92°45') down to the bottom of the sweep B. is very pure; The upper part is much affected.	20h 45m 19s	20h 51m 19s	20h 52m 39s	02° 06'	-01° 20'	-02° 45'	Nebulosities #42, #45 possibly represent the same object; records for both fields succeed each other during the same sweep. Bottom declination corrected according to Herschel's remark (bottom declination of sweep is -3° 26').

No.	RA 1800.0	Decl. 1800.0	RA extension	Decl. extension	Size	Account of the Nebulosity	Sweep no.	Date of observa- tion	Recorded descrip- tion	RA 1800.0 Most probable eastern border	Object RA 1800.0	RA 1800.0 Most probable western border	Breadth of Sweep	Decl. top 1800.0	Decl. bottom 1800.0	Remarks
46	20h 53m 31s	+42° 53'	0° 59'	2° 53'	2,8°	Suspected nebulosity joining to plainly visible diffused nebulosity	959	1790 Sep 11	Faint milky nebulosity scattered over this space, in some places pB [pretty bright]. The brightest part of it about the place of my V.37.	20h 49m 30s	20h 52m 14s	20h 55m 14s	02° 38'	+43° 59'	+41° 21'	Herschel consciously distinguishes between nebula V.37 (NGC 7000, North America Nebula) and affected sky bottom. 5 records altogether, one descrip- tion. RA position is the third of the five.
							620	1786 Oct 24	All this time sus- pected diffused nebulosity throughout the whole breadth of the sweep. RA From 20h52'9'' to 20h55'46'' PD from 45°35' to 48°38'	20h 52m 09s	20h 53m 10s	20h 55m 46s	03° 03'	+44° 17'	+41° 14'	4 records altogether; one descrip- tion. RA position is the second of the four. Right ascension borders corrected according to Herschel's remark.
47	21h 00m 26s	+13° 57'	0° 49'	0° 56'	0,8°	Affected	294	1784 Oct 16	B affected	20h 51m 56s	20h 59m 26s	21h 03m 56s	02° 31'	+15° 13'	+12° 42'	
48	21h 29m 27s	+09° 52'	1° 08'	3° 18'	3,7°	Much Affected	419	1785 Aug 6	B. much affected.	21h 13m 01s	21h 29m 01s	21h 29m 01s	02° 00'	+10° 52'	+08° 52'	Weather interference? Preceding records are „Cloudy“; „Very clear“.
49	21h 42m 16s	+21° 03'	0° 44'	2° 46'	2,0°	Affected	319	1784 Nov 17	B affected, but moon light.	21h 38m 40s	21h 41m 46s	21h 58m 10s	02° 21'	+22° 14'	+19° 53'	Possible interference with moon- light.
50	22h 52m 36s	+25° 13'	0° 30'	2° 15'	1,1°	Much affected	327	1784 Dec 2	B. affected.	22h 48m 46s	22h 52m 06s	22h 57m 18s	02° 32'	+26° 29'	+23° 57'	
51	22h 53m 06s	+25° 13'	0° 29'	2° 36'	1,2°	Affected	-	-	[nonexisting]							Object is nonexistent. No appropri- ate record could be found.
52	22h 55m 29s	+28° 45'	0° 29'	2° 47'	1,3°	A little affected	267	1784 Sep 12	The bottom a little affected.	22h 51m 17s	22h 54m 59s	23h 01m 41s	02° 22'	+29° 55'	+27° 33'	Favourable weather conditions. Preceding record: „Very clear and dark.“

Previously unpublished records of *extensive nebulosity*

							recorded datasets (from logbook)									
No.							Sweep no.	Date of observa- tion	Recorded description	RA 1800.0 Most probable eastern border	Object RA 1800.0	RA 1800.0 Most probable western border	Breadth of Sweep	Decl. top 1800.0	Decl. bottom 1800.0	Remarks
none							526	1786 Feb 22	B affected with suspected milky nebulosity in the neighbourhood; but not ascertained. RA 5h11'20'' PD 88°53'	05h 09m 18s	05h 11m 18s	05h 13m 19s	02° 22'	+02° 18'	-00° 04'	Uncertain observation, according to Herschel. Favourable weather conditions: „Very dark and clear.”
none							265	1784 Sep 11	... the bottom affected with resolvable nebulosity owing to stars too small to be seen. [RA 20h59']: The bottom still affected [RA 21h05',3]: The bottom clearer but still affected [RA 21h11']: The bottom still affected	20h 40m 07s	20h 51m 07s	21h 34m 19s	02° 22'	+30° 00'	+27° 38'	Weather conditions uncertain: „A faint whitish haziness. Very clear.”
none							304	1784 Oct 20	B affected with very easy resolvable patches.	06h 37m 20s	06h 41m 08s	06h 45m 08s	02° 33'	-19° 11'	-21° 44'	Favourable weather conditions: „The morning remarkably clear.”
none							360	1785 Jan 29	Suspected faint nebulosity since the beginning of this sweep, but the wind is high and the twilight not quite gone.	02h 47m 15s	03h 02m 15s	03h 27m 15s	02° 19'	+29° 49'	+27° 30'	Possible interference with twilight.
none							269	1784 Sep 13	The bottom is affected, but evidently with stars too small for the gage.	19h 32m 13s	19h 33m 13s	19h 34m 43s	02° 46'	+35° 44'	+32° 58'	
none							224	1784 May 24	... It was preceded by many vacant fields and I had just been saying that I was on nebulous ground.	17h 11m 41s	17h 16m 29s	17h 18m 29s	02° 10'	-26° 10'	-28° 20'	Direction to Milky Way centre.