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ANNUAL REPORTS  
OF THE  
BOARD OF DIRECTORS  
OF THE  
**Chicago Astronomical Society**  
TOGETHER WITH THE  
REPORT OF THE DIRECTOR  
OF THE  
**DEARBORN OBSERVATORY,**  
FOR  
1885 AND 1886.

WITH PAPERS BY  
PROFS. SAFFORD (NEBULÆ), COLBERT (LUNAR APSIDES  
AND SIRIUS), AND HOUGH (DOUBLE STAR  
CATALOGUE AND PRINTING  
CHRONOGRAPH).

CHICAGO:  
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1887.



## APPENDIX C.

## NEBULÆ FOUND AT THE DEARBORN OBSERVATORY, 1866-8.

The following is an extract from my journals of observation of 1866-8, or rather from a copy of a portion of these journals. It was drawn up at the request of Mr. Colbert, in order to complete the record of observed nebulae.

As I have had no access to the original journals, and here at Williamstown have no copies of the principal catalogues of nebulae, I must simply rely upon my remembrance that the positions were carefully determined (by circle-readings after placing the objects in the centre field), and that in most cases the zero-points of the circles, including chronometer-correction, was immediately secured by a neighboring bright star.

I can not, of course, guarantee the accuracy of the positions; but at the time took pains immediately to reduce the observations, and, if I remember rightly, to assure myself that the nebulae in question were not in Herschel's general catalogue. The numbers are current,\* from the beginning of the work upon the nebulae till 1868, when I began the use of the meridian circle.

During those early years I was much troubled with sight-seers, and more with the faulty construction of the old dome and its shutters. These blundering contrivances greatly restricted the work which it was possible to do, and especially conditioned the declinations in which, from time to time, I found it practicable to work.

Before undertaking these labors, I had given my time chiefly to observations of precision, and took up this subject of the nebulae mainly to gain a practical acquaintance with

\* Nos. 1, 4, 17 were afterwards found identical with known nebulae.

\* Nos. 86, 88, 95, 100, and 101 were found by Mr. A. N. Skinner, then assistant at Dearborn Observatory.

these very interesting bodies. In 1868, I began the Zone  $35^{\circ}$  to  $40^{\circ}$  with the meridian circle, in order not to be without solid scientific work, and continued it until interrupted by the great fire of 1871. It was only some years afterward that the great dome was taken down and replaced by one of a more practicable construction. Family cares made it necessary for me to attend to a more practical department of astronomy from 1871 to 1876, in which year I accepted the Field memorial professorship in Williams College.

TRUMAN HENRY SAFFORD.

## NEBULE FOUND AT THE DEARBORN OBSERVATORY, 1866-8.

No.	AR. 1870·0.	Decl. 1870·0.	Description.	Date.
842 - 2	12 54 23·4	+29 44·7	pF	1866, May 3
843 - 3	55 23	29 44	FbN	3
IC 100 25	14 19 18	28 55·4	pF -	4
IC 1030 - 6	28 10	32 16·0	pF -	4
IC 1127 - 7	15 30 16	23 54·8	pF ~	4
1012 - 8	14 21 36	31 33·9	no description	9
1132 - 9	15 34 09	21 05·1	no description	9
IC 1148 - 10	15 51 15	22 47·2	neb.*	9
11	12 35 09	26 44·5	F	11
12	12 35 15	26 46·2	F	11
IC 1026 - 13	14 25 40	31 48	pB -	11
IC 949 - 14	13 46 06	23 11	pF	14
I 1006 - 15	14 16 59	24 23	F -	14
16	14 25 08	29 48	bN	14
777 - 18	12 13 00·5	29 01·3	vF	14
779 - 19	12 13 16·8	30 36·6	F	16
20	12 16 10·7	30 37·7	vB probably well known	16
21	12 31 57·2	29 39·1	F	16
22	12 47 48·0	27 09·0	neb.* 12 <sup>m</sup> -	16
23	12 52 02·5	27 06·2	pB	16
24	15 23 41	13 26·5	pB diam 30"	June 1
25	15 41 03	18 19·3	pB see good nucl.	1
26	12 20 29	23 21·2	bN (12 <sup>m</sup> ) -	6
IC 916 - 27	13 36 28	25 08·0	nucleus 13 <sup>m</sup> -	6
IC 909 - 28	13 34 41	25 09·8	no description -	6
IC 1253 - 29	17 14 06	16 48·0	F	6
30	18 06 28	21 25	pB	6
31	18 07 00	21 24	pF	6
32	18 33 24	25 15	pB pL	6
33	18 06 03·5	31 05·8	bN (12 <sup>m</sup> ) diam. 20"	7
34	18 32 54·5	25 13	pF	9
35	18 36 02·4	36 08	vmbM 40" diam. nucl. 12 <sup>m</sup>	9
36	19 26 02·4	35 29	vF undefined	9
IC 1302 - 37	19 26 37·8	35 35	vF 30" diam. w. small cluster	9
IC 1303 -	14 56 13	26 30·3	doubtful	15
38	16 52 04	28 03	vF vS iF	July 11
39	16 52 18	28 03	FSbM	11
40	16 52 48	28 02·5	pB S vmb M	11
41	17 46 27	24 30·0		11
42	19 06 05	30 19·7	SpB FmbM	12
43	19 49 47·8	28 56·2	pS F bMR	12
44	16 52 52	20 16·0	vF nearly R not vmb M pS	Aug. 1
45	17 22 06	+26 36·2	SbM pF	1

34. Same as 32?

—. Not numbered; place probably in error.

45. Precedes another H 111·137 by 11°.

No.	A.R. 1870·0.	Decl. 1870·0.	Description.	Date.
	h m s	° ' "		
46	17 56 11·5	+19 45·9	pB vmb M pS	Aug. 1
47	18 23 33	22 49·2	pS pB vmb M	9
48	17 38 20	25 52·8	pB pL vmb M (bi N ?)	28
49	17 19 25	29 31·2	neb.* 11 <sup>m</sup>	Sept. 5
IC 1392 - 50	21 30 08	34 49·1	neb.* pB vmb M	12
1340 - 51	20 50 50	30 33·9	possibly connected with h 2093	13
IC 1427 - 52	21 57 03	14 29·3	vF vS neb M	14
53	22 32 47	33 18·6	no description	14
54	18 33 14	39 56·7	pB pS gbM	28
IC 1382 - 55	21 20 52	18 05·5	pS pF IF	29
56	22 22 10	16 07·4	pS neb M N pF	Oct. 1
57	22 39 23	20 23·0	vS RhM N 13 <sup>m</sup>	1
IC 1473 - 58	23 04 55	28 55·3	F pS F gbM	1
1476 - 59	23 08 57	29 50·2	a small cluster?	1
60	0 24 28	30 06·0	probably a small cluster	8
61	1 26 09	35 01·2	S pF R bM	10
62	1 05 49	38 03·9	pS pB gar bM	29
63	1 26 11	30 00·8	pF vS probably a well-known outlier of M 33	Nov. 1
64	1 52 49	30 40·7		5
65	0 31 33	28 47·7	neb.* 13 <sup>m</sup>	5
IC 69 - 66	0 54 21	30 22·4	F iF lb M	8
178 - 67	1 51 15	35 58·6	pF neb M N = 13 <sup>m</sup>	8
68	1 52 03	30 17·3	S pF iF gbM	9
IC 96 - 69	1 13 07	28 59·2	pS pB vmb M N = 12 <sup>m</sup> , 13	Dec. 1
348 - 70	3 36 24	31 45·2	vL vgbM pB	1
200 - 71	1 59 53	30 33·0	pB pL RhM	4
I 163 - 72	1 42 10	20 04·4	pB pS bM N = 13 <sup>m</sup>	27
I 357 - 73	3 56 06	21 47·6	F S R N = 13 <sup>m</sup> , 5	1867, Jan. 1
74	7 25 54	33 05·8	pS pB vmb M N = 12 <sup>m</sup> , 13	Feb. 5
75	15 44 34	19 19·4	no description	Apr. 24
76	16 09 55	19 46·3	double nebula pF dist 40"	24
IC 1074 - 77	15 59 28	15 22·9	S pF bM N = 12 <sup>m</sup> , 5	26
IC 1014 - 78	14 22 05	+ 14 21·7	pL F vgbM R	27
79	20 13 56	- 12 45·3	pB S R N = 12 <sup>m</sup>	Aug. 24
80	20 13 38	- 12 44·5	no description	24
81	18 09 10	- 19 46·4	* 10 <sup>m</sup> pF nebulosity	28
1295 - 82	18 47 34	- 8 57·3	pL pB gb M	28
83	20 29 28	- 5 01·2	no description*	29

48. Position not certain.

49. Decl. 29° 41' 2?

64. Don't understand *copy* of notes.

70. A loose cluster with nebula.

83. Position doubtful [5966]. I suppose these numbers [5966] refer to a continuation of G.C. not within my reach. They were inserted by some one since I left Chicago. The numbers of G.C. end with 5079, and contains all nebulae then (1866) known to me.

83.\* From this point on the descriptions have not been copied from the observing book into the book sent me. T. H. S.

IC #

No.	AR. 1870.0.	Decl. 1870.0.	Description.	Date.
	h m s	° ' "		
IC 1376-	84 22 21 35	- 3 33 4		Sept. 19
	85 21 17 50	- 6 18 0		21
	86 22 49 00	- 6 12		21
IC 1524-	87 23 52 51	- 4 52 7		23
IC 1528-	88 23 58 25	- 7 50 5		23
IC 8 -	89 0 12 21	- 4 00 6	✓	23
	90 0 20 26	- 2 29 8		23
	91 0 20 44	- 2 29 3		23
	92 0 21 19	- 2 31 8		23
	93 22 49 35	+ 3 14 6		27
IC 138 -	94 0 36 43	- 0 51 2		27
	95 1 26 17	- 1 20 8	✓	27
	96 0 11 00	+ 10 42 6		30
IC 34	97 0 28 58	+ 8 24 7		Oct. 22
IC 204	98 2 00 47	- 2 00 7	✓	22
	99 23 47 31	- 0 20 6		23
IC 210	100 1 24 12	- 2 41 3		23
	101 2 03 02	- 10 17 4	✓	23
	102 3 00 15	- 1 17 5		31
	103 2 31 41	+ 1 33 0		Nov. 1
IC 911,	104 13 13 28	- 11 52 3		1868, May 20
IC 1060	105 13 56 55	- 9 30 6	✓	20
	106 14 44 58	- 6 42 1	✓	23
	107 12 15 32	+ 30 47 8		June 11
	108 11 51 42	+ 10 43 1		12

84. Position doubtful [6053].  
 85. Probably = G.C. 4654. ~~NGC 7051.~~  
 99. [6230.]  
 103. [5266.] My own note is that this nebula possibly = G.C. 581.  
 104. G.C. 3489?  
 105. [5785?] 4  
 107. See No. 20.  
 108. [5598.] 4

47. IC OBJECTS